
The Farm Management Handbook

PENNS^TATE



College of Agriculture

Edited by George L. Greaser

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PLANNING AIDS FOR FARM BUSINESS MANAGEMENT

INTRODUCTION TO THIS MANUAL

This Farm Management Manual was compiled to provide information, and some description of analytical models which can aid in farm management planning and decision analysis. The manual was not intended to teach economic theory. Appendix A does contain a glossary of common economic terms and relationships for reference purposes. The Pennsylvania State University library system contains numerous books on the subject of farm economic principles, and a list is provided in Appendix B.

Since this manual was developed to aid farm business managers in planning and decision analysis, it would be appropriate to define the role of farm managers, how they classify decisions, and what tools they use to implement farm planning.

THE ROLE OF A FARM MANAGER

Farm management involves acquiring resources, organizing a system for combining these resources in a profitable manner, and putting this system into operation.

Farm operators have three main categories of resources they can use. The three are land, labor, and capital. Capital includes the assets used in the farm business, such as buildings, machinery, livestock, plus cash or credit for operating the business. Labor often is provided entirely by the farm operators and their family, but with the increasing size of the farm unit more full-time or seasonal labor are being employed. Land used in the production program may be either owned or rented. An increasing number of farm operations in Pennsylvania, because the cost and ownership of land, include both owned and rented land.

To be a successful at farm planning, either for the total farm business or for individual crop and livestock enterprises, the manager must:

- (1) Be familiar with the role of a manager and the jobs a manager must perform.
- (2) Understand the need for farm and financial planning.
- (3) Understand the nature of planning as it relates to the total farm business.
- (4) Learn to select and use various kinds of farm planning tools and techniques.
- (5) Acquire or hire a knowledge of basic production economic concepts, budgeting concepts, and management principles.

What is the job of a farm manager?

The farm manager, first of all, is a decision-maker. Successes and failures in the farm business depend largely upon the soundness of these managerial decisions.

The manager must be flexible if confronted by a multitude of production and financial problems associated with the farming operations. The production and financial decisions are closely interrelated and neither can be ignored in a successful farm business operation.

Two major categories of decisions are often recognized in farm management: organizational and operational. In organizing the farm business, the manager must evaluate the total amount of resources and allocate them to different enterprises and phases of production in the most profitable way. Organization of the business is the basis for the long-range farm planning procedures. Organizational planning by the manager is a never ending task because plans must be adjusted to fit changing conditions. Operational decisions involve the day-by-day tasks in operating the farm business.

All types of management decisions are influenced greatly by two factors. The first factor concerns the procedures used in the decision-making process. The second factor is the attention to accuracy and appropriateness of the data upon which decisions are based. Careful attention to both will help the manager avoid inefficiencies in production, and possible financial disasters resulting from these business decisions.

The manager has access to many sources of information to serve as a guide in making decisions. Historical production and financial records carefully analyzed and evaluated should

provide the solid basis for managerial decisions on that particular farm. In addition, supplemental data from research bulletins, extension publications, USDA publications, market reports, news stores, and magazine articles can also be useful.

A logical and systematic procedure for thinking through problems will help the manager achieve greater success as a decision maker. While sloppy procedures and off-the-cuff decisions may succeed occasionally, the magnitude and complexity of decisions confronting most farm managers today require a more thorough approach. A decision making process which has proved useful to many farm managers involves the following:

- (1) Identify problems. Clearly specify the major obstacles to achieving established goals.
- (2) Collecting information and data. Gather information, data, and facts to make observation which pertain to the specific problem.
- (3) Analyze the gathered information. Evaluate the economic consequences of alternative plans and courses of action to overcome the problems and reach goals.
- (4) Make the decision. Choose the plan or course of action which seems most promising for achieving family goals.
- (5) Implement the decision. Systematically develop and implement the chosen plan.
- (6) Assume responsibility. Accept the consequences of the decisions made.
- (7) Evaluate the decision. Continually evaluate performance of the total farm business and of individual enterprises through keeping, interpreting, and using good farm records.
- (8) Adjust. Make changes in response to the periodic evaluations.

How are decisions classified?

The decisions made by farm managers can be classified in a number of ways. One system would consider decisions as either organizational or operational in nature. Organizational decisions are those in the general areas of development plans for business, acquiring the necessary resource, and implementing the overall plan. Examples of such decisions are how much capital to borrow, what type of crop or livestock enterprise, and how much land to purchase or lease.

Organizational decisions tend to be long-run decisions. Operational decisions are made more frequently than organizational decisions. They relate to the many details necessary to implement the farm business. Examples of these types of decisions are selecting planting dates, fertilizer, and seeding rates for a given field and crop.

Decisions can have one of a number of characteristics which provides another classification system. One list of decision characteristics is:

- (1) Importance
- (2) Frequency
- (3) Imminence
- (4) Revocability
- (5) Number of available alternatives.

Each of these characteristics may affect how the decision is made and how the manager applies the steps in the decision making process to a particular problem.

What is farm planning?

Farm planning is simply charting a course from where you are to where you want to be. The procedures and techniques involve the logical formulation of a guide to achieve selected goals of the family. The nature of farm planning can be described in general:

- (1) Farm planning is forward planning. It involves the formulation of expectations for the future, particularly prices and costs.
- (2) Farm planning is based on estimates of the future. Hence, regardless of precision in computation, the plans will always be approximations of future performance.
- (3) Farm planning serves only as a guide in decision making. The primary value lies in providing comparisons among alternative courses of action and in developing a logical and systematic procedure to carry out a chosen course of action.
- (4) Farm planning procedures vary with the kinds of problems to be solved. They may embrace either the total farm business or a specific enterprise, investment, or farming practice. The time span of the planning also may vary from a few days to a period of several years.

Different farm planning tools and techniques have evolved over a period of many years. In most cases, each has been designed for a specific purpose(s). One of the first tasks of the planner is to choose carefully the type of planning procedure, or method, most appropriate for the task at hand. One of the most important part of planning analysis is budgeting.

A budget is simply a net profit evaluation of a contemplated course of action to determine the economic consequences before it is undertaken.

While budgets are essential in all planning, they do not constitute the entire job. Budgets indicate what to expect in net profit from a course of action; they do not show how it can be achieved most efficiently.

The farm manager also must decide on specific production practices, physical arrangements, and operating procedures to fit the resources at hand. For organizational planning, this may involve specific, long-range plans for field layout, lanes, water management, farmstead arrangement, water supplies and distribution, landscaping and home modernization, and many other tasks.

A plan for a specific enterprise may involve more detailed analysis of a choice of facilities and operating procedures and of more precise arrangements for feed storage and processing, fencing for livestock, etc. These latter phases of planning may require more time than the actual budgeting and may be equally important in assuring the financial success of the operation.

Several kinds of budgeting have been developed to serve particular needs and functions. Some are designed for developing and evaluating long-range plans for the total farm business, from the standpoint of physical production, capital requirements, and financial performance. Others include plans for the total farm business unit on a year-to-year basis (annual budgets). Others evaluate cash-flow performance through different time periods within the year or over a period of years.

Other budgeting procedures often described as partial budgets, are designed for evaluating particular phases such as individual enterprise, specific investments, and separate farming practices.

**Planning for
Markets**

KEEPING THE MARKET IN A FARM BUSINESS PLAN

Farming in the years ahead will be even more complex than it is today, and success will depend on many factors. Marketing will be one of those factors, an important one. It will have added significance if United States and other international forces prevail in their efforts to 'free' world markets and reduce agricultural subsidies. Greater price volatility for farm products and a changed marketing system are among expected results. Farmers will not have the same levels or types of protection from market forces that they have today. Success or failure could hinge on how well they understand markets and how they adjust to them. Even with the system and policies that are in place today, farmers may be able to increase their profits if they better understand the marketing system for the commodities they produce.

To produce for a specific market, for example, a milk market, a hog or beef market, a poultry product market, or a fruit and vegetable market, farmers must make long-term investments in specialized machinery, buildings, and equipment. In most cases, they cannot fully recoup these investments if used in other enterprises. Broiler houses, for instance, have few good alternative uses. The same is true of milking parlors and apple orchards. Employing such assets in other ways will be inefficient and probably unprofitable. Therefore, farmers must give thought to the future size and strength of the particular market they hope to serve.

A farm facility investment will often last twenty-five years or longer, and predicting how the market may change over that period of time is difficult. But, it is necessary to be aware of the impacts that existing or emerging trends may have on demand for a particular agricultural product. For instance, we currently have a stable or slowly growing population with a declining percentage of young people. We are experiencing a gradual migration toward milder climates, and we are finding changes in ethnic concentrations in the total population, particularly in certain regions. How will these trends affect markets for Pennsylvania agricultural products? An easy question, but difficult to answer. A farmer must give serious thought to likely changes in demand before producing for a market, and then review the situation when contemplating new investments, even if only to continue or expand output.

DIMENSIONS OF MARKETS

A consideration of markets and marketing performance will reveal a system with many dimensions. All probably have some effect on farm profitability levels. The ones that are of most importance to farmer decision-making can be grouped in two broad classifications: (1) those having to do with prices received from the marketing of farm products, and (2) those addressing relative levels of market power and a farmer's chances of "fair treatment" when dealing with the system. Price considerations include levels of prices obtained, stability of prices from year to year and within a year, how and when prices are determined, and the role of market power. "Fair treatment" includes "fair pricing" and the market power an individual farmer may need to achieve it, as well as assurance that the farmer will have access to a market for the product once it is produced. These two groupings overlap in many ways. Some alternatives, such as forward-cash-contracting, may be included in both groupings.

In this article we'll first examine alternatives farmers might consider if they are interested in improving the prices they receive. Then we'll look at the growth of market power in some segments of the marketing system and show how it can affect the farmers' access to market and prices received. We'll close with alternatives farmers might select to mitigate problems associated with increasing levels of market concentration and the consequent growth in market power.

This article suggests that farmers consider changing the way they produce and/or market. All of the described alternatives are presently available, legal, and in compliance with U.S. agricultural policy. They are alternatives farmers can pursue individually. They are voluntary.

This is not to say that farmers can't or shouldn't lobby for beneficial changes in public policy. Such actions have been successful in the past. Given the declining political importance of farmers, such results may be increasingly difficult to achieve in the years ahead.

Prices, pricing, and price stability

Farmers usually talk price but are most interested in the net income their farms generate. Of the two determinants of net income—revenues and costs—costs are more directly controllable by the individual farmer. The farmer's gross income is determined by the prices received for goods sold *and* by the number of units sold at those prices. Markets (the interaction of buyers and sellers) determine the commodity price level.

Sellers quite naturally prefer higher prices, and buyers prefer lower ones. A mutually acceptable price is almost always found because numerous transactions do take place. If either sellers or buyers are dissatisfied with transaction prices, they're not as likely to participate in the market or in price determination in the future. Individual buyers and sellers enter or leave the market from time to time, but the participants at any particular time determine the general level of prices. Individual buyers or sellers have little effect on prices. The relative levels of market power possessed by buyers and sellers can have an impact on price levels though, and this will be discussed later.

Among farms, wide differences in the costs of producing a commodity are common, indicating that some farmers do better in managing costs than others. Farmers can usually have a greater impact on farm profits by doing a good job of controlling costs than by trying to increase prices. However, farmers can often improve prices received, or minimize the effects of adverse changes in prices, in one or more of the following ways.

Quality and premiums

Over the years, processors have found that milk from one dairy farm can be more valuable than milk of the same butterfat test from another farm because it is considered to have better quality (lower bacteria counts, etc.). Processors of high quality milk can advertise higher quality consumer products and sell at premium prices, or incur lower processing costs and losses as a result of having purchased higher quality milk. Premiums are offered for such milk because it is relatively scarce. Producing high quality milk, beef, hogs, eggs, apples, corn, potatoes, mushrooms, or almost any other agricultural commodity, is a good way of improving farm level prices and net farm incomes. The production of higher quality farm products sometimes requires little more than improved management, and better management can lead to reduced expenses as well.

Seasonal prices

Prices of most farm products fluctuate throughout the year. Some within-year fluctuation is due to seasonality in production or consumption. Within-year price patterns of some commodities tend to repeat themselves year after year. For example, prices paid by potato chipping plants are lowest in August or September. They rise rather predictably until March or April of the following year before declining again to their late summer lows (Figure 1).

Within-year price fluctuations make timing of sales important. To the degree possible, farmers should take advantage of the seasonality of prices and sell during the time when prices are expected to be high. Admittedly, timing of sales is not a viable alternative for some farmers. Dairy farmers can't delay sales to take advantage of higher seasonal prices, but they can shift more of their production to those higher priced periods by altering their breeding programs. Those farmers producing storable commodities can 'time' their sales to take advantage of the expected higher prices, but will incur costs for storage. If unit price gains are larger than storage costs, profits will increase. Before shifting production or sales, however, farmers must be sure the seasonally higher prices are predictable and occur at about the same time each year.

Contracts, futures and options markets reduce price risk

Farmers often contract with buyers and establish a price in advance of production. Forward cash contracting reduces price risk and frees farmers from worry over market price fluctuations. Forward cash contracts are frequently used by growers of processing potatoes, processing vegetables, and grains. Typically, the contract in these cases is made before the crop has been planted or any cash expenses have been incurred. More recently, some buyers and farmers have used contracts for slaughter cattle and hogs. Forward contracting is also important in assuring access to market, but discussion of this aspect will be delayed until later.

Hedging on the futures market is a price protecting tool. It provides farmers with an opportunity to "lock in" prices for some of the commodities they sell, or some inputs they buy such as feed grains or feeder cattle. By hedging on futures markets, farmers can establish prices in advance and, as a result, reduce the risk associated with adverse price changes that might occur before they can actually sell the product or buy the needed input. For example, feeders who think local prices will fall before their cattle are ready for market can hedge and 'lock' in the price at current levels.

Farmers who hedge with futures forego the opportunity of gaining greater revenues or lowering their input costs if prices improve. Unlike futures market hedgers, farmers using options to hedge have the opportunity to achieve most of the gains from an advantageous price change while remaining protected from adverse price movements.

Whether the choice is hedging with futures or hedging with options, farmers should seek advice from an experienced "futures" or "options" trader. They also should take the necessary time to thoroughly study the market and the obligations a hedger incurs. Hedgers should also become familiar with "basis." Furthermore, they must be sure they are using the market to hedge, and not to speculate. Speculation will increase risk; most farmers should be trying to minimize risk, not increase it.

Year-to-year variations in price

Those who are considering changes in the mix of farm enterprises should study the magnitude of year-to-year variations in prices of the commodities they expect to add. Although the output of some agricultural commodities remains quite stable from year to year, it fluctuates widely for others. The difference in prices accompanying fluctuations in output can be quite large. Gross income fluctuates with price. As a result, the level of debt that can be handled, and the amount of money that must be reserved to meet family living expenses, varies with the commodity produced. Compare, for example, year-to-year price fluctuations for milk and sour cherries (Figure 2). Neither milk production nor milk consumption fluctuate very much in terms of percentages, so prices increase or decrease only a few percentage points from year to year. By contrast, tart cherry prices can more than double from year to year. Since tart cherry prices (like those of most other crops that experience frequent and extreme variations in crop size) are usually traceable to weather conditions, little can be done about fluctuations in year-to-year prices except to plan for them.

MARKET ACCESS AND MARKET POWER

Although farms are getting bigger and fewer in number, the rate of change in production agriculture is being dwarfed by similar changes taking place in the marketing sector of the food and fiber industry. In 1990, three meat packers are expected to slaughter 80 percent of all U.S. beef. These same three firms had only 45 percent of the market in 1982. Furthermore, two of them own the second and third largest feed lots in the nation.

Four firms are expected to do 56 percent of the nation's flour milling in 1990. They did only 34 percent in 1973. Broiler processing, dairy-product processing, hog slaughtering, fruit and vegetable processing, and several others, are following similar patterns. The net result is that there are fewer but bigger business firms marketing agricultural outputs.

Fewer firms mean fewer buyers of farm products. With fewer buyers, farmers risk losing access to market. A firm can refuse to accept a farmer's product and, if another competing buyer

is not conveniently located, isolate the farmer from the market with a product that can't be readily sold. In addition, the declining number of buyers tends to alter the intensity of competition among them, and reduces aggressiveness in bidding for an individual farmer's product. Prices may be lower than if more firms were competing and actively bidding for a farm's output.

How can farmers respond to these developments? Some commonly suggested alternatives are: (1) shorten the marketing chain by selling directly to consumers, (2) forward contract to assure access to market, and (3) join a marketing cooperative which will ensure access to market and increase farmers' market power.

Shortening the marketing chain

The choices a farmer may consider range from U-pick fruit and vegetable farms to the operation of more complete processing and distribution systems. Milk producer-distributors are examples of the latter. Roadside markets and farmers' markets fall somewhere in between when classifying by level of marketing services provided. All are included in the broad category of direct marketing.

Location is extremely important for direct marketers. Furthermore, each business requires someone skilled in dealing with people. Additional capital is usually required to provide these additional marketing services to consumers. Direct marketers must understand that they probably will be too small to gain the efficiencies in processing and distribution that could be obtained by the larger marketing firms they are replacing. Still, direct marketing can provide participating farmers with access to consumers (the ultimate market). In addition, marketing margins that would otherwise go to intermediaries in the marketing system go instead to the producers. But remember, the net payoff must be considered because the producer will also incur additional expense.

Contracting with the buyer

Broiler producers and processing fruit and vegetable growers generally enter into contracts with processors. Otherwise they risk having a product but no market at the end of the production cycle. Increased industry concentration and more vertical integration in the hog and turkey processing sectors are making forward contracting more necessary for these producers, too. Without a contract, producers often find it difficult to sell on the open market at reasonable prices.

The primary advantages of contracting are, first, that it gives some guarantee of a market and, second, as discussed earlier, contracting establishes a price before many of the production costs are incurred. If the contract price is unacceptably low, farmers can decide to do something else. One disadvantage is that in years of low yields and high open-market prices, farmers receive only the contract price. On the other hand, some farmers insist that without third-party inspection to determine whether a commodity meets contract specifications, contracts can be worthless when yields are high. Product deemed to have "unacceptable quality" is rejected. Some claim the quality of rejected product would have been acceptable in a short-crop or normal-crop year.

Joining a market cooperative

Membership in a cooperative is voluntary. Collectively, farmers who join cooperatives have been able to offset the "superior" market power of buyers. Cooperatives provide members with access to market, allow farmer-members to make input into marketing decisions, and distribute the cooperative's marketing profits to farmers in proportion to their use of the organization.

Gains from co-op membership are not without cost. Fully participating members of a marketing cooperative must be diligent and devote time to the cooperative's decision-making process. Cooperative membership usually requires an investment of capital by farmer-members. Members must also share in any market losses. Their two big advantages—ensuring access to market and enhancing the individual farmer's market power—have been important elements of cooperative success in the past. They will be increasingly important in the future under almost any scenario that this author can envision.

Figure 1. Prices paid for potatoes delivered to chipping plants, average of 16 major Pennsylvania chip manufacturers, crop years (August-July) 1982-83 through 1986-87

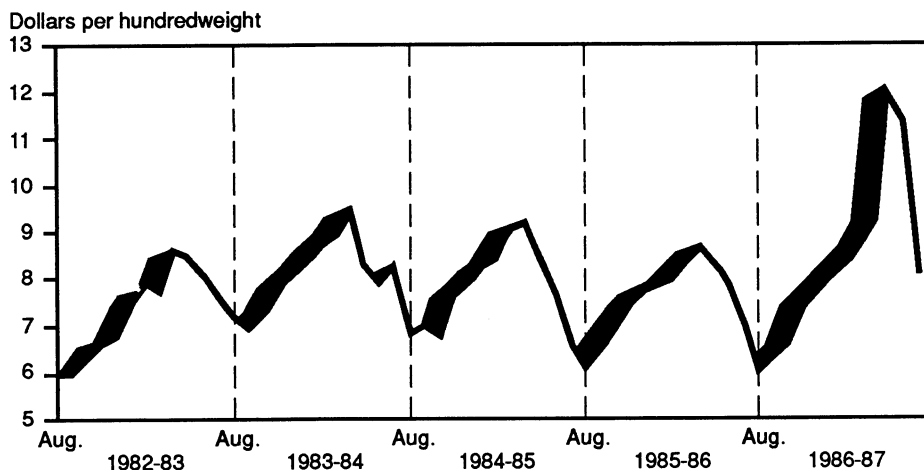
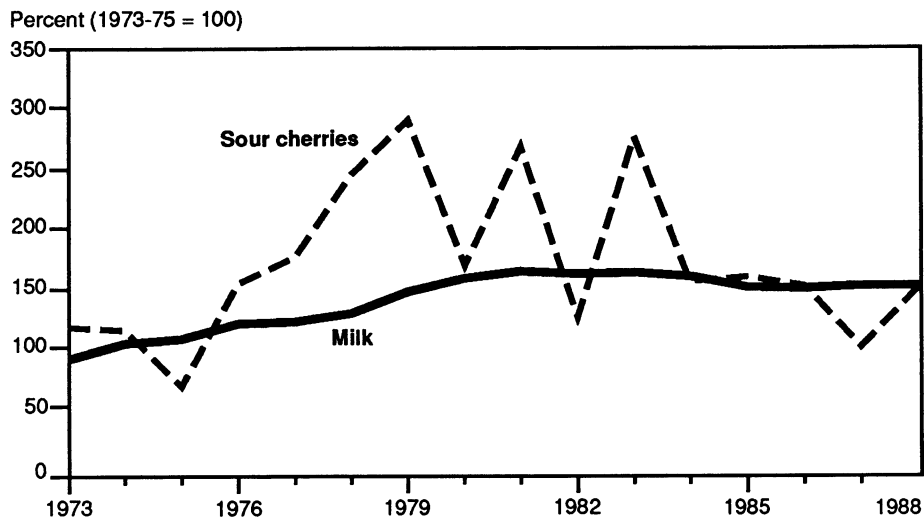


Figure 2. Index of prices received for milk and sour cherries, Pennsylvania farmers, 1973-88



Ways farmers can increase market power and ensure access to market

- Deal directly with the consumer by operating U-pick farms, roadside markets, or milk jugger systems.
- Contract for sales of crops and animals in advance.
- Join marketing cooperatives.

Ways farmers can influence the prices they receive

- Produce premium-eligible, high-quality products.
- Time sales to better coincide with seasonally high prices.
- Use forward contracts, futures, or options markets to lock-in a price.

Source: Penn State Cooperative Extension *Farm Economics*, September/October 1990.
 Author: Thomas Brewer, associate professor of agricultural economics

**Planning for
Profitability**

PLANNING FOR PROFITABILITY

Preparation of a long-range, organizational plan for a farm business involves many considerations. Usually, a wide variety of resources is either available or attainable. Records and experience show that some combinations of crop and livestock enterprises are more profitable and more stable than others and that the long-run profitability of the total farm business depends greatly upon choosing an overall plan most appropriate for the farm family and the resource available.

LONG-RANGE PLANNING PROCEDURES

The purpose of this planning procedure, with the use of block budgeting and the accompanying worksheets, is to formulate several alternative long-run farm family *plans* and to evaluate the economic consequences of each. In order to make valid comparisons among different plans, a few precautions should be taken:

1. Use consistent prices, costs, and investment data for all plans considered. Otherwise, too many variables are introduced and different results among alternative plans cannot be evaluated accurately.
2. Refer to the crop and livestock budgets and select those appropriate for all plans to be considered. Make any adjustments needed to suit the farm resources available and then use these *same* budgets for all plans compared.
3. Use a systematic, step-by-step planning procedure. The following 12-step procedure is suggested:
 - Step 1. Inventory resources.
 - Step 2. Establish goals.
 - Step 3. Identify and itemize major problems.
 - Step 4. Summarize the cropping system selected.
 - Step 5. Summarize the livestock system, if any.
 - Step 6. Summarize and evaluate the income and profitability of the plan.
 - Step 7. Evaluate the economic feasibility of the plan from the standpoint of cash flow.
 - Step 8. Compare the results of the alternative plans and choose one for long-run development.
 - Step 9. Prepare a new farm layout map for the plan selected--showing fields, lanes, water
 - Step 10. Plan the farmstead arrangement for efficient operation of the new plan.
 - Step 11. Start developing the selected plan, giving special attention to priorities for major changes and investments.
 - Step 12. Adjust plans as needed from year to year in line with annual budgets and records of performance.

Steps 1, 2, and 3 provide background information as a basis for all plans to be evaluated and compared. They need not be repeated for each alternative, except for adjusting the capital investments required, as summarized on Form 3.

Steps 4 through 7 should be completed for each alternative to be compared. Usually, the present plan of operation is evaluated first, using the budgets and investment levels selected for evaluating all the alternative plans.

Step 8 is one of decision making, a comparison of the various alternatives and selection of one plan for long-run development.

Steps 9 and 10 involve more detailed planning of the physical resources of the farm and farmstead to enhance the efficient operation of the new plan.

Steps 11 and 12 are appended to the planning procedure which, in reality, is a never-ending process. Of crucial importance are the transition years because major changes and investments of capital often are necessary when putting the new plan into operation. Annual budgets and farm records are valuable tools for guiding these adjustments over time. More detailed information about each step follows:

STEP 1. INVENTORYING THE RESOURCES

Preparation of a complete and accurate inventory of all farm and family resources should be the first step in developing a long-run farm plan. These resources usually are classified into four major categories--land, labor, capital, and management. While all are inter-related, specific steps should be taken in preparing an inventory of each.

Land Resources

The first step in taking an inventory of the land is to prepare an accurate map of the complete farm unit. Form 1 may be used for this purpose. Aerial photographs are available from county ASCS offices. Form 1 may be used as an overlay for tracing a map directly from the photos. Two or more forms may be taped together for larger farms in order to maintain the same scale as the photos, 660 feet to 1 inch.

The "present" farm map should show all physical features on the farm--streams, ditches, timbered areas, field boundaries, ponds, buildings, etc. Each field on the farm can be assigned an identifying letter--starting in the upper left-hand corner of the farm and lettering from left to right. The acreage in each field may be shown with the field letter--A-40, B-25, etc.

Other aids in map preparation sometimes are available. In some counties county-wide soil survey have been completed and descriptive bulletins of soil resources and land class maps can be obtained at the cooperative extension office. In some cases, small photo-maps of individual farms are available and show soil types, slopes, and degree of erosion on various parts of the farm. Land classification maps, prepared by the Soil Conservation Service, also are available in some areas and show similar descriptive data of the land resources. Small transparent acreage scales, with scales of 660 feet to 1 inch, are available in some book stores and are quite useful in drawing maps and determining acreages.

Another step in completing an inventory of land resources is to prepare a summary of the acreage of land suitable for different purposes. Form 2, Land Use Classification, provides space for doing this by fields as shown on the farm map. Directions for classifying the land into six classes are given on the reverse side of Form 2.

In addition to the above, a complete set of soil tests, by fields, will provide an up-to-date picture of fertility levels and will guide the use of soil treatments year by year. Some managers assemble these soil test reports in order by fields in a looseleaf binder for frequent reference.

Labor Resources

Labor resources may be classified as either fixed or variable. Fixed labor is that committed to the farming operation throughout the year--including the operator and partnership labor, other family labor and year-round hired labor. Variable labor is that available on a seasonal or part-time basis--including school-age family labor, hired day labor, and labor included with custom machine work.

Fixed labor is a charge against the farm business whether fully used or not. Therefore, it is important that all labor be fully and profitably employed and that work is performed efficiently.

A. Labor on Small Farms

Most of the labor on small farms is fixed family labor and net income often is low because available labor is not fully employed at productive work. Even if rates of production are high on these farms, the total farm production for sale may be too low to provide a living for the farm family, meet operating expenses, and pay interest and principal on the farm debt. Possible remedies are:

- (1) Get control of more land by rental or purchase.
- (2) Farm the land more intensively to get higher yields per acre and bigger crop profits.
- (3) Add livestock enterprises which can use labor and feed at a profit.
- (4) Find off-farm employment for some members of the family.
- (5) Some of these remedies will require a larger investment of capital.

B. Labor on Large Farms

On some large farms, a larger work-load than available labor can handle effectively often is required. Some of the main things that determine labor efficiency are:

- (1) Size and kinds of equipment used.
- (2) Size of fields and arrangements of lots, lanes, and buildings.
- (3) Distribution of the labor load throughout the year.
- (4) Method of doing work.
- (5) Managerial skill of the "boss."
- (6) Skill of the workers.

The first three are determined by organization; the latter three are operational. All should be given consideration in developing long-run plans.

C. Computing Labor Requirements

The total hours of direct labor required for crop and livestock enterprises are summarized on Forms 4 and 5. These are combined on Line 8 of Form 6 to get the total hours of direct labor required. The planner may wish to increase this total by about 10% to cover miscellaneous labor for maintenance work.

The total hours of operator and family labor expected to be available in a typical year should be summed and compared to the total labor requirement. Any shortage in hours of labor required should be entered on Line 12 of Form 6 to compute the estimated cash cost of hired labor.

Capital Resources

A summary of all farm and family assets and liabilities, and preparation of a complete financial statement, should be an essential part of all long-run farm planning.

The first step is to prepare an itemized and classified inventory of all resources, including quantities and values. Most good farm accounting systems provide an inventory section for this purpose. Total values from different parts of the inventory -- farm land, buildings, machinery, livestock, supplies, etc. -- may be transferred to the financial statement. Different liabilities (debts) -- short-term, intermediate, and long-term -- also should be itemized and summed to determine total liabilities at the time planning is started. By subtracting total debts from total assets, the net worth, or equity, in the business can be computed. The equity position is a key factor in determining the feasibility of borrowing additional funds for capital improvements.

Data from the inventories and financial statement also should be transferred to Form 3 to summarize capital investments in machinery, buildings, breeding livestock, land, and land improvements. Figures for these investments, along with any added investments needed for alternative plans, are necessary in making an economic evaluation of various plans.

Management Resources

Management ability and managerial performance of the farm manager are the key factors in determining the success of a farm business today. But an evaluation of the management resource is difficult because it involves self-analysis by the farm planner. No simple formula for measuring an individual's management ability has been devised.

In developing long-run plans, the farm manager should try to make a realistic appraisal of their own abilities and willingness to assume responsibility in the role as a decision maker. In considering alternative plans, managers should consider their past experiences with crop or livestock enterprises; their "likes and dislikes;" their skill in handling various kinds of machinery, equipment, and livestock; their punctuality in getting things done; their attitude in regard to handling risks and uncertainties; their ability to buy and sell advantageously; their thoroughness in keeping good farm records and using them in their decision making; and, perhaps most of all, their willingness to take time to study their business and continually seek new information and adapt it in a realistic way to their own farming operations.

Since farming is a family team effort, the special abilities and skills of other family members also should be considered in evaluating various plans of operation. For example, many farm wives have become excellent record keepers, market analysts, and assistants in handling livestock enterprises.

While no precise yardstick is available for measuring management ability, the manager may initiate some self-evaluation by asking and answering, specific management questions such as the following:

YES	NO	
_____	_____	By February 15, have I decided what crops to plant in each field and figured seed, fertilizer, and other requirements for each crop?
_____	_____	In determining the above requirements, have I consulted previous year's crop records, experiment station figures, or some other reliable source in the process of arriving at a decision?
_____	_____	After reaching decisions, do I act promptly in placing orders so that materials are on hand when needed?
_____	_____	Before spring work starts, do I set a schedule when work is to be completed such as plowing, disking, and planting?
_____	_____	Unless delayed by unusual weather conditions, do I plant and harvest at the most favorable times?
_____	_____	Do I conduct some field trials of yields from different rates and analyses of fertilizer, and different kinds of hybrid seed?
_____	_____	Before putting machines away for the winter, do I make a written record of inspection, repairs, and maintenance needed before the next crop season?
_____	_____	Do I get necessary machinery inspections, repairs, and maintenance done <i>before</i> the cropping season opens?
_____	_____	Do I schedule farrowing and calving dates so these operations interfere very little with cropping operations?
_____	_____	Do I follow definite schedules for vaccinating, castrating, dehorning, and other essential livestock practices?
_____	_____	When buying farm supplies, or when selling farm products, do I check prices at two or more places?
_____	_____	Do I know my feed costs per 100 pounds of beef, pork, or milk?
_____	_____	Do I, at least once a year, make out a net worth statement to measure financial progress?
_____	_____	Do I, at the end of the year, make out an operating statement which shows net farm income for the past year?

About equal numbers of YES and NO answers may indicate average management. A good plan of organization is one that will fully use, but not exceed, an operator's management skills in putting the plan into operation.

STEP 2. ESTABLISHING GOALS

After getting a complete picture of all resources available, the farm family should try to look ahead a few years and formulate clearly defined goals for achievement. There is truth in an old saying that "you can't get somewhere quickly if you don't know where you are going."

Sometimes a few well-directed questions will help clarify goals in a realistic manner and serve as a guide for long-run planning. Questions such as the following may provide a starting point.

- (1) What level of living would the family like to have a few years hence? Does this require a new home, a better car, new appliances for the household, a college education for children, longer family vacations, savings for retirement?
- (2) How much family cash income will be needed each year for current living costs and for improvements such as indicated above? The average for Pennsylvania farm families is within the range of \$17,000 to \$20,000. This average amount represents the cost of basic family living expenditures and does not include major capital expenditures.
- (3) How much gross farm income will be required each year to provide the cash family income needed? A simple "rule of thumb" gives a rough estimate. First, add to the estimated annual cash needs for family living and the annual cash payments required on all capital debts. Then, multiply this total figure by four--since net farm income usually equals about one-fourth of gross income and all cash living costs, savings, and capital debt repayments must come from net dollars. For example, if estimated annual cash living costs are \$19,000 and capital debt repayments amount to \$15,000, the \$34,000 total would require a minimum of \$136,000 gross farm income each year. Such a figure can be kept in mind when evaluating the economic feasibility of various farm plans.
- (4) How can the capital needs for family living be reconciled with investments required for improving the farm business?
- (5) What timetable, and what priorities, should be established for improving the farm and family living?

These, and other such questions, may help the family clarify specific goals which are essential for realistic long-run planning for the family and the farm business. Putting these goals in writing for study and frequent review is a great help in developing plans.

STEP 3. IDENTIFYING AND ITEMIZE PROBLEMS

Are family goals now being achieved as desired? Is current farm income -- gross and net -- adequate for all family needs? Does the present farming system seem appropriate and adequate for long-run development?

One of the earmarks of a good farm manager is an ability to pinpoint problems and to find workable solutions for them. Actually, this is the crux of long-run farm planning -- the process of inventorying all resources, setting realistic, tangible goals, and then identifying problems which interfere with their achievement.

Some problems in production and management are rather obvious; while other problems are more difficult to pinpoint. Quite often, problems can be identified most readily in the form of answers to well-chosen questions. Examples:

- (1) Is the farm large enough in total acres and in crop acres suitable for high-profit row crops? If not, can additional land be purchased or rented in a convenient location? Are all available acres used in the most profitable way?
- (2) Are gross income and net returns high enough from the present system of farming?
- (3) Are present livestock enterprises well suited to the farm resources and the management skills of the operator? Is each enterprise large enough to justify investments for efficient, high-volume production? Must good cropland be kept in pasture and forage production to support the livestock enterprise?

- (4) Is the physical layout of the farm--fields, lanes, pastures, water management, water supply, etc. -- arranged for convenience and efficiency in the use of labor and machinery? Are fields equalized in size for rotations and balanced production?
- (5) Is the farmstead arranged for convenience, safety, and attractiveness? Is direct access provided to all major farm buildings and fields without gate openings?

Questions such as these may help detect weaknesses in the present farming system and aid in formulating alternative plans.

STEP 4. SUMMARIZING THE CROPPING SYSTEM

The Present System

Developing a cropping system and a field layout plan go hand in hand. A good place to start in developing a long-run cropping system is to evaluate the productivity of the present system. This can be done quickly by using a step-by-step procedure as follows:

- (1) Complete the "present" farm map as suggested earlier, using Form 1.
- (2) On each field, write in the crop(s) representing the land use for the present year.
- (3) On Form 4, check "Present Plan" _____ and enter in Column 1 all the crops and uses of land for the current year, showing all second crops resulting from double cropping on a separate line and circle the acreages in Column 2 (to avoid duplications in the Line 17 total).
- (4) Refer to the map on Form 1 and total the acreages of each crop and land use and enter in Column 2.
- (5) Refer to the crop budgets and either select the yield level most appropriate for long-run plans for the farm or develop a new budget.
- (6) Transfer directly from the selected budgets to Columns 3, 4, and 5 of Form 4 the per-acre data indicated.
- (7) Complete computations on Form 4 according to instructions on the reverse side of the form.

The Revised System

Before formulating alternative cropping plans for comparison, reference should be made to the farm layout map and to the classification of land on Form 2.

As noted in Part II, several factors influence the choice of a cropping system. However, if maximizing profit from the total farm business is a major goal, as many acres as possible should be kept in high-income crops (corn, alfalfa, soybeans) each year. In addition to land currently suited for such intensive use, attention should be given to improving additional acreage. Attention must also be given to protection of the soil from erosion -- in many cases, strip-cropping, contour farming, and minimum tillage methods are appropriate. As part of the long-run plan, an effort should be made to eliminate ditches, reclaim wasteland, and increase productivity of each acre.

The choice of cropping systems to evaluate also is influenced by the expected use and disposal of crop production. If livestock enterprises are to be included in long-run plans, the kind of feed needed may affect the choice of crops and pastures. As a general rule, the farming system should be self-sufficient for all forage needs of livestock enterprises -- including pasture, hay, and silage. Whether this is economically desirable will be revealed by the evaluations on Forms 6 and 7.

After alternative cropping systems have been formulated, a new Form 4 should be prepared for each, with proper identification for future comparisons -- Alternative No. A, B, C, etc. The crops and uses of land involved in each system should be entered in Column 1 of Form 4 and the acreage devoted to each use in Column 2. The summary of each alternative should then be completed on Form 4 as instructed above for the "present" system.

For each alternative, the budget totals in Columns 7 and 8 should be transferred to Form 6 for analysis.

STEP 5. SUMMARIZING THE LIVESTOCK SYSTEM

Form 5 provides space for summarizing and evaluating each livestock system considered -- from the standpoint of income, labor requirements, and feed requirements in relation to feed production from the cropping system.

A good place to start is to enter on Form 5, Columns 1 and 2, the present livestock enterprises, if any, for evaluation in connection with the "present" cropping system summarized on Form 4.

As a general rule, the choice of enterprises to be included in alternative livestock systems should depend, primarily, upon the most productive and profitable cropping system, rather than vice versa. Refer to Part III for other suggestions relative to the choice of livestock enterprises.

After enterprises have been selected for alternative plans, the size of forage consuming enterprises (the number of total units in Column 2 of Form 5 can be adjusted according to the evaluation on Line 9. The goal should be to utilize fully the forage produced in the cropping system but to avoid deficits. Having either a surplus or deficit of feed grains is not crucial since a market for buying and selling is readily available in most places.

The evaluation of each alternative livestock system should be completed on Form 5, following the instructions on the reverse side. Summary data for labor (Line 11) and for income over variable costs (Line 14) should be transferred to Form 6 for further economic analysis.

STEP 6. EVALUATING INCOME AND PROFITABILITY

According to an old adage, "the proof of the pudding is in the eating." For most farm families, the "proof" of a long-run farm plan is its potential for providing the profits and cash income to meet the needs of the family and to build equity in the farm business. The purpose of Forms 6 and 7 is to evaluate those economic potentials.

Form 6 is designed for computing the appropriate profitability of each alternative farm plan considered. Much of the data is summarized from earlier worksheets. Farm investment capital figures are transferred from Form 3, making sure that any *added* investments -- for breeding livestock, machinery, buildings. -- needed for a particular alternative are included in the totals before transferring.

Labor requirements and income over variable costs for crop and livestock enterprises included in each alternative may be transferred directly from Forms 4 and 5.

Space is provided in Lines 12 through 18 of Form 6 for computing indirect cash costs not allocated to specific crop and livestock enterprises and for computing depreciation deductions on Lines 19-21.

Farm profits and returns to labor, capital, and management can then be computed for each alternative, following the instructions on the reverse side of Form 6.

STEP 7. EVALUATING CASH-FLOW FEASIBILITY

After comparing the long-range profitability of various alternative farm plans on Form 6, one or two may seem quite promising from the standpoint of long-run profits. This is important as a farm business cannot survive on its own over time without providing a profit.

Unfortunately, plans for a farming system may appear profitable in the long-run but may not be economically feasible in the short-run because of cash-flow problems. This is especially true during the transition years when a new plan is being put into operation.

Cash requirements for servicing debts, for income taxes and social security payments, and for family living costs usually are responsible for cash-flow problems. The equity position of the family is a crucial factor in determining cash flow. Existing capital debts as well as additional ones associated with the development of a new system must be considered in checking on possible cash-flow problems.

Form 7 used together with Form 8 for estimating principal and interest payments and Form 9 for estimating the cash required for income taxes and social security, provides a method of calculating the feasibility of a proposed plan from the standpoint of cash flow. This is only an approximation since it represents only a typical year in the long-run plan. But it is a crucial first step in identifying a plan which is completely unworkable from the cash-flow standpoint and doing so before capital investments are made. Instructions for each form are included on the reverse side.

Once a system is selected for development, keeping a good set of records and carefully analyzing them each year are important steps in controlling the plan. By using current estimates of yields, prices,

and costs, cash-flow problems may be spotted and corrected before serious financial problems get out of hand.

STEP 8. CHOOSING A LONG-RUN PLAN FOR DEVELOPMENT

The next step in farm planning is to compare the plans evaluated and select the one which seems most suitable for long-run development. Several factors should be considered in selecting the plan and in appraising its feasibility. Answers to a few questions, such as the following, may assist in the evaluation.

- (1) Do returns to labor, capital, and management seem adequate in the long-run?
- (2) Will the total net cash income in the short-run and long-run be sufficient to cover interest on intermediate and long-term debts, income taxes and social security payments, family living expenses, and principal payments on capital debts (present and anticipated), and leave some margin for savings and unexpected adversities?
- (3) How much new investment capital will be required for developing the plan (Form 3) and what percent must be borrowed? Can credit be obtained and, if so, what would be the expected interest rate and term of the loan?
- (4) Are labor needs in accord with the skills and interests of family members and available hired labor?
- (5) Are the managerial requirements for the selected crop and livestock enterprises within the experience, skills, and management ability of the operator?

If a particular plan seems to meet all of the needs of the family, more specific plans should be initiated for implementing it -- especially for the layout of the farm land and the farmstead area.

FORM 1 Present System _____
FARM MAP Alternative No. 1

FORM 1 Present System _____
FARM MAP Alternative No. 2

FORM 1 Present System____
FARM MAP Alternative No. 3

FORM 2
LAND USE CLASSIFICATION*

Present Plan _____
Alternative No. _____

	Field letter	Acres in field	PRESENT (OR PROPOSED) LAND USE					
			CLASS I Intensive row cropping	CLASS 2 Limited row cropping	CLASS 3 Small grain continuous if terraced or rotation of sm. grain and hay	CLASS 4 Permanent pasture	CLASS 5 Timber or woods pasture	CLASS 6 Farmstead roads, etc.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22	Total Acres							
23	Class 1 acres							
24	Class 2 acres							
25	Class 3 acres							
26	Class 4 acres							
27	Class 5 acres							
28	Class 6 acres							

*See other side for definition of land use classes.
Sum of acres in Classes 1-6 should equal total on Line 22.

DIRECTIONS: FORM 2, LAND USE CLASSIFICATION

For highest returns, you will need to grow the largest acreage possible of high-profit crops. Usually, this is determined by relative steepness of slope and type and depth of soil. So, classifying your land as to suitability for best use is important

STEP 1.

In columns. 1 and 2 list all the field letters and acres in each field.

STEP 2.

On this form are six suggested land use classes which are described at the head of each column and in more detail below.

Using these descriptions, decide which description most nearly fits each field. Then enter the total acreage of each field in the appropriate column. This is for estimating returns from your farm with fields arranged as they now are.

If you later decide to re-arrange your fields, you must make another estimate for your alternate plan. Often you have two kinds of soil in each of two adjacent fields. By re-arranging field boundaries, you can often put the similar kinds of land together.

LAND CLASSIFICATION FOR MOST PROFITABLE USE

CLASS	DESCRIPTION
CLASS 1: Intensive row cropping.	Bottomland, or level upland, that can be row cropped continuously without serious soil loss.
CLASS 2: Rotation of row crops and grass.	Row crop for one or two years followed by two years of short-lived clover and grass.
CLASS 3: Continuous small grain if terraced. If not terraced, rotation of small grain and grass.	No row crops because erosion losses would be too great; one or two years of small grain, followed by two years of short-lived clover and grass.
CLASS 4: Permanent pasture.	So steep, rocky or so difficult to drain, that long-lived grass is its best use.
CLASS 5: Timber, or timber pasture.	Too steep or rocky for pasture; also small irregular tracts which are impractical to fence separately.
CLASS 6: Other land in deeded acres.	Farmstead, roads, ditches, creeks, and wasteland.

FORM 3
SUMMARY: FARM INVESTMENT CAPITAL

Present Plan _____
Alternative No. _____

	Item & description	Year to invest	New cost	Average value ¹	Total value
	(1)		(2)	(3)	(4)
1	Breeding livestock (present or alternative):				
2	Cows _____ (units) x \$ _____/unit =			\$	
3	Sows _____ (units) x \$ _____/unit =				
4	Other _____ (units) x \$ _____/unit =				
5	TOTAL BREEDING LIVESTOCK CAPITAL (sum Lines 2, 3, 4)				\$
6	Machinery & equipment (present)			\$	
7	Added machinery & equipment: ²				
8			\$	\$	
9					
10					
11					
12					
13	TOTAL MACHINERY & EQUIPMENT CAPITAL (sum Lines 6, 8, 9, 10, 11, 12)				\$
14	Building & facilities (present)			\$	
15	Added building & facilities: ²				
16			\$	\$	
17					
18					
19					
20	TOTAL BUILDING & FACILITIES CAPITAL (sum Lines 14, 16, 17, 18, 19)				\$
21	Land & land improvements (present) ³ _____ ac. x \$ _____/acre =			\$	
22	Added land & land improvements: ²				
23			\$		
24					
25	TOTAL LAND & LAND IMPROVEMENTS CAPITAL (sum Lines 21, 23, 24)				\$
26	TOTAL FARM INVESTMENT CAPITAL (sum Lines 5, 13, 20, 25)				\$

¹Present system values for Lines 6 and 14 are depreciated values (such as those on depreciation schedule). For new machinery and equipment added in alternative system, average value equals approximately .5 of new cost. For new buildings, fences, and facilities added, average value equals approximately .75 of new cost. For non-depreciable items (such as land), average value equals new cost.

²Disinvestment may also be considered in alternative plan. Values of machinery, equipment, facilities, land, etc., not needed in alternative plan are entered as negative figures in Column 3.

³Does not include value of dwelling, farm buildings, fences, and facilities.

DIRECTIONS: FORM 3, FARM INVESTMENT CAPITAL

Use this form to estimate the farm investment capital for your present plan and for each alternative plan considered. Farm investment capital is defined as the average value of intermediate and long-term farm assets owned. Current farm assets (inventories of market livestock, feed, crops, etc.) are not included as farm investment capital.

Average value of breeding livestock units include: investment in the breeding animal (sow, cow) plus the share of sire and replacement animal per unit. Average value for machinery, equipment, buildings, land, is explained in footnote 1.

Total values (Column 4) are transferred to Form 6 for further analysis.

FORM 4
SUMMARY: CROPPING SYSTEM

Present Plan _____
Alternative No. _____

	Crop & land use (1)	Total acres ¹ (2)	PER ACRE BUDGETS			BUDGET TOTALS			FARM FEED PRODUCTION				
			Avg. yield (3)	Income over variable costs (4)	Hours direct labor (5)	Production (6)	Income over variable costs (7)	Hours direct labor (8)	Corn equivalent ² (9)	Silage tons (10)	Hay tons (11)	Pasture AUMs ³ (12)	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17	Total Crop Acres												
18	Farmstead												
19	Idle land												
20	TOTALS												

¹When land is double cropped, list first and second crops separately. Circle acreage of second crop and do not add circled figures in Col. 2.

²To calculate corn equivalent bushels, multiply feed grain yield in Column 6 by C.E. factor (corn = 1.0, grain sorghum = .77, and oats = .50).

³AUM = animal unit month.

DIRECTIONS: FORM 4, CROPPING SYSTEM

Use this form to calculate total income over variable costs, hours labor, and farm feed production for the cropping system of each plan considered.

Crops and land use are accounted for in Columns 1 and 2. Per acre crop budget information (Columns 6, 7, and 8). Note: interest paid on crop operating capital is part of the variable costs per acre. Per-acre budgets for rented crops should be adjusted for yields and income over variable costs as needed. Transfer farm feed totals in Column 6 to the appropriate Columns 9, 10, 11, or 12.

On Line 20, sum Columns 2, 7, 8, 9, 10, 11, and 12. Transfer totals of Columns 7 and 8 to Form 6, Line 6. Transfer totals of Columns 9, 10, 11, and 12 to Form 5, Line 8.

**FORM 5
SUMMARY: LIVESTOCK SYSTEM**

Present Plan _____
Alternative No. _____

	Livestock unit	Total units	PER UNIT BUDGETS		PER UNIT FARM FEED REQUIREMENTS				BUDGET TOTALS		TOTAL FARM FEED REQUIREMENTS			
			Income over var. costs	Hours direct labor	Corn equivalent	Silage tons	Hay tons	Pasture AUM's	Income over variable costs	Hours direct labor	Corn equivalent	Silage tons	Hay tons	Pasture AUMs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1									2x3	2x4	2x5	2x6	2x7	2x8
2														
3														
4														
5														
6														
7	Total farm feed requirements (add Cols. 11, 12, 13, and 14)													
8	Total farm feed available (Form 4, Cols. 9, 10, 11, and 12)													
9	Farm feed surplus (+) or shortage (-) (difference of Lines 7 and 8)													
10	Total Income Over Variable Costs (add Col. 9)													
11	TOTAL HOURS DIRECT LABOR (add Col. 10)													
12	Adjustment of Income Over Variable Costs for Value of Surplus Pasture:													
13	If surplus pasture, multiply surplus (Line 9, Col. 14) x \$ _____ /AUM =													
14	ADJUSTED TOTAL INCOME OVER VARIABLE COSTS (subtract Line 13 from Line 10)													

DIRECTIONS: FORM 5, LIVESTOCK SYSTEM

Use this form to calculate total income over variable costs, hours labor, and farm feed requirements for the livestock system of each plan considered.

Livestock and units are accounted for in Columns 1 and 2. Using livestock budget information (Columns 3, 4, 5, 6, 7, and 8) budget totals (Columns 9 and 10) and total farm feed required (Columns 11, 12, 13, and 14) are calculated. Note: interest paid on livestock operating capital is part of the variable cost per unit.

Total farm feed required is summed on Line 7. Total farm feed produced is entered from Form 3 on Line 8. The difference between production and requirements is entered on Line 9.

A procedure for adjusting the total income over variable costs is shown on this form. The value of any surplus pasture shown on Line 9 is subtracted from the total livestock income over variable cost.

FORM 6
SUMMARY: CAPITAL, LABOR, INCOME, & RETURNS

Present Plan _____
Alternative No. _____

	Item	Details	Totals
	(1)	(2)	(3)
FARM INVESTMENT CAPITAL:			
1	Breeding livestock (Form 3, Line 5)	\$	
2	Machinery & equipment (Form 3, Line 13)		
3	Buildings & facilities (Form 3, Line 20)		
4	Land & improvements (Form 3, Line 25)		
5	AVERAGE FARM INVESTMENT CAPITAL Line 26)		\$
DIRECT LABOR REQUIRED:			
6	Crop labor hours (Form 4, Line 20, Col. 8)	hrs.	
7	Livestock labor hours (Form 5, Line 11)	hrs.	
8	TOTAL HOURS DIRECT LABOR (sum Lines 6,7)		hrs.
INCOME OVER VARIABLE COSTS:			
9	Crop income over variable costs (Form 4, L. 20, Col 7)	\$	
10	Livestock income over variable costs (Form 5, L.14)		
11	TOTAL INCOME OVER VARIABLE COSTS (sum Lines 9 and 10)		\$
OTHER CASH COSTS & NET CASH INCOME: ¹			
12	Hired labor: _____ no. hired x \$ _____/year =	\$	
13	Cash rent paid: _____ acres rented x \$ _____/acre =		
14	Real estate & property taxes (est. 0.5% of Line 5)		
15	Building insurance & repairs (est. 3% of Line 3)		
16	Miscellaneous expense (est. 2% of Line 11)		
17	TOTAL OTHER CASH COSTS (sum Lines 12, 13, 14, 15, 16)		\$
18	NET CASH FARM INCOME (Line 11 minus Line 17)		\$
DEPRECIATION: ¹			
19	Machinery & equipment (est. 20% of Line 2)	\$	
20	Building & facilities (est. 10% of Line 3)		
21	TOTAL DEPRECIATION (Line 19 + Line 20)		\$
RETURNS:			
22	Farm profit ² (Line 18 minus Line 21)		\$
23	Family labor & mgt. charge (est.) _____ hrs. x \$ _____/hr.=	\$	
24	Return to farm investment capital (Line 22 minus Line 23)		\$
25	Rate earned on farm investment capital (L. 24 - L. 5)		%
26	Interest on farm investment capital (_____ % of Line 5)		
27	Return to family labor & management (L. 22 minus L. 26)		\$

¹Percentage estimates are only guidelines.

²Estimated return to family labor, farm investment capital, and management.

DIRECTIONS: FORM 6, CAPITAL, LABOR, INCOME, & RETURN

Use this form to determine the expected profitability of each long-run plan being considered.

1. Farm investment capital, labor required, and income over variable costs (Lines 1-11) are based on information estimated on Forms 3, 4, and 5. *Total direct labor hours* required (Line 8) may be compared with available hours of labor. *Total income over variable costs* (Line 11) includes interest paid on operating capital.
2. Other cash costs (not accounted for in the budgets) are estimated on Lines 12-16 and totaled on Line 17.
3. Net cash farm income (Line 18) does not include interest paid on investment capital or other cash costs (Line 17). Depreciation (Line 21) is estimated from the farm investment capital totals above.
4. Farm profit (Line 22) is the first returns measure calculated--net cash farm income minus depreciation. Subtracting a charge for labor and management (Line 23), the return to farm investment capital is estimated on Line 24. (Note: this is a return to investment capital, not total capital.)
5. Rate earned on farm investment capital (Line 25) and return to family labor and management (Line 27) and other profit measures calculated on Form 6.

6. Labor balance:		Total hours.
Labor available:	Operator	_____
	Family members	_____
	Total	_____
Labor required:	Direct labor (L.8)	_____
	Misc. labor	_____
	Total	_____
Balance:	Surplus	_____
	Shortage to hire (L. 12)	_____

FORM 7
SUMMARY: DEBT REPAYMENT AND AVAILABLE CASH
(optional)

Present Plan _____
Alternative No. _____

	Item	Details	Totals
	(1)	(2)	(3)
1	Net cash farm income (Form 6, Line 18)	\$	
2	Non-farm income		
3	Total net cash income (Line 1 + Line 2)		\$
4	Interest paid on I.T. & L.T. debts (see Form 8, Line 6)	\$	
5	Est. income tax & Social Security (see Form 9, L. 9)		
6	Family living expenses (estimate)		
7	Subtotal (sum Lines 4, 5, 6)		\$
8	Cash available before payments (Line 3 minus Line 7)		
9	Total annual principal payments (Form 8, Line 5)		
10	Net cash available or balance (Line 8 minus Line 9) ¹		

¹May be used for replacement of capital items, new investments, and cash reserve.

FORM 8
ESTIMATING ANNUAL PRINCIPAL & INTEREST PAYMENTS
(optional)

Present Plan _____
Alternative No. _____

	Item ¹	Average ² principal payment	Average ³ debt	Average interest rate	Average ⁴ interest paid
	(1)	(2)	(3)	(4)	(5)
BEGINNING DEBTS:					
1	Intermediate (1-9 years) \$ _____	\$	\$	%	\$
2	Long term (10+years) \$ _____	\$	\$	%	\$
ADDED DEBTS:					
3	Added intermediate \$ _____	\$	\$	%	\$
4	Added long term \$ _____	\$	\$	%	\$
5	Total Principal Payments (sum Lines 1, 2, 3, 4)	\$			
6	Total Interest Paid (sum Lines 1, 2, 3,4)				\$

¹Enter beginning debt amounts in Column 1 blank.

²Estimate the average principal payment on the beginning debts over the next 5 years.

³Estimate of average debt over next 5 years = beginning amount (Col. 1) less 2 1/2 principal payments (Col. 2).

⁴Estimate average interest paid on I.T. and L.T. debts = average debt (Col. 3) times average interest rate (Col. 4).

DIRECTIONS: FORM 7, DEBT REPAYMENT AND AVAILABLE CASH

Use this form (along with supporting Forms 8 and 9) to determine the expected cash flow consequences of each plan being considered:

1. Total net cash income (line 3) is the estimated cash available before family living, debts, and taxes.
2. Interest paid on I.T. and L.T. debts (Line 4) is calculated on Form 8.
3. Income tax and Social Security expense (Line 5) can be estimated using Form 9.
4. Family living expenses include: food, clothing, household operation, recreation, health, auto expense, life insurance, education, contributions, etc.

FORM 9
ESTIMATING INCOME TAXES & SOCIAL SECURITY
(optional)

Present Plan _____
Alternative No. _____

	Item (1)	Details (2)	Total (3)
1	Farm profit (Form 6, Line 22)	\$	
2	Less interest paid (Form 7, Line 4)		
3	Estimated breeding livestock sales		
4	Farm taxable income (Line 1 minus Line 2)	\$	
5	Non-farm taxable income		
6	Tax table or tax rate schedule income		\$
7	Estimated state and federal taxes: ¹ (From table below)	\$	
8	Estimated Social Security: ² \$ _____ (Line 6) minus \$ _____ (L. 3) = \$ _____ x Social Security tax rate =	\$	
9	Total estimated income tax and Social Security (Line 7 + Line 8)		\$

¹Income tax for married, filing jointly, two dependents:

If amount on Line 6 is:	State and federal tax is approximately this amount:
\$7,001 - \$12,000	\$ 0
\$12,001 - \$20,000	0 - 1,444
\$20,001 - \$28,000	1,444 - 2,784
\$28,001 - \$36,000	2,734 - 4,180
\$36,001 - \$44,000	4,180 - 5,548
\$44,001 - \$64,000	5,548 - 11,552

²Social Security self-employment tax rate:

<u>Year</u>	<u>Maximum taxable wage base</u>	<u>Tax rate</u>	<u>Maximum Soc. Sec. tax</u>
'90	\$51,300	15.3%	\$7,849

FORM 12. ANNUAL LIVESTOCK PLAN

Kind	PRODUCTION										FEED REQUIREMENTS					EXPENSES			
	Beg. inv. no.	Purchases		No. raised	Sales		End inv. no.	Animal products		Soy bu.	Hay tons	Supplement tons	Supplement Cost	Breeding & supplies	Vet. & med.	Gas & fuel			
		No.	Cost		No.	Value		Qty.	Value										
BREEDING																			
(1) Sows	(2) 40	(3) 20	(4) 20	(5) 20	(6) 20	(7) \$2400	(8) 40	(9) 500 mkt	(10) \$40,000	(11) 8000	(12) 40	(13) 40	(14) \$8,000	(15) \$700	(16) \$650	(17) \$500	(18) \$500		
Totals																			
Transfer to			Form 14 L 51-53			Form 14 L 19-21			Form 14 L 10-14										
FEEDER																			
Totals																			
Transfer to			Form 14 L 47-48			Form 14 L 12-14				Form 13 Col. 7			Form 14 L 33	Form 14 L 38	Form 14 L 39	Form 14 L 40			

Form 14
ANNUAL CASH FLOW

	CASH INFLOW	Last year	This year		CASH OUTFLOW	Last year	This year
	OPERATING INCOME				OPERATING EXPENDITURES		
1	Crops: Corn			28	Labor, hired		
2	Milo			29	Mach. repair & maint.		
3	Wheat			30	Building & fence repair		
4	Soybeans			31	Interest		
5	Other grains			32	Cash rent		
6	Grass & clover seed			33	Feed bought		
7	Hay, silage			34	Seeds, twine, etc.		
8	Other, crop			35	Crop chemicals		
9	Govt. payments			36	Fertilizer & lime		
10	Livestock: Milk			37	Machine hire		
11	Eggs, wool			38	Breed. fees & lvstk. supplies		
12	Market cattle			39	Vet. & medicine		
13	Market hogs			40	Gas, fuel, oil		
14	Other mkt. lvstk.			41	Storage & marketing fees		
15	Miscellaneous: Custom work			42	Taxes		
16	Cash rent			43	Insurance		
17	Other, farm			44	Utilities, elect., phone		
18	Total Operating Income Add L 11-17			45	Freight & trucking		
	CAPITAL SALES			46	Farm auto		
19	Breeding beef			47	Feeder cattle		
20	Breeding hogs			48	Feeder hogs		
21	Breeding dairy			49	Other expenses		
22	Machinery & equipment			50	Total Operating Expense Add Ls 28-49		
23	Total Capital Sales ADD L 19-22				CAPITAL EXPENDITURES		
24	Total Cash Income L 18 + L 23			51	Breeding beef		
	OTHER INCOME			52	Breeding hogs		
25	Non-farm income			53	Breeding dairy		
26	Loans			54	Machinery & equipment		
27	Total Cash Available Ls 24+25+26			55	Bldgs. & land improvements		
	Larry C. Jenkins			56	Total Capital Expenditures Add Ls 51-55		
	Agricultural Economics			57	Total Farm Exp Ls 50+56		
					OTHER CASH OUTFLOW		
				58	Principal payments		
				59	Family living		
				60	Total Cash Outflow Ls 57+58+59		
					SUMMARY		
				61	Cash balance L 27 minus L 60		
				62	Accumulated borrowing		

Crop Insurance

CROP INSURANCE

Crop insurance has been around for a long time in this country. The first crop insurance policies were written for tobacco farmers in colonial times. Although the federal government didn't get involved in crop insurance until 1938, under an insurance law that called for protection against unavoidable losses due to natural causes to wheat producers. Since then the federal government has been in the crop insurance business at some level of intensity, and the name crop insurance was changed to *multiple peril crop insurance*.

Although the federal government has been in and out of the crop insurance business since 1938, it was not until 42 years later (1980) that the decision was made to use the program as the main method to assist agricultural producers for relief from natural disasters. Amendments to the Crop Insurance Act made the program more equitable and useable by crop producers. The program goal was to enroll at least 50 percent of all cropland in the United States and to make the program pay for itself in time.

By 1980, crop insurance had received a very bad reputation. The program had many pitfalls. The government had run a half-hearted program for 42 years, and now expected it to take the place of disaster relief bills. One problem with the crop insurance program was that, until 1980, it was of little use for most profit-minded farmers. The policies would only insure production yields up to the ASCS county yield. As long as the program used ASCS yields it catered to farmers whose production levels were lower than county ASCS yield levels. This enabled poorer managers to use crop insurance as an income provision. The better managers, who produced more than the county ASCS yield, had little use for the program. That policy made most producers look at crop insurance as an income-provision policy instead of an insurance policy.

To eliminate these problems, provisions were developed to allow farmers to establish their own levels of yields and have crop insurance cover those levels of yields. This allowed crop insurance to be more attractive to the better managers with higher yields. Also, using actual production statistics, it was shown that the higher producing farms were less likely to have yield losses, and premium charges were lowered for these producers.

Crop insurance should be thought of as a management tool to handle risk and uncertainties created by natural disasters, and not as an income provision. One should also realize that crop insurance is like life insurance, you certainly do not want to use it, but it is there to protect against financial losses.

For example, the following premiums are for different insurable yields of corn production in Blair County. The premiums will be based on a price selection of \$2.60 a bushel and 50%, 65%, and 75% loss coverage levels.

Insurance Yield	50% Option	65% Option	75% Option
40 bu/acre	\$4.99	\$9.00	\$18.95
60 bu/acre	\$4.68	\$8.42	\$17.55
80 bu/acre	\$4.99	\$8.92	\$18.72
100 bu/acre	\$4.42	\$7.77	\$16.59
120 bu/acre	\$4.52	\$8.32	\$17.55

Farmers who improve their yields, especially those whose yields are larger than county ASCS yields, will fare much better under this type of insurance coverage. They receive larger amounts of coverage and, in most cases, pay smaller premiums than do the producers having lower yield levels.

With this change and many others, and with changes still coming, the views, attitudes, and uses of crop insurance have changed greatly since 1980. It should still be remembered that crop insurance is not intended to provide income. Its main purpose is to ensure that producers are not financially devastated by natural disasters. Farmers whose debt level is extremely high, for instance, probably would not survive the financial loss. Basically crop insurance allows a producer to have enough cash to finance a crop next year. Crop insurance may not be necessary for all crop producers. If producers are financially able to withstand the loss from a natural disaster, they may choose to invest the insurance money elsewhere.

The following tables show the amount of insurance payments made to Pennsylvania farmers in 1988, and counties and crops covered by crop insurance in Pennsylvania.

1988 CROP INSURANCE REPORT

St.	County	Protection in force	Gross insured	Total (Dol)	Farmers (Dol)	Losses (Dol)	ratio	Farmers ratio
PA	Allegheny	13,284	110	887	625	8,104	9.14	12.97
PA	Bedford	326,117	2,683	27,227	20,491	95,470	3.51	4.66
PA	Berks	246,801	2,189	18,549	14,612	74,693	4.03	5.11
PA	Blair	533,716	2,485	37,432	26,707	160,329	4.28	6.00
PA	Centre	9,028	121	583	410	0	0.00	0.00
PA	Chester	121,755	835	8,687	7,084	19,084	2.20	2.69
PA	Crawford	294,629	2,727	28,921	20,924	79,907	2.76	3.82
PA	Cumberland	147,190	176	17,008	13,805	6,121	0.36	0.44
PA	Dauphin	264,051	1,980	21,628	15,874	32,672	1.51	2.06
PA	Delaware	100,232	730	5,251	3,726	14,923	2.84	4.01
PA	Fayette	4,566	45	528	437	1,352	2.56	3.09
PA	Franklin	524,195	2,786	49,484	36,100	317,707	6.42	8.80
PA	Fulton	101,055	1,010	9,797	6,996	50,501	5.15	7.22
PA	Huntingdon	340,768	2,264	22,378	15,887	214,977	9.61	13.53
PA	Lackawanna	487,564	752	28,085	19,703	0	0.00	0.00
PA	Lancaster	522,413	2,445	30,327	24,370	50,230	1.66	2.06
PA	Lebanon	97,998	825	6,430	4,872	11,414	1.78	2.34
PA	Luzerne	100,233	214	6,950	4,847	19,084	2.75	3.94
PA	Lycoming	12,952	126	1,260	989	1,207	0.96	1.22
PA	Mercer	51,094	521	3,079	2,138	0	0.00	0.00
PA	Monroe	26,322	216	2,199	1,802	8,066	3.67	4.48
PA	Montgomery	37,526	374	3,461	2,786	6,469	1.87	2.32
PA	Montour	11,466	78	668	468	0	0.00	0.00
PA	Northampton	43,118	487	3,214	2,452	5,042	1.57	2.06
PA	Northumberland	57,916	390	5,341	4,212	15,679	2.94	3.72
PA	Somerset	105,040	174	5,987	4,833	15,146	2.53	3.13
PA	Tioga	117,192	1,185	9,428	6,606	9,821	1.04	1.49
PA	Wyoming	262,983	402	15,351	10,761	5,654	0.37	0.53
PA	York	755,672	5,109	54,070	41,604	176,970	3.27	4.25

Source American Ass. of Crop Insurers

CROP INSURANCE PROGRAMS IN PENNSYLVANIA COUNTIES FOR 1989 CROP YEAR							
CODE	COUNTY	WINTER CROPS	SPRING CROPS	CODE	COUNTY	WINTER CROPS	SPRING CROPS
001	Adams	Bly, Wht	Apl, Crn, GrS, Oat, Pch, Soy	083	McKean	Bly, Wht	Crn, GrS, *Oat
003	Allegheny	Bly, Wht	Apl, Crn, Oat	085	Mercer	Bly, Wht	Crn, GrS, Oat, Soy
005	Armstrong	Bly, Wht	Crn, GrS, Oat	087	Mifflin	Bly, Wht	Crn, GrS, Oat
007	Beaver	Bly, Wht	Crn, Oat	089	Monroe	Bly, Wht	Crn, GrS, Oat, Soy
009	Bedford	Bly, FgS, Wht	Apl, Crn, GrS, Oat	091	Montgomery	Bly, Wht	Crn, GrS, Oat, Soy
011	Berks	Bly, FgS, Wht	Apl, Crn, GrS, Oat, Pch, Soy, Tob	093	Montour	Bly, Wht	Crn, GrS, Oat, Soy, SwC, *Tob
013	Blair	Bly, FgS, Wht	Apl, Crn, GrS, Oat, SwC, Tom	095	Northampton	Bly, Wht	Apl, Crn, GrS, Oat, Soy
015	Bradford	Bly, FgS, Wht	Crn, GrS, Oat	097	Northumberland	Bly, Wht	Crn, GrS, Oat, Soy, SwC, Tom
017	Bucks	Bly, Wht	Apl, Crn, GrS, Oat, Soy, *SwC	099	Perry	Bly, Wht	Crn, GrS, Oat, Soy
019	Butler	Bly, Wht	Crn, Oat, Soy	101			
021	Cambridia	Bly, Wht	Crn, GrS, Oat, Pot	103	Pike	Wht	Crn, *Oat
023	Cameron	Bly, Wht	Crn	105	Potter	Bly, Wht	Crn, GrS, Oat, Pot, SwC
025	Carbon	Bly, Wht	Crn, GrS, Oat, Soy	107	Schuylkill	Bly, Wht	Apl, Crn, GrS, Oat, Pot, SwC, *Tom,
027	Centre	Bly, FgP, FgS, Wht	Apl, Crn, GrS, Oat, Soy, SwC, Tob	109	Snyder	Bly, Wht	Apl, Crn, GrS, Oat, Spy,
029	Chester	Bly, FgP, FgS, Wht	Crn, GrS, Oat	111	Somerset	Bly, FgP, FgS, Wht	Tob, *Tom,
031	Clarion	Bly, Wht	Apl, Crn, GrS, Oat	113	Bly, Wht	Crn, GrS, Oat, Pot	Crn, GrS, Oat, Pot
033	Clearfield	Bly, Wht	Crn, GrS, Oat, Soy	115	Susquehanna	Bly, Wht	Crn, GrS, Oat
035	Clinton	Bly, Wht	Crn, FTo, GrS, Oat, Pot, Soy,	117	Tioga	Bly, FgP, FgS, Wht	Crn, GrS, Oat, Soy, Tob
037	Columbia	Bly, Wht	SwC, Tom	119	Union	Bly, Wht	Crn, GrS, Oat
039	Crawford	Bly, Wht	Crn, GrS, Oat, Soy	121	Venango	Bly, Wht	Crn, GrS, Oat
041	Cumberland	Bly, FgP, FgS, Wht	Apl, Crn, GrS, Oat, Soy, *SwC, Tob	123	Warren	Bly, Wht	Crn, GrS, Oat
043	Dauphin	Bly, Wht	Apl, Crn, GrS, Oat, Soy,	125	Washington	Bly, FgS, Wht	Crn, GrS, Oat
045	Delaware	Bly, Wht	*SwC, Tob, *Tom,	127	Wayne		Apl, Crn, GrS, Oat
047	Elk	Bly, Wht	Crn, Oat	129	Westmoreland	Bly, FgP, FgS, Wht	Crn, GrS, *Oat
049	Erie	Bly, Wht	Apl, Crn, *FTo, GrS, Gra, Oat,	131	Wyoming	Bly, Wht	Crn, FTo, GrS, Oat, Tom
051	Fayette	Bly, Wht	Pot, Soy, SwC, Tom	133	York	Bly, Wht	Apl, Crn, GrS, Oat, Pch, Pot, Soy,
053	Forest	Wht	Crn, GrS, Oat				SwC, Tob
055	Franklin	Bly, FgS, Wht	Apl, Crn, GrS, Oat, Pch, Soy, Tom				
057	Fulton	Bly, Wht	Crn, GrS, Oat				
059	Greene	Bly, Wht	Crn, GrS, *Oat				
061	Huntington	Bly, Wht	Crn, GrS, Oat				
063	Indiana	Bly, Wht	Crn, GrS, Oat, Soy				
065	Jefferson	Bly, Wht	Crn, Oat				
067	Juniata	Bly, Wht	Apl, Crn, GrS, Oat, Soy				
069	Lackawanna	Wht	Crn, FTo, GrS, *Oat, Tom				
071	Lancaster	Bly, FgP, FgS, Wht	Apl, Crn, GrS, Oat, Pch, Pot, Soy				
073	Lawrence	Bly, Wht	*SwC, Tob, Tom				
075	Lebanon	Bly, Wht	Apl, Crn, GrS, Oat, Soy				
077	Lehigh	Bly, Wht	Crn, GrS, Oat, Soy, SwC, Tob				
079	Luzerne	Bly, Wht	Apl, Crn, GrS, Oat, Pch, Pot, Soy				
081	Lycoming	Bly, Wht	Soy, *Tom,				
			Crn, FTo, GrS, Oat, Pot, Soy, Tom				
			Crn, GrS, Oat, Soy, *Tom,				

* = No FCI-35 Rate Table established. Insurance program detailed available through FAO.

NOTE: Please refer to the Date Table in the individual County Actuarial Documents for a listing of specific program dates by crop.

KEY TO CROP ABBREVIATIONS:

Alm/Almonds, Apl/Apples, Bly/Bartley, Ben/Beans C & P, Cit/Citrus, CTr/Citrus Tree, Cm/Com, CrB/Cranberries, Ctn/Cotton, DyB/Dry Beans, DyP/Dry Peas, ELS/Extra Long Staple Cotton, Fg/Figs, Flx/Flax, FgP/Forage Production, FgS/Forage Seeding, FSc/Fresh Market Sweet Corn, FTo/Fresh Tomatoes, GrS/Grain Sorghum, Gra/Grapes, GnP/Green Peas, HSS/Hybrid Sorghum Seed, HyS/Hybrid Corn Seed, Oat/Oats, Oni/Onions, Prs/Pears, Pch/Peaches, Pnt/Peanuts, Pop/Popcorn, Pot/Potatoes, Pru/Prunes, Rai/Raisins, Ric/Rice, Saf/Safflower, Soy/Soybeans, Stf/Stonefruit, SuB/Sugar Beets, SwC/Sweet Corn, TGr/Table Grapes, Tob/Tobacco, Tom/Tomatoes.

**Ratio
Calculations**

**RATIO CALCULATIONS
and
INFORMATION ABOUT THE RATIOS**

$$\text{LIQUIDITY RATIO} = \frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$$

Purpose of ratio

The liquidity ratio is used to measure a business liquidity, or the ability of a business to pay off current debts with current assets.

Rule of thumb

Most agri-lenders prefer a 3:1 ratio.

Reasons for poor ratio

1. Debt payment schedules are not in line with payment needs.
2. Poor money management.
3. Overly optimistic on receipts, and under estimating cash expenditures.

Financial strategies to improve ratio

1. Improve market strategies.
2. Balance debt payments and ability to pay.
3. Tighter control of cash flows.

$$\text{INTERMEDIATE RATIO} = \frac{\text{CURRENT + INTERMEDIATE ASSETS}}{\text{CURRENT + INTERMEDIATE LIABILITIES}}$$

Purpose of ratio

The intermediate ratio is used to measure a business liquidity, or the ability of a business to pay off current and intermediate debts with current and intermediate assets.

Rule of thumb

Most agri-lenders prefer a 3:1 ratio.

Reasons for poor ratio

1. Debt payment schedules are not in line with payment needs.
2. Poor money management.
3. Overly optimistic on receipts, and under estimating cash expenditures.

Financial strategies to improve ratio

1. Improve market strategies, possible using forward contracting or other marketing strategies.
2. Balance debt payments and ability to pay.
3. Tighter control of cash flows

$$\text{DEBT TO EQUITY RATIO} = \frac{\text{TOTAL LIABILITIES}}{\text{NET WORTH}}$$

Purpose of ratio

To measure owner's share of the business.

Rule of thumb

Most agri-lenders prefer at least a 1:1 ratio.

Reasons for poor ratio

1. Over expansion too quickly.
2. Poor money management.
3. Capital expenditures have increased too rapidly.

Financial strategies to improve ratio

1. Control operating costs.
2. Control family living expenses.
3. Restructure debt load.
4. Control capital expenditures.
5. Restructure enterprise selection.

$$\text{NET CAPITAL RATIO} = \frac{\text{TOTAL ASSETS}}{\text{TOTAL LIABILITIES}}$$

Purpose of ratio

To measure overall financial strength.

Rule of thumb

Most agri-lenders prefer at least a 2:1 ratio.

Reasons for poor ratio

1. Over expansion too quickly.
2. Poor money management.
3. Capital expenditures have increased too rapidly.

Financial strategies to improve ratio

1. Control operating costs.
2. Control family living expenses.
3. Restructure debt load.
4. Control capital expenditures.
5. Restructure enterprise selection.

$$\text{RATE OF RETURN ON INVESTMENT} = \frac{\text{NET FARM INCOME} + \text{INTEREST PAID} - \text{LABOR \& MGT.}}{\text{AVERAGE ASSETS}}$$

Purpose of ratio

To measure a firm's profits in relationship to investments.

Rule of thumb

Will vary with the different types of enterprises.

Reasons for poor ratio

1. Inefficiency.
2. Enterprise subject to a high level of risk.
3. Inflation

Financial strategies to improve ratio

1. Improve efficiency.
2. Improve management and marketing strategies.

$$\text{RATE OF RETURN ON EQUITY} = \frac{\text{NET FARM INCOME} + \text{LABOR \& MGT.}}{\text{AVERAGE EQUITY}}$$

Purpose of ratio

To measure a firm's profits in relationship to equity (net worth).

Rule of thumb

Will vary with the different types of enterprises.

Reasons for poor ratio

1. Inefficiency.
2. Enterprise subject to a high level of risk.
3. Inflation.

Financial strategies to improve ratio

1. Restructure debt.
2. Consolidate debts among fewer creditors.
3. Evaluate family living expenses.

$$\text{DEBT PAYMENT RATIO} = \frac{\text{DEBT PAYMENTS}}{\text{TOTAL CASH RECEIPTS}}$$

Purpose of ratio

To determine the relationship between annual debt payments to total incoming receipts.

Rule of thumb

A very general rule, annual debts should not exceed 25 percent of total cash receipts.

Reasons for poor ratio

1. Too optimistic repayment schedule.
2. Too many lenders and no coordination of debts.
3. Unrealistic income and expense projections.
4. Failure to account for risk and uncertainty.

Financial strategies to improve ratio

1. Restructure debt.
2. Consolidate debts among fewer creditors.
3. Evaluate family living expenses.

$$\text{GROSS RATIO} = \frac{\text{TOTAL EXPENSES}}{\text{GROSS FARM REVENUE}}$$

Purpose of ratio

To measure what percent of gross farm revenue is absorbed by total expenses.

Rule of thumb

It will vary depending on the type of farm.

Reasons for poor ratio

1. Poor expenditure control.
2. Poor management and marketing strategies.

Financial strategies to improve ratio

1. Better cost control and improved records used in the decision process.
2. Improved management and marketing skills.

$$\text{OPERATING RATIO} = \frac{\text{OPERATING EXPENSES}}{\text{GROSS FARM REVENUE}}$$

Purpose of ratio

To measure what percent of gross farm revenue is absorbed by operating expenses.

Rule of thumb

It will vary depending on the type of farm.

Reasons for poor ratio

1. Poor expenditure control.
2. Poor management and marketing strategies.

Financial strategies to improve ratio

1. Better cost control and improved records used in the decision process.
2. Improved management and marketing skills.

$$\text{FIXED RATIO} = \frac{\text{FIXED EXPENSES}}{\text{GROSS FARM REVENUE}}$$

Purpose of ratio

To measure what percent of gross farm revenue is absorbed by fixed expenses.

Rule of thumb

It will vary depending on the type of farm.

Reasons for poor ratio

1. Poor expenditure control.
2. Poor management and marketing strategies.
3. Attempting to grow too fast.

Financial strategies to improve ratio

1. Better cost control and improved records used in the decision process.
2. Improved management and marketing skills.

$$\text{TURNOVER RATIO} = \frac{\text{GROSS FARM REVENUE}}{\text{AVER. CAPITAL INVESTMENT}}$$

Purpose of ratio

To measure what percent of gross farm revenue is generated per dollar of average capital investment.

Rule of thumb

It will vary depending on the type of enterprises.

Reasons for poor ratio

1. Unnecessary or excessive capital investments.
2. Poor management and marketing strategies.

Financial strategies to improve ratio

1. Sell excessive capital items.
2. Improved management and marketing skills.

$$\text{CAPITAL TURNOVER (YEARS)} = \frac{\text{TOTAL CAPITAL INVESTED}}{\text{VALUE OF FIRM'S PRODUCTION}}$$

Purpose of ratio

To determine the number of years needed to turnover the capital invested in the firm.

Rule of thumb

It will vary depending on the type of enterprises.

REASONS FOR EXCESS CAPITAL TURNOVER TIME

1. Unnecessary or excessive capital investments.
2. Poor management and marketing strategies.

Financial strategies to improve ratio

1. Sell excessive capital items.
2. Improved management and marketing skills.

**Miscellaneous
Tables**

MISCELLANEOUS TABLES

TABLE 1

ANNUAL PRINCIPAL AND INTEREST PAYMENTS PER DOLLAR BORROWED

No. of years	Annual interest rate										
	8%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1.0800	1.1000	1.1200	1.1300	1.1400	1.1500	1.1600	1.1700	1.1800	1.1900	1.2000
2	.5608	.5762	.5917	.5995	.6073	.6151	.6230	.6308	.6387	.6466	.6545
3	.3880	.4021	.4164	.4235	.4307	.4380	.4453	.4526	.4599	.4673	.4747
4	.3019	.3155	.3292	.3362	.3432	.3503	.3574	.3645	.3717	.3790	.3863
5	.2505	.2638	.2774	.2843	.2913	.2983	.3054	.3126	.3198	.3271	.3344
6	.2163	.2296	.2432	.2502	.2572	.2642	.2714	.2786	.2859	.2933	.3007
7	.1921	.2054	.2191	.2261	.2332	.2404	.2476	.2549	.2624	.2699	.2774
8	.1740	.1874	.2013	.2084	.2156	.2229	.2302	.2377	.2452	.2529	.2606
9	.1601	.1736	.1877	.1949	.2022	.2096	.2171	.2247	.2324	.2402	.2481
10	.1490	.1627	.1770	.1843	.1917	.1993	.2069	.2147	.2225	.2305	.2385
11	.1401	.1540	.1684	.1758	.1834	.1911	.1989	.2068	.2148	.2229	.2311
12	.1327	.1468	.1614	.1690	.1767	.1845	.1924	.2005	.2086	.2169	.2253
13	.1265	.1408	.1557	.1634	.1712	.1791	.1872	.1954	.2037	.2121	.2206
14	.1213	.1357	.1509	.1587	.1666	.1747	.1829	.1912	.1997	.2082	.2169
15	.1168	.1315	.1468	.1547	.1628	.1710	.1794	.1878	.1964	.2051	.2139
20	.1019	.1175	.1339	.1424	.1510	.1598	.1687	.1777	.1868	.1960	.2054
25	.0937	.1102	.1275	.1364	.1455	.1547	.1640	.1734	.1829	.1925	.2021
30	.0888	.1061	.1241	.1334	.1428	.1523	.1619	.1715	.1813	.1910	.2008
35	.0858	.1037	.1223	.1318	.1414	.1511	.1609	.1707	.1806	.1904	.2003
40	.0839	.1023	.1213	.1310	.1407	.1506	.1604	.1703	.1802	.1902	.2001

**Example, if you borrow \$1 for two years at 10% interest, your yearly payments would be 57.62 cents.

TABLE 2
ANNUITY PRESENT VALUE FACTORS

No. of years	Annual interest rate										
	8%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	.926	.909	.893	.885	.877	.870	.862	.855	.848	.840	.833
2	1.783	1.736	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.577	2.487	2.402	**2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.107
4	3.312	3.170	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.993	3.790	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.623	4.355	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	5.206	4.868	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.747	5.335	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	6.247	5.759	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	6.710	6.145	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.193
11	7.139	6.495	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.487	4.327
12	7.536	6.814	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	7.904	7.103	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	8.244	7.367	6.628	6.303	6.002	5.725	5.468	5.229	5.008	4.802	4.611
15	8.560	7.606	6.811	6.462	6.142	5.847	5.576	5.324	5.092	4.876	4.676
20	9.818	8.514	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870
25	10.675	9.077	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	11.258	9.427	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	11.655	9.644	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	11.925	9.779	8.244	7.634	7.105	6.642	6.234	5.871	5.548	5.258	4.997

**Example, if you received \$1 at the end of the year for 3 years, and the interest rate is 13%, it would have the same value as receiving \$2.36 today.

TABLE 3
COMPOUND INTEREST FACTORS

No. of years	Annual interest rate															
	8%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%					
1	1.080	1.100	1.120	1.130	1.140	1.150	1.160	1.170	1.180	1.190	1.200					
2	1.166	1.210	1.254	1.277	1.300	1.323	1.346	1.369	1.392	1.416	1.440					
3	1.260	1.331	1.405	1.443	1.482	1.521	1.561	1.602	1.643	1.685	1.728					
4	1.361	1.464	1.574	1.631	1.689	1.749	1.811	1.874	1.939	2.005	2.074					
5	1.469	1.611	1.762	1.842	1.925	2.011	2.100	2.192	2.288	2.386	2.488					
6	1.587	1.772	1.974	2.082	2.195	2.313	2.436	2.565	2.700	2.840	2.986					
7	1.714	**1.949*	2.211	2.353	2.502	2.660	2.826	3.001	3.186	3.379	3.583					
8	1.851	2.144	2.476	2.658	2.853	3.059	3.278	3.512	3.759	4.021	4.300					
9	1.999	2.358	2.773	3.004	3.252	3.518	3.803	4.108	4.436	4.785	5.160					
10	2.159	2.594	3.106	3.395	3.707	4.046	4.411	4.807	5.234	5.695	6.192					
11	2.332	2.853	3.479	3.836	4.226	4.652	5.117	5.624	6.176	6.777	7.430					
12	2.518	3.138	3.896	4.335	5.818	5.350	5.936	6.580	7.288	8.064	8.916					
13	2.720	3.452	4.364	4.898	5.492	6.153	6.886	7.699	8.599	9.596	10.699					
14	2.937	3.798	4.887	5.535	6.261	7.076	7.988	9.008	10.147	11.420	12.839					
15	3.172	4.177	5.474	6.254	7.138	8.137	9.266	10.539	11.974	13.590	15.407					
20	4.661	6.727	9.646	11.523	13.743	16.366	19.461	23.106	27.393	32.429	38.338					
25	6.848	10.835	17.000	21.230	26.461	32.918	40.874	50.658	62.669	77.388	95.396					
30	10.063	17.449	29.960	39.115	50.949	66.211	85.850	111.065	143.371	184.675	237.376					
35	14.785	28.102	52.799	72.066	98.907	133.172	180.314	243.504	327.997	440.701	590.668					
40	21.724	45.258	93.050	132.776	188.876	267.856	378.721	533.869	750.378	1051.668	1469.772					

**Example, if you put \$1 in the bank, at 10% interest, after 7 years it would be worth \$1.949.

TABLE 4

DOLLARS OF DEBT WHICH CAN BE PAID OFF PER DOLLAR
OF ANNUAL PRINCIPAL AND INTEREST PAYMENT (Using net present value)

No. of years	Annual interest rate															
	8%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%					
2	1.783	1.736	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.546	1.528					
3	2.577	2.487	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106					
4	3.312	3.170	3.038	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589					
5	3.992	3.791	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991					
6	4.623	4.355	4.112	3.997	3.888	3.785	3.685	3.589	3.498	3.410	3.326					
7	5.206	4.869	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605					
8	5.747	5.336	4.968	4.798	4.638	4.486	4.344	4.207	4.078	3.954	3.837					
9	6.246	5.760	5.328	5.131	4.946	4.771	4.607	4.451	4.303	4.163	4.031					
10	6.711	6.146	5.650	5.426	5.216	5.018	4.833	4.659	4.494	4.339	4.192					
15	8.562	7.605	6.812	6.464	6.143	5.848	5.575	5.324	5.092	4.876	4.675					
20	9.814	8.511	7.468	7.022	6.623	6.258	5.929	5.628	5.353	5.101	4.870					
25	10.672	9.074	7.843	7.331	6.873	6.464	6.097	5.766	5.467	5.195	4.948					
30	11.261	9.425	8.058	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979					
40	11.919	9.775	8.244	7.634	7.107	6.640	6.233	5.871	5.548	5.258	4.997					

This is the estimated annual principal and interest payment that can be paid, using net present value (With the discount rate being the same as the interest rate).

TABLE 5

AMORTIZATION TABLES

at varying interest rates for \$1,000 for periods of 5,7,10,20,30, and 40 years

Interest Rate		8%		10%		12%		14%		15%	
Annual payment		\$250.46		\$263.80		\$277.41		\$291.29		\$298.32	
Payment Number	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid
1	\$ 80	\$ 170	\$ 100	\$ 164	\$ 120	\$ 157	\$ 140	\$ 151	\$ 150	\$ 148	
2	66	184	84	180	101	176	119	172	128	171	
3	52	199	65	198	80	197	95	197	102	196	
4	36	215	46	218	56	211	67	224	73	226	
5	18	232	24	240	30	249	36	256	39	259	
Totals	\$252	\$1,000	\$319	\$1,000	\$387	\$1,000	\$457	\$1,000	\$492	\$1,000	
--- 5-year loan ---											
Interest Rate		8%		10%		12%		14%		15%	
Annual payment		\$192.07		\$205.41		\$219.12		\$233.20		\$240.37	
Payment Number	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid
1	\$ 80	\$ 112	\$ 100	\$ 105	\$ 120	\$ 99	\$ 140	\$ 93	\$ 150	\$ 90	
2	71	121	89	116	108	111	127	106	136	104	
3	61	131	78	128	95	124	112	121	121	120	
4	51	141	65	140	80	139	95	138	103	137	
5	40	152	51	154	63	156	76	158	82	158	
6	27	165	36	170	44	175	54	180	59	182	
7	14	177	19	187	23	196	29	204	31	209	
Totals	\$344	\$1,000	\$438	\$1,000	\$533	\$1,000	\$633	\$1,000	\$682	\$1,000	
--- 7 year loan ---											
Interest Rate		8%		10%		12%		14%		15%	
Annual payment		\$149.03		\$162.75		\$176.99		\$191.72		\$199.26	
Payment Number	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid	Principa paid	Interest paid
1	\$ 80	\$ 69	\$ 100	\$ 63	\$ 120	\$ 57	\$ 140	\$ 52	\$ 150	\$ 49	
2	74	75	94	69	113	64	133	59	143	57	
3	69	80	87	76	105	72	125	67	134	65	
4	62	87	79	84	97	80	115	77	124	75	
5	55	94	71	92	87	90	104	87	113	86	
6	48	101	62	101	77	100	92	100	100	99	
7	39	110	51	111	64	112	78	114	85	114	
8	31	118	40	122	51	126	62	129	68	131	
9	21	128	28	134	36	141	44	147	49	151	
10	11	138	15	148	19	158	24	168	26	173	
Totals	\$490	\$1,000	\$627	\$1,000	\$769	\$1,000	\$917	\$1,000	\$992	\$1,000	

AMORTIZATION
LOAN AMORTIZATION TABLES
at varying interest (cont.)

Interest rate		8%		10%		12%		14%		15%		
Annual payment		\$101.85		\$117.46		\$133.88		\$150.99		\$159.77		
Payment number	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	
1	\$ 80	\$ 22	\$ 100	\$ 17	\$ 120	\$ 14	\$ 140	\$ 11	\$ 150	\$ 10	\$ 150	
2	78	24	98	19	118	16	138	13	149	11	149	
3	76	25	96	21	116	17	136	14	147	13	147	
4	74	28	94	23	114	20	135	16	145	15	145	
5	72	30	92	26	112	22	132	19	143	17	143	
6	70	32	89	28	109	25	130	21	140	20	140	
7	67	35	87	31	107	27	127	24	137	23	137	
8	64	37	83	34	103	31	123	28	134	26	134	
9	61	40	80	37	100	34	120	32	130	30	130	
10	58	44	76	41	95	39	115	36	125	34	125	
15	38	64	51	66	66	68	82	69	91	69	91	
20	8	94	11	107	14	119	18	132	21	138	21	138
Totals (20 years)	\$1,037	\$1,000	\$1,349	\$1,000	\$1,677	\$1,000	\$2,019	\$1,000	\$2,194	\$1,000	\$2,194	
Interest rate		8%		10%		12%		14%		15%		
Annual payment		\$88.83		\$106.08		\$124.15		\$142.81		\$152.31		
Payment number	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	
1	\$ 80	\$ 9	\$ 100	\$ 6	\$ 120	\$ 4	\$ 140	\$ 3	\$ 150	\$ 2	\$ 150	
2	79	10	99	7	120	5	140	3	150	3	150	
3	78	10	99	7	119	5	139	4	149	3	149	
4	78	11	98	8	118	6	139	4	149	4	149	
5	77	12	97	9	118	7	138	5	148	4	148	
6	76	13	96	10	117	8	137	5	148	5	148	
7	75	14	95	11	116	8	137	6	147	5	147	
8	74	15	94	12	115	9	136	7	146	6	146	
9	72	16	93	13	114	10	135	8	145	7	145	
10	71	18	92	14	113	12	134	9	144	8	144	
20	51	38	69	37	88	36	109	34	119	33	119	
30	7	82	10	96	13	110	17	123	19	128	19	128
Totals (30 years)	\$1,665	\$1,000	\$2,182	\$1,000	\$2,724	\$1,000	\$3,283	\$1,000	\$3,564	\$1,000	\$3,564	

TABLE 5
AMORTIZATION
LOAN AMORTIZATION TABLES
at varying interest (cont.)

Interest Rate Annual Payment Payment number	8%		10%		12%		14%		15%	
	Interest paid	principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid	Interest paid	Principal paid
1	\$ 80	\$ 4	\$ 100	\$ 2	\$ 120	\$ 1	\$ 140	\$ 1	\$ 149	\$ 1
2	80	4	100	2	120	2	140	1	149	1
3	79	5	100	3	120	2	140	1	149	1
4	79	5	99	3	119	2	140	1	149	1
5	79	5	99	3	119	2	139	1	149	1
6	78	6	99	4	119	2	139	1	149	1
7	78	6	98	4	119	3	139	2	149	1
8	77	7	98	4	118	3	139	2	149	2
9	77	7	97	5	118	3	139	2	149	2
10	76	8	97	5	118	4	138	2	149	2
20	67	17	88	14	110	11	131	9	142	8
30	48	36	66	36	86	35	107	33	118	33
40	6	78	9	93	13	104	17	119	18	116
Totals (40 years)	\$2,354	\$1,000	\$3,090	\$1,000	\$3,847	\$1,000	\$4,622	\$1,000	\$5,006	\$1,000

TABLE 6
PRESENT VALUE FACTORS

No. of years	Annual interest rate										
	8%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	.926	.909	.893	.885	.877	.870	.862	.855	.847	.840	.833
2	.857	**826	.797	.783	.769	.756	.743	.731	.718	.706	.694
3	.794	.751	.712	.693	.675	.658	.641	.624	.609	.593	.579
4	.735	.683	.636	.613	.592	.572	.552	.534	.516	.499	.482
5	.681	.621	.567	.543	.519	.497	.476	.456	.437	.419	.402
6	.630	.564	.507	.480	.456	.432	.410	.390	.370	.352	.335
7	.583	.513	.452	.425	.400	.376	.354	.333	.314	.296	.279
8	.540	.467	.404	.376	.351	.327	.305	.285	.266	.249	.233
9	.500	.424	.361	.333	.308	.284	.263	.243	.225	.209	.194
10	.463	.386	.322	.295	.270	.247	.227	.208	.191	.176	.162
11	.429	.351	.288	.261	.237	.215	.195	.178	.162	.148	.135
12	.397	.319	.257	.231	.208	.187	.168	.152	.137	.124	.112
13	.368	.290	.229	.204	.182	.163	.145	.130	.116	.104	.093
14	.341	.263	.205	.181	.160	.141	.125	.111	.099	.088	.078
15	.315	.239	.183	.160	.140	.123	.108	.095	.084	.074	.065
20	.215	.149	.104	.087	.073	.061	.051	.043	.037	.031	.026
25	.146	.092	.059	.047	.038	.030	.024	.020	.016	.013	.010
30	.099	.057	.033	.026	.020	.015	.012	.009	.007	.005	.004
35	.068	.036	.019	.014	.010	.008	.006	.004	.003	.002	.002
40	.046	.022	.011	.008	.005	.004	.003	.002	.001	.001	.001

Example, if you receive \$1 two years from today, and the interest rate is 10%, that money would be worth 82.6 cents today.

TABLE 7
GENERAL INFORMATION ABOUT MILK

PASTEURIZATION:

A process named for Louis Pasteur, scientist, by which every particle of milk is heated to not lower than 145° F. for not less than 30 minutes and promptly cooled to destroy any harmful bacteria that may be present without affecting flavor and food value. Another method raises the temperature of milk quickly to at least 161° F. for not less than 15 seconds, followed by rapid cooling.

MILK EQUIVALENT

CONVERSIONS:

One quart of milk weighs 2.15 pounds.

Specific gravity of milk at 60° F. is 1.032.

The quantity of milk actually used to produce one pound of each product depends chiefly upon the milkfat content of the milk, and this varies in different sections of the country and, to some extent, with the season. The following table is therefore only an approximation.

To make one pound of:	Requires:
Butter	21.2 lbs. whole milk
Whole milk cheese	10.0 lbs. whole milk
Evaporated milk	2.1 lbs. whole milk
Condensed milk	2.3 lbs. whole milk
Whole milk powder	7.4 lbs. whole milk
Powdered cream.....	13.5 lbs. whole milk
Ice cream (1 gal.).....	12.0 lbs. whole milk
	(15 pounds when including butter and concentrated milk)
Cottage cheese	6.25 lbs. skim milk
Nonfat dry milk.....	11.00 lbs. skim milk
Source: U.S.D.A.	

TABLE 8
CUSTOM RATES: SELECTED FARMING OPERATIONS,
PENNSYLVANIA, 1989

Job	Basis of charge	Mountain section	Valley section	state
<u>Harvesting</u>				
Corn picking	acre	\$18.90	18.60	18.70
Corn picking and shelling.....	acre	22.80	22.50	22.60
Corn combining.....	acre	23.50	23.00	23.20
Corn drying (23 percent)	bu.	.26	.26	.26
Combining small grains.....	acre	20.30	21.00	20.70
Hay making:				
Mowing.....	acre	6.90	7.00	7.00
Mowing and conditioning	acre	8.30	8.60	8.50
Raking	acre	4.90	4.90	4.90
Pick-up bailing:				
Twine	bale	.30	.30	.30
Wire	bale	.38	.38	.38
Cut, rake, bale and store	bale	.67	.75	.71
Large round baler (avg. = 1120 lbs.)	bale	6.20	5.80	6.00
Staker-wagon (avg. = 1 ton).....	stack	18.00	18.60	18.00
Silage making:				
Pull-type chopper and tractor	hour	30.00	32.50	31.30
Self-propelled chopper	hour	47.00	53.00	50.00
Blower.....	hour	5.00	5.20	5.10
1 Person, 2 wagons, 1 tractor	hour	25.00	27.20	26.10
2 persons 2 wagons, 2 tractors.....	hour	38.30	39.30	38.50
<u>Plowing and cultivating</u>				
Plowing, moldboard plow:				
Spring stubble	acre	\$10.20	11.30	10.80
sod	acre	11.40	12.00	11.70
Fall, stubble	acre	10.30	11.30	10.80
sod	acre	11.80	12.50	12.20
Plowing, deep (10 inches or more) .	acre	12.50	12.80	12.70
Plowing, chisel	acre	10.80	10.60	10.70
Plowing, disk.....	acre	9.80	10.10	10.00
Disking, tandem.....	acre	8.70	9.00	8.90
with harrow or cultipacker	acre	9.80	10.20	10.00
Harrowing:				
Spike tooth.....	acre	\$ 6.50	7.10	6.80
Spring tooth.....	acre	7.50	7.50	7.50
Cultivating	acre	7.80	7.90	7.90
<u>Planting and drilling</u>				
Planting corn with fertilizer:				
Conventional-till planting	acre	\$ 9.90	10.60	10.30
Reduced-till planting	acre	11.30	11.50	11.40
No-Till	acre	12.10	12.80	12.50

TABLE 8(cont.)

**CUSTOM RATES: SELECTED FARMING OPERATIONS,
PENNSYLVANIA, 1989**

Job	Basis of charge	Mountain section	Valley section	State
<u>Planting and drilling - continued</u>				
Planting soybeans, without fertilizer:				
Conventional-till.....	acre	\$ 9.20	10.00	9.60
Reduced-till	acre	10.90	11.30	11.10
No-till	acre	12.60	13.20	12.90
Drilling Small Grain:				
Without fertilizer	acre	7.70	8.10	7.90
With fertilizer	acre	8.60	8.80	8.70
With fertilizer and cloverseed.....	acre	9.80	10.00	9.90
Seeding alfalfa, clover, etc.....	acre	8.40	9.10	9.80
Broadcast seeding (on grain fields)....	acre	5.00	5.40	5.20
Cleaning grain seed:				
With treatment	bu.	.58	.64	.61
Without treatment	bu.	.40	.45	.43
<u>Spraying</u>				
Ground equipment:				
Spraying for weed control:				
Excluding material.....	acre	5.10	5.00	5.00
Spraying for corn borer:				
Including cost of material	acre	9.50	9.50	9.50
Excluding cost of material	acre	5.00	5.10	5.10
Spraying for spittle bug or alfalfa weevil:				
Including cost of material	acre	7.00	7.20	7.10
Excluding cost of material	acre	5.20	5.10	5.10
Aerial application (excluding material):				
Fixed wing.....	acre	7.50	7.50	7.50
Helicopter	acre	7.50	7.80	7.70
<u>Miscellaneous</u>				
Stalk shredding, p. t. o.....	acre	\$ 7.40	8.00	7.70
Spreading bulk fertilizer:				
Dry	acre	4.80	4.60	4.70
Liquid	acre	4.80	4.80	4.80
Side dressing.....	acre	5.70	5.80	5.80
Grinding feed:				
Corn, oats, or barley	cwt.	.53	.51	.52
Corn and cobs	cwt.	.54	.53	.53
Cobs	cwt.	.55	.54	.54
Additional charge for mixing.....	cwt.	.18	.18	.18
Machine tiling (no tile)	foot	.40	.46	.43
Back hoe	hour	32.10	32.00	32.00
Sawing wood (chain saw)	hour	10.00	10.40	10.20
Post hole digging	hole	.67	.71	.69
Manure loading.....	hour	17.20	18.00	17.60
Manure spreading.....	hour	18.00	18.50	18.30
Bulldozing (avg. h.p. 89).....	hour	42.80	44.60	43.70
Source PA Dept AG				

TABLE 9

**PENNSYLVANIA: ACREAGE, YIELD, PRODUCTION, DISPOSITION
AND VALUE OF GRAINS AND HAY, 1960-1988**

YEAR	Acres		Production		Season ave	Value of production
	Planted	Harvested	Per acre	Total	price per unit	
	Thous	Bushel	Thous. bu.	\$/bu.	Thous. Dols	
<u>Winter Wheat</u>						
1960..	546	535	29.5	15,782	1.67	26,356
1970..	286	275	33.0	9,075	1.42	12,887
1980..	260	250	37.0	9,250	4.10	37,925
1984..	230	220	38.0	8,360	3.60	30,096
1985..	220	210	48.0	10,080	3.05	30,744
1986..	230	220	44.0	9,680	2.75	26,620
1987..	190	185	43.0	7,955	2.90	23,070
1988..	175	170	53.0	9,010	3.65	32,887
<u>Oats</u>						
1960..	684	653	42.5	27,752	.74	20,536
1970..	420	395	57.0	22,515	.78	17,562
1980..	360	340	56.0	19,040	2.13	40,555
1984..	300	280	57.0	15,960	1.94	30,962
1985..	320	300	70.0	21,000	1.26	26,460
1986..	290	260	62.0	16,120	1.37	22,084
1987..	290	260	57.0	14,820	1.83	27,121
1988..	290	260	50.0	15,000	2.55	33,150
<u>Barley</u>						
1960..	172	168	45.0	7,560	.92	6,955
1970..	180	172	50.0	8,600	.96	8,256
1980..	80	75	50.0	3,750	2.89	10,838
1984..	75	70	52.0	3,640	2.45	8,918
1985..	75	70	62.0	4,340	1.60	6,944
1986..	70	65	60.0	3,900	1.35	5,265
1987..	65	60	57.0	3,420	1.45	4,959
1988..	60	55	66.0	3,630	2.35	8,531
<u>Soybeans</u>						
1960..	26	7	23.0	161	2.10	338
1970..	30	28	32.0	896	2.90	2,598
1980..	135	130	24.5	3,185	7.60	24,206
1984..	175	170	35.0	5,950	5.84	34,748
1985..	175	170	35.0	5,950	4.75	28,263
1986..	160	155	35.0	5,425	4.85	26,311
1987..	170	165	34.0	5,610	6.20	34,782
1988..	230	225	32.0	7,200	7.55	54,360
<u>Corn for grain</u>						
1960..	1,202	923	67.0	61,841	1.22	75,446
1970..	1,260	914	89.0	81,346	1.51	122,832
1980..	1,800	1,280	75.0	96,000	3.62	347,520
1984..	1,780	1,350	110.0	148,500	2.83	420,255
1985..	1,780	1,380	110.0	151,800	2.48	376,464
1986..	1,670	1,240	103.0	127,720	1.83	233,728
1987..	1,550	1,060	90.0	95,400	2.47	235,638
1988..	1,480	910	65.0	59,150	3.20	189,280

TABLE 9(cont.)

		<u>Corn for silage</u>				
		<u>Tons</u>	<u>Thous.Tons</u>	<u>\$/Ton</u>		
1960..	-	260	11.5	2,990	8.50	25,415
1970..	-	318	15.5	4,929	10.50	51,755
1980..	-	498	12.6	6,275	22.50	141,188
1984..	-	420	16.5	6,930	26.30	182,259
1985..	-	395	16.5	6,518	23.70	154,477
1986..	-	420	15.0	6,300	19.00	119,700
1987..	-	480	14.5	6,960	21.30	148,248
1988..	-	550	10.0	5,500	27.60	151,800
		<u>All hay</u>				
1960..	-	2,087	1.91	3,991	24.30	96,981
1970..	-	2,069	2.18	4,511	30.00	135,330
1980..	-	1,950	2.14	4,182	75.00	313,650
1984..	-	1,980	2.57	5,082	85.00	431,970
1985..	-	1,990	2.66	5,302	67.50	357,885
1986..	-	2,000	2.56	5,124	80.00	409,920
1987..	-	2,030	2.56	5,198	84.50	439,231
1988..	-	2,040	2.31	4,716	94.00	443,304

Source: PA Dept AG

TABLE 10

CAPACITIES OF HAYMOWS FOR BALED OR CHOPPED HAY

Length of section	Depth of hay in mow	Width of barn				
		30 ft.	32 ft.	34 ft.	36 ft.	40 ft.
----- tons -----						
12 ft.	6 ft.	10.8	11.5	12.2	13.0	14.4
	9 ft.	16.2	17.3	18.4	19.4	21.6
	12 ft.	21.1	23.0	24.5	25.9	28.8
	15 ft.	27.0	28.8	30.6	32.4	36.0
14 ft.	6 ft.	12.6	13.4	14.3	15.1	16.8
	9 ft.	18.9	20.2	21.4	22.7	25.2
	12 ft.	25.2	26.9	28.6	30.2	31.9
	15 ft.	31.5	33.6	35.7	37.8	42.0
16 ft.	6 ft.	14.4	15.4	16.3	17.3	19.2
	9 ft.	21.6	23.0	24.5	25.9	28.8
	12 ft.	28.8	30.7	32.6	34.6	38.4
	15 ft.	36.0	38.4	40.8	43.2	48.0
18 ft.	6 ft.	16.2	17.3	18.4	19.4	21.6
	9 ft.	24.3	25.9	27.5	29.2	32.4
	12 ft.	32.4	34.6	36.7	38.9	43.2
	15 ft.	40.5	43.2	45.9	48.6	54.0
20 ft.	6 ft.	18.0	19.2	20.4	21.6	24.0
	9 ft.	27.0	28.8	30.6	32.4	36.0
	12 ft.	36.0	38.4	40.8	43.2	48.0
	15 ft.	45.0	48.0	51.0	54.0	60.0

Note: A ton of baled or chopped hay will occupy 200 cubic feet.

Source: *Successful Farmer* June 1974

TABLE 11

**AMOUNT AND NUTRIENT CONTENT OF FRESH MANURE
PRODUCED BY FARM ANIMALS**

Kind of animal	Manure produced		Water %	Pounds nutrients per ton		
	Daily	Annual tons		Nitrogen N	Phosphate P ₂ O ₅	Potash K ₂ O
	lbs.					
Beef cow	60.00	11.00	80%	14.0	9.0	11.0
Dairy cow	70.00	13.00	84%	12.0	5.0	12.0
Hog	9.00	1.70	75%	10.0	7.0	13.0
Horse	44.00	8.00	60%	12.0	5.0	9.0
Sheep	4.00	.72	65%	21.0	7.0	19.0
Laying hen	.30	.05	75%	20.0	25.0	10.0
Broiler*	.28		75%	56.0	46.0	36.0
Turkey*	.75		75%	26.0	15.0	10.0

TABLE 12

**MANURE NITROGEN AVAILABILITY BASED ON TIME
OF APPLICATION AND INCORPORATION**

Time of application and incorporation	N availability factor	
	Poultry manure Manure	Other manure
Applied this year		
incorporation within 2 days	0.75	0.50
incorporation within 3-4 days	0.45	0.35
incorporation within 5-6 days	0.30	0.30
incorporation after 7 days or no incorporation	0.15	0.20
Applied previous fall or winter regardless of incorporation	0.15	0.20

Source: Penn State Agronomy Guide

TABLE 13
HOW TO COMPARE FEED PRICES*

If corn price per bu. is:	Here's a rough idea of what you can pay for:			
	Oats/bu.	Barley/bu.	Sorghum/cwt.	Wheat/bu.
\$2.40	\$1.22	\$1.94	\$3.86	\$2.64
2.60	1.33	2.11	4.17	2.86
2.80	1.43	2.27	4.49	3.08
3.00	1.53	2.43	4.81	3.30
3.20	1.63	2.59	5.14	3.52
3.40	1.73	2.75	5.46	3.74
3.60	1.84	2.92	5.78	3.96
3.80	1.94	3.08	6.10	4.18
4.00	2.04	3.24	6.42	4.40
4.20	2.14	3.40	6.72	4.62
4.40	2.24	3.56	7.06	4.84

*Prices of oats, barley, grain sorghum, and wheat equivalent to the specified levels of corn prices after adjusting for differences in weight and feeding value.

TABLE 14
HOW TO MIX FEEDS WITH SPECIFIED CRUDE PROTEIN LEVELS

Shelled corn 9% C.P.		40% crude protein supplement		Crude protein in mixture	
				As-fed basis	Dry matter basis
1.82 lbs.	+	1 lb.	=	20%	22.2%
2.10 lbs.	+	1 lb.	=	19%	21.1%
2.45 lbs.	+	1 lb.	=	18%	20.0%
2.87 lbs.	+	1 lb.	=	17%	18.9%
3.43 lbs.	+	1 lb.	=	16%	17.8%
4.17 lbs.	+	1 lb.	=	15%	16.7%
5.20 lbs.	+	1 lb.	=	14%	15.6%
6.75 lbs.	+	1 lb.	=	13%	14.4%
9.33 lbs.	+	1 lb.	=	12%	13.3%
14.50 lbs.	+	1 lb.	=	11%	12.2%
30.00 lbs.	+	1 lb.	=	10%	11.1%

TABLE 15

**GRADE REQUIREMENTS FOR YELLOW CORN,
WHITE CORN, AND MIXED CORN**

Grade	Minimum test weight per bu.	Maximum Limits of--			
		Moisture	Cracked corn & foreign material	Damaged Total	kernels Heat-damaged
	lbs.	%	%	%	%
1	56	14.0	2	3	.1
2	54	15.5	3	5	.2
3	52	17.5	4	7	.5
4	49	20.0	5	10	1.0
5	46	23.0	7	15	3.0

Sample: Sample grade shall be corn which does not meet the requirements for any of the grades for No. 1 to No. 5, inclusive; or which contains stones; or which is musty, or sour, or heating; or which has any commercially objectionable foreign odor; or which is otherwise of distinctly low quality.

Source: U.S.D.A.

TABLE 16

GRADE REQUIREMENTS FOR GRAIN SORGHUMS

Grade	Minimum test weight per bu.	Maximum Limits of--			
		Moisture	Damaged kernels		Broken kernels foreign materials & other grains
			Total	Heat-damaged kernels	
	lbs.	%	%	%	%
1	57	13	2	.2	4
2	55	14	5	.5	8
3*	53	15	10	1.0	12
4	51	18	15	3.0	15

Sample: Sample grade shall be grain sorghums which do not meet the requirements of any of the grades from No. 1 to No. 4, inclusive; or which contain stones; or which is musty, or sour, or heating, or which are badly weathered; or which have any commercially objectionable foreign odor except of smut; or which are otherwise of distinctly low quality. Grain sorghum which is distinctly discolored shall not be graded higher than No. 3.

Source: U.S.D.A.

TABLE 17
GRADE REQUIREMENTS FOR SOYBEANS

Grade	Minimum test weight per bu.	Maximum Limits of--					
		Moisture	Splits	Damaged kernels		Foreign material	Brown black &/or bicolored beans in yellow or green beans
				Total	Heat-damaged		
	lbs,	%	%	%	%	%	%
1	56	13.0	10	2.0	.2	1.0	1.0
2	54	14.0	20	3.0	.5	2.0	2.0
3*	52	16.0	30	5.0	1.0	3.0	5.0
4**	49	18.0	40	8.0	3.0	5.0	10.0

Sample: Sample grade shall be soybeans which do not meet the requirements for any of the grades from No. 1 to No. 4, inclusive; or which are musty, sour, or heating; or which have any commercially objectionable foreign odor; or which contain stones; or which are otherwise of distinctly low quality.

*Soybeans which are purple mottled or stained shall be graded not higher than No. 3.

**Soybeans which are materially weathered shall be graded not higher than No. 4.

Source: U.S.D.A.

TABLE 18
GRADES AND GRADE REQUIREMENTS FOR BARLEY

Grade	Maximum limits of -											
	Minimum limits of -	Test weight per bushel	Sound barley	Damaged kernels ¹	Heat-damaged kernels (Major)	Foreign material	Broken kernels	Thin barley	Black barley ²	Percent	Percent	Percent
U.S. No. 1 ...	Pounds	47.0	97.0	2.0	0.2	1.0	4.0	10.0	0.5	Percent	Percent	Percent
U.S. No. 2 ...		45.0	94.0	4.0	0.3	2.0	8.0	15.0	1.0			
U.S. No. 3 ...		43.0	90.0	6.0	0.5	3.0	12.0	25.0	2.0			
U.S. No. 4 ³ ...		40.0	85.0	8.0	1.0	4.0	18.0	35.0	5.0			
U.S. No. 5 ...		36.0	75.0	10.0	3.0	5.0	28.0	75.0	10.0			
U.S. Sample												

grade.....U.S. Sample grade shall be barley which -

(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5.

(b) Contains a quantity of smut so great that one or more of the grade

requirements cannot be determined accurately.

(c) Contains more than 7 stones or more than 2 crotalaria seeds (Crotalaria spp.)

per 1,000 grams of barley.

(d) Has a musty, sour or commercially objectionable foreign odor (except smut

or garlic odor, or

(e) Contains the seeds of wild brome grasses, or

(f) Is heating or otherwise of distinctly low quality.

¹Includes heat damaged kernels (major). Frost-damaged kernels (minor

and mold-damaged kernels (minor) shall not be considered as damaged.

²These limits do not apply to the class black barley.

Source:U.S.D.A.

TABLE 19
GRADES AND GRADE REQUIREMENTS FOR OATS

Grade	Minimum limits		Maximum limits		
	Test weight per bushel	Sound oats	Heat-damaged kernels	Foreign material	Wild oats
	Pounds	Percent	Percent	Percent	Percent
U.S. No. 1	36.0	97.0	0.1	2.0	2.0
U.S. No. 2	33.0	94.0	.3	3.0	3.0
U.S. No. 3 ¹ ...	30.0	90.0	1.0	4.0	5.0
U.S. No. 4 ² ...	27.0	80.0	3.0	5.0	10.0

U.S. Sample

grade.....U.S. Sample grade shall be oats which -

(a) Do not meet the requirements for the grades U.S. No. 1, 2, 3, or 4.

(b) Contain more than 7 stones which have an aggregate weight in excess of 0.2 percent of the sample weight or more than 2 crotalaria seeds (*Crotalaria* spp.) per 1,000 grams of oats or more than 16 percent moisture.

(c) Have a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor), or

(d) Are heating or otherwise of distinctly low quality.

¹Oats that are slightly weathered shall be graded not higher than U.S. No. 3.

²Oats that are badly stained or materially weathered shall be graded not higher than U.S. No. 4.

Source:U.S.D.A.

TABLE 20

GRADES AND GRADE REQUIREMENTS FOR WHEAT

Grade	Minimum test weight per bushel (pounds)							Percent maximum limits of -		
	Winter wheat	Heat damaged kernels	Damaged kernels (total) ¹	Foreign material	Shrunken and broken kernels	Defect (total) ²	Wheat of other classes ³			
							Contrasting classes	Wheat of other classes	(total) ⁴	
U.S. No. 1 ..	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0	3.0	
U.S. No. 2 ..	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0	5.0	
U.S. No. 3 ..	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0	10.0	
U.S. No. 4 ..	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0	10.0	
U.S. No. 5 ..	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0	10.0	

U.S. Sample grade.... U.S. sample grade shall be wheat which:
 (1) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
 (2) Contains a quantity of smut so great that 1 or more of the grade requirements cannot be determined accurately; or
 (3) Contains 8 or more stones, 2 or more pieces of glass, 3 or more crotalaria seeds (Crotalaria spp.), 3 or more castor beans (Ricinus communis), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), or 2 or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth per 1,000 g of wheat; or
 (4) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
 (5) Is heating or otherwise of distinctly low quality.

¹Includes heat-damaged kernels.
²Defects (total) includes damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit of defects.
³Unclasses wheat of any grade may contain not more than 10 percent of wheat of other classes.
⁴Includes contrasting classes.
 Source: U.S.D.A.

TABLE 21

TABLE OF ENGLISH MEASURES

<p><u>Length</u></p> <p>1 hand = 4 inches 1 span = 9 inches 1 link = 7.92 inches 1 foot = 12 inches 1 yard = 3 feet 1 fathom = 6 feet 1 rod = 25 links = 16.5 feet = 5.5 yards 1 pole = 1 rod = 16.5 feet 1 (Gunter's) chain = 66 feet = 100 links 1 furlong = 10 chains = 40 poles = 40 rods = 220 yards = 660 feet 1 mile = 8 furlongs = 80 chains = 320 rods = 1,760 yards = 5,280 feet 1 league = 3 miles (approx.) 1 knot = 6,086 feet 1 league (nautical) = 3 knots</p> <p><u>Square (surface area) measures</u></p> <p>1 sq. ft. = 144 sq. in. 1 sq. yd. = 9 sq. ft. 1 sq. rd. = 30.25 sq. yds. 1 acre = 10 sq. chains = 160 sq. rods = 4,480 sq. yd. = 43,560 sq. ft. (or a square 208.7 ft. on a side) 1 sq. mi. = 640 ac. = 6,400 sq. chains 1 section = 1 sq. mi. = 640 ac. 1 township = 36 sq. mi. or 36 sections</p> <p><u>Cubic (volume) measures</u></p> <p>1 cu. ft. = 1,728 cu. in. = 8 bu. = 7.48 gal. 1 cu. yd. = 27 cu. ft. 1 standard bu. = 2,150.42 cu. in. = 1.25 cu. ft. 1 standard gal. = 231 cu. in. = .1337 cu. ft.</p> <p><u>Weights</u></p> <p>1 pound = 16 ounces 1 ton = 2,000 pounds 1 long ton = 2,240 pounds 1 metric ton = .984 long or gross tons = 1.102 tons 1 stone = 14 pounds</p>	<p><u>Liquid measures</u></p> <p>1 teaspoon = .17 fl. oz. (1/6 oz.) 1 tablespoon = 3 tsp. (1/2 oz.) 1 fl. oz. = 2 tablespoons 1 gill = 1/2 cup (4 oz.) 1 cup = 16 tablespoons = 8 fl. oz. 1 pint = 2 cups = 4 gills = 16. fl. oz. 1 quart = 2 pints = 4 cups = 32 fl. oz. 1 gallon = 4 quart = 8 pint = 128 fl. oz. 1 hogshead = 2 barrels (when a barrel = 31.5 gallon)</p> <p><u>Dry measures</u></p> <p>1 quart = 2 pints 1 peck = 8 qt. = 16 pints 1 bushel = 4 pecks = 32 qt. = 64 pints 1 chaldron = 36 bushels</p> <p><u>Miscellaneous measurements</u></p> <p>1 gross = 144 (12 doz.) 1 board foot = 144 cu. in. (piece of wood 12 in. x 12 in. x 1 in.) 1 cord (wood) = 128 cu. ft. (stack 4 ft. x 4 ft. x 8 ft.) 1 gal. water = 8.33 lbs. (approx.) 1 gal. milk = 8.6 lbs. 1 gal. cream = 8.4 lbs. 100 lbs. milk = 46.5 qt. 1 bale cotton = 480 lbs. 1 cu. ft. water = 62.5 lbs. = 7.5 gal.</p>
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TABLE 23

SOME COMMON ENGLISH AND METRIC EQUIVALENTS

ENGLISH TO METRIC	METRIC TO ENGLISH
<p>LENGTH</p> <p>1 inch = 2.54 cm or 25.4 mm 1 foot = 30.48 cm or .3048 m 1 yard = .9144 m 1 mile = 1.609 km or 1609.34 m 1 nautical mile = 1.853 km</p> <p>VOLUME</p> <p>1 teaspoon = 5 to 6 cc 1 tablespoon = 15 to 16 cc 1 fl. oz. = 29.57 cc 1 qt. liquid = .946 liters 1 gal. = 3.785 liters</p> <p>WEIGHT</p> <p>1 oz. = 28.35 g 1 lb. = 4.54 g = .454 kg 187 lbs. (avg. man) = 85 kg 121 lbs. (avg. woman) = 55 kg 1 ton = .91 tonnes</p> <p>TEMPERATURE</p> <p>32 ° F (freezing) = 0 ° Celsius (centigrade) 68° F (room temp.) = 20° C 98.6° F (body temp.) = 37° C 212° F (boiling) = 100° C</p> <p>VELOCITY</p> <p>1 mph = 1.6 km/hr. 20 mph = 32 km/hr. 60 mph = 96 km/hr. 70 mph = 112 km/hr.</p>	<p>LENGTH</p> <p>mm = millimeter = .03937 in. cm = centimeter = .3937 in. m = meter = 39.37 in. = 3.28 ft. = 1.094 yd. km = kilometer = 5/8 mi. = .621 mi. = 3,280.83 ft.</p> <p>VOLUME</p> <p>1 = liter = 1.057 qt. = .264 gal. cc = cubic centimeter = .061 cu. in.</p> <p>WEIGHT</p> <p>mg = milligram cg = centigram g = gram = .0022 lb. = .035 oz. kg = kilogram = 2.205 lbs.</p> <p>AREA</p> <p>ha = hectare = 2.5 acres 1 m² = 11 sq. ft.</p> <p>FORCE</p> <p>20 N = 20 newton = 4.5 lbs. 1 N = .2248 lb. force</p>

TABLE 24

PREFIXES USED TO DESIGNATE MULTIPLES AND DIVISIONS IN THE METRIC SYSTEM

Prefix	Multiple
mega-	1,000,000
myria-	10,000
kilo-	1,000
hecto-	100
deca-	10
deci-	.1 (1/10)
centi-	.01 (1/100)
milli-	.001 (1/1,000)
micro-	.000001 (1/1,000,000)

TABLE 25

CONVERTING BROADCAST RATES TO BAND RATES

When the broadcast rate is given, determine the band rate as follows:

$$\frac{\text{Width of band (inches)}}{\text{Row spacing (inches)}} \times \text{Broadcast rate in gals./ac. or lbs./ac.} = \begin{matrix} \text{Gals./ac. of spray or} \\ \text{lbs./ac. of granules} \\ \text{for band} \end{matrix}$$

For example, if you want to spray a 7-inch band on a 40-in row spacing, the broadcast rate is 10 gallons per acre. The band rate you would use is 1.75 gallons per acre.

$$7/40 \times 10 = 1.75 \text{ gallons per acre}$$

TABLE 26

APPROXIMATE NET HEATING VALUES OF VARIOUS FUELS

Fuel type	BTUs per gal.	Density lbs. per gal.	BTUs per lb.
Coal:			
Anthracite			12,800
Bituminous			13,500
Semi-bituminous			14,600
Manufactured briquets			13,050
Fuel Oil:			
No. 1	136,000	6.95	19,570
No. 2	138,500	7.11	19,480
No. 4	145,000	7.55	19,200
No. 5	149,000	7.72	19,300
No. 6	150,000	8.05	18,630
Gasoline	116,400	6.15	18,910
Kerosene	127,300	6.82	18,660
Propane (Natural gas)	84,563	4.24	19,944
Wood			7,100

TABLE 27

**POUNDS OF HIGH MOISTURE GRAIN REQUIRED
TO PRODUCE A BUSHEL OF DRY GRAIN**

Percent moisture	Wet pounds		
	Shelled ¹ corn	Soybeans ²	Wheat ³
30	67.6	74.6	74.1
28	65.8	72.5	72.1
26	63.9	70.5	70.1
24	62.3	68.7	68.3
22	60.7	66.9	66.5
20	59.2	65.3	64.9
18	57.7	63.7	63.3
15.5	56.0	61.8	61.4
14	--	60.7	60.3
13.5	--	60.3	60.0
13	--	60.0	--

¹Based on a bushel of No. 2 shelled corn containing 47.3 pounds of dry matter.

²Based on a bushel of No. 1 soybeans containing 52.2 pounds of dry matter.

³Based on a bushel of wheat containing 51.9 pounds of dry matter.

TABLE 28

**AMOUNT OF WATER TO BE ADDED IN ENSILING
HIGH MOISTURE GRAIN**

Moisture in grain	Moisture desired						
	30%	29%	28%	27%	26%	25%	24%
-----Gallons water to be added per ton-----							
29%	3.5	---	---	---	---	---	---
28%	7.0	3.5	---	---	---	---	---
27%	10.5	7.0	3.5	---	---	---	---
26%	14.0	10.5	7.0	3.5	---	---	---
25%	17.5	14.0	10.5	7.0	3.5	---	---
34%	21.0	17.5	14.0	10.0	7.0	3.5	---
23%	24.5	21.0	17.5	13.5	10.0	7.0	3.5
22%	28.0	24.5	21.0	17.0	13.0	10.0	7.0
21%	31.5	28.0	24.0	20.5	17.0	13.0	10.0
20%	35.0	31.5	27.5	24.0	20.0	17.0	13.0
19%	38.5	35.0	31.0	27.5	23.5	20.0	17.0
18%	42.0	38.5	34.5	31.0	27.0	23.5	20.0
17%	46.0	42.0	38.0	34.0	30.5	26.5	23.5
16%	50.0	46.0	42.0	37.5	34.0	30.0	26.0

TABLE 29

PERCENTAGE SHRINKAGE WHEN GRAIN IS DRIED TO SPECIFIED MOISTURE LEVELS*

Initial moisture level	Shrinkage when grain is dried to:					
	13%	13.5%	14%	14.5%	15%	15.5%
13.0	0	0	0	0	0	0
13.5	1.07	0	0	0	0	0
14.0	1.65	1.08	0	0	0	0
14.5	2.22	1.66	1.08	0	0	0
15.0	2.80	2.23	1.66	1.09	0	0
15.5	3.37	2.81	2.24	1.67	1.09	0
16.0	3.95	3.39	2.83	2.25	1.68	1.09
16.5	4.52	3.97	3.41	2.84	2.26	1.68
17.0	5.10	4.55	3.99	3.42	2.85	2.28
17.5	5.67	5.12	4.57	4.01	3.44	2.87
18.0	6.25	5.70	5.15	4.59	4.03	3.46
18.5	6.82	6.28	5.73	5.18	4.62	4.05
19.0	7.40	6.86	6.31	5.76	5.21	4.64
19.5	7.97	7.44	6.90	6.35	5.79	5.23
20.0	8.55	8.01	7.48	6.93	6.38	5.83
20.5	9.12	8.59	8.06	7.52	6.97	6.42
21.0	9.70	9.17	8.64	8.10	7.56	7.01
21.5	10.27	9.75	9.22	8.69	8.15	7.60
22.0	10.84	10.33	9.80	9.27	8.74	8.19
22.5	11.42	10.90	10.38	9.86	9.32	8.78
23.0	11.99	11.48	10.97	10.44	9.91	9.38
23.5	12.57	12.06	11.55	11.03	10.50	9.97
24.0	13.14	12.64	12.13	11.61	11.09	10.56
24.5	13.72	13.22	12.71	12.20	11.68	11.15
25.0	14.29	13.79	13.29	12.78	12.26	11.74
25.5	14.87	14.37	13.87	13.37	12.85	12.33
26.0	15.44	14.95	14.45	13.95	13.44	12.93
26.5	16.02	15.53	15.03	14.54	14.03	13.52
27.0	16.59	16.11	15.62	15.12	14.62	14.11
27.5	17.17	16.68	16.20	15.70	15.21	14.70
28.0	17.74	17.26	16.78	16.29	15.79	15.29
28.5	18.32	17.84	17.36	16.87	16.38	15.88
29.0	18.89	18.42	17.94	17.46	16.97	16.48
29.5	19.47	19.00	18.52	18.04	17.56	17.07
30.0	20.04	19.58	19.10	18.63	18.15	17.66
30.5	20.61	20.15	19.69	19.21	18.74	18.25

*Formulas:

(1)
$$\text{Shrinkage} = 100\% \text{ minus } \frac{\% \text{ D.M. wet grain}}{\% \text{ D.M. dry grain}} \times 100 + .5\%$$

(2) Value of shrink = price basis grade x shrinkage

(3) Return to drying = discount minus value of shrink

TABLE 30

HOW TO CORRECT YIELDS FOR MOISTURE CONTENT

Per cent moisture	Pounds needed to equal 1 bushel of 15.5% shelled corn	
	Shelled corn	Ear corn*
12%	53.8	65.1
13%	54.4	66.0
14%	55.0	66.9
<u>15.5%</u>	<u>56.0</u>	<u>68.4</u>
17%	57.0	69.6
18%	57.7	70.8
19%	58.4	72.1
20%	59.1	73.5
21%	59.9	74.9
22%	60.7	76.3
23%	61.4	77.7
24%	62.3	79.1
25%	63.1	80.6
26%	63.9	82.0
27%	64.8	83.4
28%	65.7	84.9
29%	66.6	86.3
30%	67.6	88.0
31%	68.6	89.9
32%	69.6	91.4
33%	70.6	92.9
34%	71.7	94.3
35%	72.8	95.7
36%	74.3	97.1
37%	75.4	98.6
38%	76.7	100.1
39%	77.9	101.6
40%	78.8	103.1
45%	86.0	110.8

* The ratio of moisture content of kernels to cobs varies considerably. The values in this table are based on an average from a large number of samples of different years. The figures for ear corn are applicable only during the harvest season.

TABLE 31

PLANT FOOD CONTENT OF CROPS
(Based on certain yields per acre)

Crop	Part of crop	Yield	N	P ₂ O ₅	K ₂ O	Ca
			lbs.	lbs.	lbs.	lbs.
Field crops						
Barley	Grain	40 bu.	40	18	12	1
	Straw	1 ton	12	5	32	7
	Total		52	23	44	8
Corn	Grain	80 bu.	64	29	16	1
	Cobs	1,120 lbs.	4	1	11	1
	Stalks	2.5 tons	47	10	89	27
	Total		115	40	116	29
Grain sorghum	Grain	70 bu.	61	23	15	1
	Stalks	2 tons	20	10	62	23
	Total		81	33	77	24
Oats	Grain	50 bu.	31	12	8	1
	Straw	1.25 tons	17	5	60	6
	Total		48	17	68	7
Soybeans	Beans	30 bu.	10	2	32	5
	Stalks	1.5 tons	19	3	19	30
	Total		128	25	51	35
Wheat	Grain	30 bu.	38	16	9	1
	Straw	1.25 tons	16	4	35	4
	Total		54	20	44	5
Forages*						
Alfalfa	All	4 tons	196	44	189	118
Clover, red	All	2 tons	77	18	79	51
Clover, sweet	All	3 tons	158	36	113	82
Lespedeza	All	2 tons	92	18	51	41
Timothy	All	2.5 tons	53	16	95	18

*Approximately 70 percent of the N in inoculated legumes is fixed from the air.

TABLE 32

NUMBER OF ANIMALS FED PER TWO-INCH SILAGE LAYER IN TOWER SILOS

Silo diameter	Approx. lbs. silage in 2-inch layer	Number animals fed per 2-inch layer when fed at a daily rate of						
		20#	30#	40#	50#	60#	70#	80#
16 ft.	1,675	84	56	42	34	28	24	21
18 ft.	2,120	106	71	53	42	35	30	28
20 ft.	2,615	131	87	65	52	43	37	33
22 ft.	3,165	158	105	79	63	53	45	39
24 ft.	3,770	188	126	94	75	63	54	47
26 ft.	4,430	222	144	111	88	74	63	56
28 ft.	5,130	256	171	128	103	86	73	64
30 ft.	5,890	295	196	147	118	98	84	74
36 ft.	8,480	424	283	212	169	141	121	106

TABLE 33

PLANTS PER ACRE AT VARIOUS ROW WIDTHS

Inches between plants in row	Distance between rows				
	20-inch	30-inch	36-inch.	38-inch	40-inch
7	44,800	29,870	24,890	23,580	22,400
8	39,240	26,140	21,770	20,630	19,620
9	34,880	23,240	19,360	18,340	17,440
10	31,440	20,920	17,420	16,510	15,700
11	28,460	18,960	15,830	15,020	14,230
12	26,160	17,420	14,520	13,760	13,080
13	24,160	16,080	13,430	12,740	12,080
14	22,440	14,920	12,450	11,790	11,220
15	20,920	13,940	11,670	11,010	10,460
16	19,600	13,070	10,890	10,320	9,800
20	15,700	10,460	8,710	8,250	7,850

TABLE 34

HOW MUCH MACHINERY YOU CAN SQUEEZE IN A SHED
 floor space required for machines

Tractors			Sq. ft.	Forage machinery, cont.		Sq. ft.	
25-40 hp			70-80	Unloading wagon or bunk			
40-70 hp			80-100	Feeder, rectangular		130	
70-100 hp			100-120	"V"		80	
4-wheel-drive over 100 hp			120-130	SP windrowers, 7' platform		105	
Crawlers			60-100	10' platform		120	
				12' platform		135	
				14' platform		150	
				16' platform		165	
Plows			Trailing	Mounted	Rotary cutters, mounted		25-60
2 bottoms			25	20	pull		66-170
3 bottoms			45	35			
4 bottoms			65	50			
5 bottoms			90	75			
6 bottoms			115	90			
					Combines*		
					10 ft. platform		250
					12 ft. platform		280
					14 ft. platform		370
					16 ft. platform		420
					18 ft. platform		500
					20 ft. platform		550
Harrows			Sq. ft.	Corn heads			
Disk, 14-ft. wide			140	2 rows			50
Spring tooth, each 4-ft. section			14	3 rows			65
Spike tooth, each 6 ft. section			36	4 rows			85
Rotary hoe, each 42 in. section			12				
Planters and drills				Corn picker-shellers			
4 rows			135	2 rows, pull			180
6 rows			200	2 rows, mounted			136-160
8 rows			266	1 row, pull			80
Grain drill, 7-14 ft. wide			60-112	1 row, mounted			135-150
Press drill, 14 ft. wide			150	1 snapper, pull			80-120
				1 snapper, mounted			70-80
Cultivators				2 snapper, mounted			136
4 rows			45	Sheller			20
6 rows			65				
8 rows			85				
Field cultivator, 8-20 ft. wide			30-80				
Chisel plows, 8-20 ft. wide			30-80				
Forage machinery				Miscellaneous			
Mower			25	Fert. spreader, pull 8-14 ft.			30-50
Side delivery rake			60	Manure spreader			100
Hay conditioner			55	Manure loader			85
Baler			140-180	Sprayer, trailer type			70
Bale wagon			208	Grinder-mixer, portable			100
Forage harvester, pull or SP			90-130	Pickup truck			240
Forage blower, hopper-type conveyor			40				
			90				
*Allow 13-foot door height minimum.							

TABLE 35

HOW TO COMPUTE VOLUMES, AREAS, AND CAPACITIES

<u>Circumference of circle</u> = 3.1416 x diameter or $\frac{22}{7} \times \text{diameter}$
<u>Area of circle</u> = .7854 x diameter ²
<u>Area of rectangle</u> = length x width
<u>Area of triangle</u> = 1/2 x base x altitude
<u>Volume of cube</u> = length x width x height
<u>Volume of cylinder</u> (like upright silo) = .7854 x height x diameter ²
<u>Volume of cone</u> (like a stack of grain) = .2618 x height x diameter ²
<u>Silo capacity in tons for trench or stack</u> = cubic feet of volume x .06 (refer to silo tables for upright silo capacities)
<u>Ear corn crib capacity in bushels</u> = cubic feet of volume x .4
<u>Shelled corn and small grain capacity in bushels</u> = cubic feet of volume x .8
<u>Ground feed (mostly ear corn) capacity</u> is 25 pounds per cubic foot

TABLE 36

WEIGHTS OF SOME MATERIALS FOUND ON THE FARM

Material	Weight per cubic foot		Weight per bushel	
Corn, shelled*	45 lbs.	20.4 kg	56 lbs.	25.4 kg
ear	28 lbs.	12.7 kg	70 lbs.	31.8 kg
Grain sorghum	45 lbs.	20.4 kg	56 lbs.	25.4 kg
Wheat	48 lbs.	21.8 kg	60 lbs.	27.2 kg
Soybeans	48 lbs.	21.8 kg	60 lbs.	27.2 kg
Oats	26 lbs.	11.8 kg	32 lbs.	14.5 kg
Rye	45 lbs.	20.4 kg	56 lbs.	25.4 kg
Barley	39 lbs.	17.7 kg	48 lbs.	21.8 kg
Hay, baled	12 lbs.	5.5 kg		
chopped	10 lbs.	4.5 kg		
loose	4 lbs.	1.8 kg		
Straw, baled	9.5 lbs.	4.3 kg		
loose	3.5 lbs.	3.5 kg		
Concrete	149.6 lbs.	68.0 kg		
Gravel	124.7 lbs.	56.7 kg		
White oak	46.0 lbs.	20.9 kg		
Steel	488.4 lbs.	222.0 kg		

*15.5% moisture.

TABLE 37
WATER MAINTENANCE REQUIREMENTS
FOR LIVESTOCK

Animal	Water per day
Beef cow (pregnant)	7 gal. summer 6 gal. winter
Beef cow with calf	9 gal. summer 8 gal. winter
Beef calf, 400 lbs.	6 gal. summer 4 gal. winter
Brood sow with litter	4 gal. summer 3 gal. winter
Brood sow (pregnant)	1-2 gal. summer 1 gal. winter
150 lb. gilt or boar	1 gal. yearly
Ewe	.75 gal. yearly
Dairy cow	9 gal. summer 7 1/2 gal. winter
Laying hens	5 gal./100 birds
Broilers	5 gal./100 birds
Turkeys	12 gal./100 birds

TABLE 38
LIVESTOCK GESTATION TABLE

Animal	Gestation period	Cycle length	Duration of heat
Hogs	114 days	21 days	48-72 hours
Cattle	280 days	21 days	10-24 hours
Horses	340 days	22 days	6 days
Sheep	145 days	16 1/2 days	30-36 hours

SILO CAPACITIES

TABLE 39

SILO CAPACITIES OXYGEN-LIMITING SILOS

Diameter x height ¹	Haylage ² tons	Corn silage ² tons
20' x 32'	56	58
20' x 36'	69	69
20' x 41'	83	81
20' x 50'	111	106
20' x 58'	124	118
20' x 63'	140	132
20' x 68'	157	145
20' x 73'	173	159
20' x 78'	185	173
20' x 82'	200	179
21' x 65'	177	162
21' x 70'	196	177
21' x 74'	216	194
24' x 64'	210	194
24' x 69'	235	203
24' x 74'	261	237
24' x 74'	287	258
24' x 84'	313	279
24' x 96'	393	344
24' x 104'	437	379
25' x 33'	96	97
25' x 37'	118	116
25' x 42'	141	137
25' x 64'	213	197
25' x 72'	257	233
25' x 80'	304	271
25' x 88'	351	309
27' x 58'	244	225
27' x 63'	277	253
27' x 67'	311	281
27' x 72'	347	310
27' x 76'	382	339
27' x 81'	419	368
27' x 86'	456	398
27' x 91'	521	428
27' x 96'	531	458

¹ The diameter and height of the silo are the actual measurements from top to bottom, and would include the silo unloader.

² Values are on a dry matter basis.

Table 40

CAPACITIES FOR TOP-UNLOADING SILOS.

Diameter x height ¹	Haylage ¹ tons	Corn silage ¹ tons
18' x 40'	87	61
18' x 50'	113	83
18' x 60'	138	105
18' x 70'	168	129
20' x 40'	108	77
20' x 50'	111	106
20' x 60'	157	134
20' x 70'	202	165
22' x 40'	131	95
22' x 50'	169	130
22' x 60'	207	167
22' x 70'	245	205
24' x 50'	202	158
24' x 60'	247	203
24' x 70'	292	248
24' x 80'	337	293
26' x 50'	238	188
26' x 60'	290	241
26' x 70'	343	294
26' x 80'	398	347
28' x 60'	337	282
28' x 70'	398	344
28' x 80'	460	405
30' x 50'	317	256
30' x 60'	388	327
30' x 70'	458	397
30' x 80'	528	467

¹ Values are on a dry matter basis.

TABLE 41

HIGH MOISTURE CRACKED SHELLED CORN AND GROUND EAR CORN

Size of silo	Cubic ft. in silo	56 lb. per bu. 1.25 cu.ft. 15.5% cracked shelled corn		62.5 lb. per bu. 1.35 cu.ft. 24% cracked shelled corn		67.8 lb. per bu. 1.44 cu.ft. 30% cracked shelled corn		82.8 lb. per bu. 2.15 cu.ft. 24% ground ear corn		89.2 lb. per bu. 2.25 cu.ft. 28% ground ear corn		94.6 lb. per bu. 2.34 cu.ft. 32% ground ear corn	
		Bu	Ton	Bu	Ton	Bu	Ton	Bu	Ton	Bu	Ton	Bu	Ton
12 x 30	3,390	2,712	76	2,511	78	2,354	80	1,576	65	1,507	67	1,449	69
12 x 40	4,520	3,616	101	3,348	105	3,138	106	2,101	87	2,009	90	1,932	91
12 x 50	5,650	4,520	126	4,185	131	3,923	133	2,627	109	2,511	112	2,415	114
14 x 30	4,620	3,696	103	3,422	107	3,208	109	2,148	89	2,053	92	1,974	93
14 x 40	6,160	4,928	129	4,562	143	4,277	145	2,865	119	2,738	122	2,632	124
14 x 50	7,700	6,160	173	5,703	178	5,347	181	3,581	148	3,422	153	3,291	156
14 x 50	9,240	7,392	207	6,844	214	6,416	218	4,297	178	4,107	183	3,949	187
16 x 30	6,030	4,824	135	4,466	140	4,187	142	2,804	116	2,680	120	2,577	122
16 x 40	8,040	6,342	180	5,955	186	5,583	189	3,739	155	3,573	159	3,436	163
16 x 50	10,050	8,040	225	7,444	232	6,979	237	4,674	194	4,467	199	4,295	203
16 x 60	12,060	9,648	270	8,933	279	8,375	284	5,609	232	5,360	239	5,154	244
18 x 40	10,160	8,128	228	7,525	235	7,055	239	4,726	196	4,516	201	4,342	205
18 x 50	12,700	10,160	285	9,407	294	8,819	299	5,907	245	5,644	252	5,427	257
18 x 60	15,240	12,192	341	11,288	353	10,583	359	7,088	293	6,773	302	6,513	308
20 x 40	12,560	10,048	281	9,303	291	8,722	296	5,842	242	5,582	249	5,367	254
20 x 50	15,700	12,560	352	11,629	363	10,902	370	7,302	302	6,978	311	6,709	317
20 x 60	18,840	15,072	422	13,955	436	13,083	443	8,763	362	8,373	373	8,051	331
20 x 70	21,980	17,584	492	16,280	509	15,263	517	10,223	423	9,769	436	9,393	444
22 x 40	15,200	12,160	341	11,259	352	10,555	358	7,070	293	6,756	301	6,496	307
22 x 50	19,000	15,200	426	14,074	440	13,194	447	8,837	366	8,444	377	8,119	384
22 x 60	22,800	18,240	511	16,888	528	15,833	537	10,605	439	10,133	452	9,744	461
22 x 70	26,600	21,260	595	19,703	616	18,472	626	12,372	512	11,822	527	11,368	538
24 x 50	22,600	18,080	506	16,740	523	15,694	532	10,512	435	10,044	448	9,658	457
24 x 60	27,120	21,696	608	20,088	628	18,833	638	12,614	522	12,053	538	11,590	548
24 x 70	31,640	25,312	709	23,347	732	21,972	745	14,716	609	14,062	627	13,521	640

Source: Madison Silo, Division of Martin Marietta Corp.

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Sources of silo information presented here

Silo types and uses	Source
Oxygen limiting silo (for forages)	Cropstore Harvestore Sealstor
Reinforced concrete (poured) Concrete silo (for forages) Concrete stave (top unloading) High moisture cracked shelled corn and ground ear corn	Madison Silo

TABLE 42
ESTIMATED BUNKER SILO CAPACITIES

Size			Total volume (cu.ft.)	Fillable* volume (cu.ft.)	Capacity**			
W (ft)	x H (ft)	x L (ft)			Alfalfa silage (tons DM)	Corn silage (tons DM)		
20	x	8	x	40	6,400	5,760	34	40
20	x	8	x	80	12,800	12,160	72	85
20	x	12	x	40	9,600	8,160	48	57
20	x	12	x	80	19,200	17,760	105	124
40	x	12	x	80	38,400	35,520	210	249
40	x	12	x	120	57,600	54,720	324	384
40	x	12	x	160	76,800	73,920	438	518
40	x	16	x	80	51,200	46,080	273	323
40	x	16	x	120	76,800	71,680	424	502
40	x	16	x	160	102,400	97,200	576	682
40	x	20	x	80	64,000	56,000	332	393
40	x	20	x	120	96,000	88,000	521	617
40	x	20	x	160	128,000	120,000	710	841
60	x	16	x	120	115,200	107,520	637	754
60	x	16	x	160	153,600	145,920	864	1,023
60	x	16	x	200	192,000	184,320	1,091	1,292
60	x	20	x	120	144,000	132,000	781	925
60	x	20	x	160	192,000	180,000	1,066	1,262
60	x	20	x	200	240,000	228,000	1,350	1,598

* The entire volume cannot be filled with silage; the front surface is assumed to be a 45-degree slope.

** Based on dry matter densities of 11.8 and 14.0 lbs./cu. ft. for alfalfa and corn silage, respectively, which are representative under good bunker silo management (i.e., adequate packing).

Dennis Buckmaster, assistant professor of agricultural engineering

**Budgets for
Planning**

Budgets and Planning

Budgets are essential for the farm operator making decisions in today's economic climate. As social pressures and government regulations increase, budgets should be used to evaluate alternatives and examine their impact on the economic returns of the farm.

There are several kinds of budget: those which a family sets up to guide and regulate its spending for family living, as well as those developed for businesses, governments, and governmental agencies. Nearly everyone has some knowledge of these budgets and knows they show anticipated income and expenditures of the budgeted unit, be it a household or the national government.

The following section introduces another kind of budget called an enterprise budget. The enterprise budget provides the foundation for farm planning. An enterprise budget deals with a unit of crops or livestock. The unit is selected by the individual making up the enterprise budget. One acre is the unit most commonly used for crop enterprises, and one animal is commonly used for livestock enterprises.

Enterprise budgets list the inputs required to produce the unit and the estimated costs of those inputs. Inputs are the variable items required for production. For a crop enterprise they include seed, fertilizer, sprays, machine costs, and hours of labor. Livestock enterprise inputs include feed, veterinary and drug expenses, supplies, building and equipment repairs, utilities, hauling, and labor.

Enterprise budgets also show the output of the enterprise. For crops this is the bushels of grain, or tons of hay produced per unit. The output of the livestock unit is represented by pounds of milk, or pounds of beef. The enterprise budget also gives the net income (above variable costs) for the unit. Thus, these budgets provide basic data which are required for planning. They are used with partial budgeting and for developing both annual and long-term plans (5-7 years).

The Partial Budget

The most common and frequently used budgeting technique is partial budgeting. It is used to evaluate impact which a proposed change (adjustment) will have on economic returns of the farm business. This evaluation permits the farm operator to make economic decision concerning the change.

The partial budget is a relatively simple technique to use. The partial budget simply provides a form which can be used to list in writing how the proposed change will affect income and expenses.

If the income effect is negative, then the change usually is not made. (There could be exceptions, especially if the change were required to comply with laws or regulations affecting environmental quality.) The farm operator must consider the following factors in addition to the income effect.

1. Risks associated with the change
2. Source of capital for making the change
3. Effect of change on management of the farm
4. How paying for the change will affect the cash available for family living and debt retirement

In using the partial budget all factors affecting the farm income, both negative and positive, are listed and detailed. All factors in the farm business, outside of those directly affected by the change, are considered as remaining constant.

The Annual Budget

The annual budget differs from the partial budget in that it is not used for evaluating changes in the farm business. An annual budget is designed to serve as a planning guide for the next year's operation. It is primarily an annual estimate of expenses and receipts.

Properly structured, it is also helpful in developing a cash flow statement. The annual budget is designed to help the farm operator predict net cash income for the next year with reasonable accuracy.

Some advantages of the annual budget are:

If estimated income is not satisfactory, the farm operator can make adjustments which will improve income.

The operator knows in advance what crops will be on each field. This helps in the purchase of seeds and fertilizer.

The operator will have an estimate of the kinds and amounts of livestock feed to buy.

By determining needs beforehand, the farm operator has time to shop for the best price and to have materials on hand during rush seasons.

New equipment or farm storage needs can be planned and available when needed.

Crop and livestock operations can be scheduled for timeliness and efficient utilization of labor.

Credit can be arranged when needed to minimize cost of borrowed capital. An annual budget should be prepared with the aid of records from the farm business, and should have a map of the farm included with it.

An annual operating budget combined with good records enables the farmer to accurate estimate of annual income. It helps establish a long-range profit-maximizing plan in an orderly, economical manner. The annual plan also helps the farm operator measure his progress toward major goals.

Enterprise Budgets

An enterprise budget contains a detailed listing of the income and expenses of an enterprise such as dairy cows, corn, alfalfa, and beef cattle.

Enterprise budgets are tools for planning. They provide detailed estimates of income, expenses, and resource requirements of crops and livestock enterprises. The following list suggests some of their many uses:

- call attention to the inputs and production practices required in an enterprise,
- provide much of the information necessary to project the cash flow of a farm business,
- provide valuable information for choosing farm enterprises (e.g., annual planting decisions),
- provide data for partial budgeting, and
- provide the basis for a total farm plan.

Enterprise budgets contain several cost components. It often is difficult to determine which costs should be considered for particular decisions. There is disagreement among managers over which costs to include and how they should be measured. It is understandable that these differences should arise because each farmer's production cost is unique to the individual's resource situation.

There are at least three approaches to or concepts of computing costs of production:

- the accountant's,
- the economist's, and
- the lender's.

An accountant generally views costs of production explicitly as outlays that arise from the production process. Examples include purchases of fertilizer, seed, chemicals, payments of interest or debt, and depreciation. An accountant would use an income statement to measure the profitability of the business and to compute these costs.

An economist recognizes the costs identified by the accountant plus additional implicit costs. These include charges for resources that are self-owned and self-employed. Interest on equity capital, value of operator's labor and management are costs that often are excluded by accountants. Basically, the economist adheres to the principle of opportunity cost; the foregone returns that the resources used in the production of a commodity could have earned to best maximize profits.

A lender wants farmers to cover the costs enumerated by both the accountant and economist. But the lender is particularly concerned that sufficient cash be generated in the production process to maintain the liquidity of the farm business. The cash flow needs of the business are extremely important. Farm income should be adequate not only to pay for feed, seed, and fertilizer, but to meet principal and interest obligations, income taxes, and family living expenses. These costs usually are presented in a cash-flow statement listing all monthly costs for the year.

It should be evident by now that the method chosen to measure and classify costs can be very important for many farms. One of the most universal classifications divides costs into variable and fixed costs. Variable costs are those expenses that vary with output within a production period. Examples include seed, fertilizer, chemicals, fuel, and labor. Other terms used to describe variable costs include cash costs, direct costs, and out-of-pocket costs.

Fixed costs include depreciation, taxes, interest on investment, and insurance. Sometimes management is included as a fixed cost. These costs are considered to be "fixed" because they generally remain the same within a production period and do not vary with output. Indirect, non-cash, and overhead costs are other terms used to describe fixed costs.

Total costs are obtained by adding variable and fixed costs. Ideally, a producer wants to earn a profit above total costs. This is not always possible as income received by farmers often is less than the total costs of production. Should farmers continue to produce under these circumstances? The answer may be yes if: (1) they are covering variable costs of production, and (2) it is a short-run situation. Economic theory tells us that it is economical to continue production in the short-run, if income is higher than the variable costs of production. Using the variable-fixed costs classification, a producer should receive a price that will *at least yield a positive return above variable costs*. At some point, however, *market price and yield need to be high enough to cover total costs of production*. Otherwise, the enterprise will not be financially sound over a period of several years. Fixed costs may be foregone for a period of one or two years but not for a period of several years.

The variable-fixed cost concept is important in most short-run or annual farm decisions. In Pennsylvania, for example, most farmers must decide whether to plant corn, soybeans, or alfalfa. Most or all of the fixed costs associated with the farm will not be affected by the decision. Generally, these crops compete for the same land, and some of the same machinery and equipment. The most desirable crop would be the one that pays the highest return to these fixed resources and thus the greatest return above variable costs.

For the lender, variable costs can be utilized in a cash-flow analysis to arrive at a per unit cost of production based on the "cash-flow cost" principle. Cash-flow costs include all variable costs plus debt payment, taxes, and family living. However, cash-flow costs do not include non-cash items such as depreciation and interest on equity. The "cash-flow costs" of production may be more or less than the total of variable and fixed costs.

Application of the different classifications of cost may reveal large variations in per unit costs of production. Each producer's output and financial situation is unique. Individual producers have to determine their costs of production in relation to their management decisions and income needs. For example, a farmer could compute costs on the basis of an income and loss statement to determine the profitability of the business. However, cash-flow statement would be needed to determine whether all financial obligations can be met, i.e. make the business liquid.

**Livestock
Budget Tables**

CROP AND LIVESTOCK BUDGETS

The following persons assisted in the development of the crop and livestock budgets.

Richard S. Adams, professor of dairy science
Sidney Bosworth, former assistant professor of agronomy
Dennis D. Calvin, assistant professor of entomology
Richard H. Cole, associate professor of horticulture
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Robert M. Crassweller, associate professor of horticulture
Clair C. Engle, associate professor of animal science
Peter A. Ferretti, professor of horticulture
Barbara L. Goulart, assistant professor of horticulture
Elwood Hatley, professor of agronomy
Virginia Ishler, senior research technologist
Larry C. Jenkins, associate professor of agricultural economics
Kenneth B. Kephart, assistant professor of animal science
Milton Madison, assistant professor of agricultural economics
Margaret Meloy, research associate
H. Louis Moore, professor of agricultural economics
Michael D. Orzolek, professor of horticulture

LIVESTOCK BUDGETS AND GUIDES FOR CHOOSING LIVESTOCK SYSTEMS

As far as practical, choose livestock enterprises which best fit the cropping system. The most common reason for including livestock in the farm organization is to increase or reduce the variability of net farm income by:

1. Marketing crops through livestock at higher returns than could be obtained if the crops were sold.
2. Keeping year-round farm labor fully and profitably employed throughout the year.
3. Providing a market for pasture and other crop by-products that otherwise could not be marketed.
4. Providing different and additional type of farm enterprise. If used, these enterprises could decrease income variability, because farm income is spread over more and different types of enterprises.

Most livestock enterprises vary greatly as to annual net income from year to year. They also vary in their requirements for labor, buildings, equipment, proportional amounts of grain and forage and intensity of management. Factors that should be considered when selecting livestock enterprises are:

1. Amounts of grain and forage crops produced in the cropping system.
2. Regularity and stability of net income.
3. Amount of labor available.
4. Distribution of labor requirements for livestock during the year as compared to crop labor requirements.
5. Skill and personal likes of the manager.
6. Available markets (especially for poultry, milk, and eggs).
7. Capital requirement and rapidity of capital turnover.

The major livestock enterprises found on Pennsylvania farms are dairy, hogs, beef cow herds, various cattle feeding enterprises, poultry and sheep. Each livestock enterprise has a particular set of characteristics which make it adaptable to a different type of farm organization.

Dairy Herds

A dairy herd of at least 60 to 85 cows is practical on small to medium sized farms that have relatively large amounts of fixed labor available. A self-managed dairy herd pays a high return for grain and high quality roughage, but a relatively low return for labor compared to other enterprises. Farms which are not adapted to continuous row cropping, but can produce high quality roughage and some grain in rotations, provide a practical environment for the dairy enterprise. Crop rotations tend to distribute the crop labor load, which is also an advantage. This enterprise does require a high investment per unit, but

has a low degree of risk in that milk prices do not change much from year to year. A milk check is usually received twice each month.

Beef Cow Herds

Beef cows are adapted to large and medium sized farms. These farms, with a high percentage of row crops, usually have some acreage which must remain in permanent pasture. A cow herd may be practical to use this non-salable pasture along with stalk fields and meadow growth after hay is cut. When beef cows are used in this manner, a medium amount of investment is required. Turnover of capital is slow, but the risk is low and a small amount of labor is required. Therefore, this enterprise is adapted to large grain farms which have enough permanent pasture and hay land to support 25 cows or more.

It is difficult to achieve a satisfactory net income on farms where a beef cow herd is the only source of income. This is mainly because the necessary investment in land per cow is high compared with the net income realized, and also because of the size of the cow herd required to furnish an adequate family income.

Cattle Feeding Enterprises

Several cattle feeding systems are adapted to farms which produce large amounts of grain and smaller amounts of high quality roughage. These cattle systems are discussed below.

A. Choice Steer Calves Finished Immediately

This system is suited to large amounts of grain and limited roughages. It requires choice quality calves, facilities for feeding, and above average skill in buying and selling. Cost of gains is relatively high, especially with long feeding periods, and risk is high when prices drop. Conversely, price rises afford high net profit opportunity, and turnover of cattle is fast.

B. Choice Heifer Calves Finished Immediately

The situation is the same as choice steer calves except they can usually be bought cheaper, finished sooner, and sold at lighter weights for less money. Marketing costs are relatively high due to lighter finished weights.

C. Choice Steer Calves Wintered with Hay, Grazed Full Season, and Fed Out

This system appears good on paper. Capital invested, labor, and management are committed over a longer period (approximately 15 months). Risk is relatively low but there is a slow turnover of money invested. This deferred system requires having two groups of cattle on hand during part of this 15-month period.

D. Choice Yearling Steers Finished Immediately

These cattle utilize large amounts of grain and involve some risk because of price fluctuations. Turnover of cattle is fast. They require good management in procurement, production, and marketing. As compared with calves, they probably require less skill in management, and death loss is usually lower. This system is popular with experienced cattle feeders.

E. Choice Yearling Steers, Wintered, and Finished

Where silage or suitable high quality roughage is available, cheap winter gains can lower the risk on these cattle. A high amount of beef per acre can be obtained through use of silage with this kind of cattle.

F. Plain Yearlings, Wintered, and Short Fed

Plain yearlings cattle can be used to consume large amounts of medium to high quality roughage. They can also utilize grain as efficiently as high quality cattle. Price fluctuation between cost of feeders and finished animals tends to be great, making large profits possible in some years and large losses likely in others. Therefore, this system carries considerable risk. Skillful buying is important. The system may fit better as a supplemental program to another system rather than the main cattle feeding enterprise.

Hog Enterprises

Hog enterprises, except feeder pig production, consume large amounts of grain, and capital turnover is frequent. Returns for feed, labor and investment are medium to high. This makes production of finished hogs especially adapted to farms which produce large amounts of grain.

The main types of hog enterprises are farrowing and finishing to market weights, production of feeder pigs, and finishing purchased feeder pigs.

Farrowing and finishing to market weights requires considerable amounts of labor and a high degree of managerial skill. Finishing purchased feeder pigs involves more risk, but requires less labor and managerial skill.

Feeder pig production is adapted to the rolling farms which do not produce large quantities of grain. This enterprise returns a medium to high income for feed and labor. It may fit well with a beef cow enterprise. Labor and managerial skill required are similar to the farrow-to-finish system.

All of the above type hog operations are available for hog producers on a contract basis, usually from feed dealers. Some of the advantages of contracting are the producer knows how much money will be received. Management and many of the inputs are provided by the feed companies, lowering the amount of operating capital needed by the producer. The producer in a contract situation also has less variability in income. But the producer also gives up any increase in income due to higher prices in the market.

Poultry Enterprises

To be successful, poultry enterprises require a large volume of production, products of high quality, and special market contacts. High managerial skill is required. While poultry feed is mainly grain, poultry enterprises are rarely found on grain farms. Poultry management requires constant attention to detail and the requirement of high volume production does not leave much time for cropping. The minimum sized units that should be considered are:

For commercial egg production -- 60,000 to 90,000 birds.

For broiler production -- 50,000 to 80,000 birds.

On many farms, turkey production fits in well with the beef cow enterprise. The minimum sized unit recommended is two broods of 15,000 for marketing 30,000 adult birds.

All of the above types of poultry operations are available for poultry producers on a contract basis, usually from feed dealers or poultry processors. Some of the advantages of contracting are, the producer knows how much money will be received. Management and many of the other inputs are provided by the feed companies or poultry processor, thus lowering the amount of operating capital needed by the producer. The producer in a contract situation also has less variability in income. But the producer also gives up any increase in income due to higher prices in the market.

Lamb Enterprises

The lamb budgets included here cover most of the major periods during the year for lambs selling at 100 pounds. And additional budgets were developed for lambs selling at 40 pounds during Easter, Christmas, and New Years.

FIGURE SEVERAL DIFFERENT LIVESTOCK SYSTEMS

Consider several livestock enterprises singly or in combination which might best utilize the feed grain, forage, and pasture from the selected cropping system.

HOW TO USE THE BUDGETS IN THIS HANDBOOK

Farm prices in the livestock budgets are considered to be long range planning prices. As such, crop and livestock budgets were developed to reflect the expected costs and returns relationships among enterprises over the next few years. Due to widely fluctuating farm product prices, these budgets may not reflect the current or short-run situation. However, each budget has a column which can be used to make price, yield, or cost changes on your own farm.

TABLE 43

LARGE BREED
 1990 DAIRY COW BUDGET FOR 13,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	130	cwt.	\$13.00	\$1,755.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,026.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	89	bu.	\$235.85	\$235.85	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	3.63	ton	\$326.70	\$326.70	_____
Corn silage (as fed)	\$23.75	7.9	ton	\$187.63	\$187.63	_____
Soybean meal	\$13.00	13.5	cwt.	\$175.50		_____
Dicalcium phosphate	\$0.20	71	lb.	\$14.20		_____
Limestone	\$0.04	93	lb.	\$3.72		_____
Salt	\$0.07	75	lb.	\$5.25		_____
Supplemental feed cost					\$198.67	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$948.85	_____
OTHER VARIABLE COSTS						
Building repairs				\$7.00	\$7.00	_____
Equipment repairs				\$10.00	\$10.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Breeding fees				\$16.10	\$16.10	_____
Vet. & medicine				\$38.00	\$38.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$9.20	\$9.20	_____
Utilities				\$56.00	\$56.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		130	cwt.	\$0.15	\$19.50	_____
Milk hauling, freight		130	cwt.	\$0.65	\$84.50	_____
Marketing		130	cwt.	\$0.12	\$15.60	_____
Other cash costs				\$11.00	\$11.00	_____
Advertising		130	cwt.	\$0.05	\$6.50	_____
Total of other					\$387.20	_____
TOTAL VARIABLE COSTS					\$1,336.05	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$900	\$125.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$101.30	\$101.30	_____
Total Fixed Costs					\$611.45	_____
TOTAL COSTS					\$1,947.50	_____

Returns Above Var. Costs	\$689.98	_____
Returns Above Total Costs	\$78.53	_____

Per Cwt. Milk		
Gross income/milk production (cwt.)	\$15.58	_____

Breakeven Price to Cover

Feed costs	\$7.30	_____
Total variable costs	\$10.28	_____
Total costs	\$14.98	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 44

LARGE BREED

1990 DAIRY COW BUDGET FOR 15,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	150	cwt.	\$13.00	\$1,950.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,221.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	97	bu.	\$257.05	\$257.05	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	3.8	ton	\$342.00	\$342.00	_____
Corn silage (as fed)	\$23.75	8.5	ton	\$201.88	\$201.88	_____
Soybean meal	\$13.00	15	cwt.	\$195.00		_____
Dicalcium phosphate	\$0.20	82	lb.	\$16.40		_____
Limestone	\$0.04	103	lb.	\$4.12		_____
Salt	\$0.07	80	lb.	\$5.60		_____
Supplemental feed cost					\$221.12	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,022.05	_____
OTHER VARIABLE COSTS						
Building repairs				\$9.00	\$9.00	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Milk testing				\$15.00	\$15.00	_____
Breeding fees				\$24.20	\$24.20	_____
Vet. & medicine				\$42.20	\$42.20	_____
Gasoline, fuel, oil				\$10.00	\$10.00	_____
Utilities				\$57.00	\$57.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		150	cwt.	\$0.15	\$22.50	_____
Milk hauling, freight		150	cwt.	\$0.65	\$97.50	_____
Marketing		150	cwt.	\$0.12	\$18.00	_____
Other cash costs				\$13.00	\$13.00	_____
Advertising		150	cwt.	\$0.05	\$7.50	_____
Total of other					\$426.70	_____
TOTAL VARIABLE COSTS					\$1,448.75	_____
FIXED COSTS				Value or Cost Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁵		10	%	\$1,000	\$135.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%	\$111.05	\$111.05	_____
Total Fixed Costs					\$631.20	_____
TOTAL COSTS					\$2,079.95	_____

Returns Above Var. Costs	\$772.28	_____
Returns Above Total Costs	\$141.08	_____
Per Cwt. Milk		
Gross income/milk production (cwt.)	\$14.81	_____
Breakeven Price to Cover		
Feed costs	\$6.81	_____
Total variable costs	\$9.66	_____
Total costs	\$13.87	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 45

LARGE BREED

1990 DAIRY COW BUDGET FOR 17,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	170	cwt.	\$13.50	\$2,295.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,566.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	107	bu.	\$283.55	\$283.55	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	3.9	ton	\$351.00	\$351.00	_____
Corn silage (as fed)	\$23.75	8.6	ton	\$204.25	\$204.25	_____
Soybean meal	\$13.00	16	cwt.	\$208.00		_____
Dicalcium phosphate	\$0.20	86	lb.	\$17.20		_____
Limestone	\$0.04	115	lb.	\$4.60		_____
Salt	\$0.07	85	lb.	\$5.95		_____
Supplemental feed cost					\$235.75	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,074.55	_____
OTHER VARIABLE COSTS						
Building repairs				\$10.50	\$10.50	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$72.00	\$72.00	_____
Breeding fees				\$36.00	\$36.00	_____
Vet. & medicine				\$58.70	\$58.70	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$10.60	\$10.60	_____
Utilities				\$60.50	\$60.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		170	cwt.	\$0.15	\$25.50	_____
Milk hauling, freight		170	cwt.	\$0.65	\$110.50	_____
Marketing		170	cwt.	\$0.12	\$20.40	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		170	cwt.	\$0.05	\$8.50	_____
Total of other					\$506.00	_____
TOTAL VARIABLE COSTS					\$1,580.55	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$1,100	\$143.85	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$128.30	\$128.30	_____
Total Fixed Costs					\$657.15	_____
TOTAL COSTS					\$2,237.70	_____

Returns Above Var. Costs	\$985.48	_____
Returns Above Total Costs	\$328.33	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.09	_____
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Breakeven Price to Cover

Feed costs	\$6.32	_____
Total variable costs	\$9.30	_____
Total costs	\$13.16	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 46

LARGE BREED

1990 DAIRY COW BUDGET FOR 19,000 lb. of MILK AND REPLACEMENT HEIFER
45% concentrates and 55% forages on a dry matter basis
(Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	190	cwt.	\$13.50	\$2,565.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,836.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	111	bu.	\$294.15	\$294.15	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	3.9	ton	\$351.00	\$351.00	_____
Corn silage (as fed)	\$23.75	8.7	ton	\$206.62	\$206.62	_____
Soybean meal	\$13.00	20.5	cwt.	\$266.50		_____
Dicalcium phosphate	\$0.20	98	lb.	\$19.60		_____
Limestone	\$0.04	133	lb.	\$5.32		_____
Salt	\$0.07	85	lb.	\$5.95		_____
Supplemental feed cost					\$297.37	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,149.15	_____
OTHER VARIABLE COSTS						
Building repairs				\$11.00	\$11.00	_____
Equipment repairs				\$15.00	\$15.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$74.00	\$74.00	_____
Breeding fees				\$40.00	\$40.00	_____
Vet. & medicine				\$62.00	\$62.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$11.20	\$11.20	_____
Utilities				\$63.50	\$63.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		190	cwt.	\$0.15	\$28.50	_____
Milk hauling, freight		190	cwt.	\$0.65	\$123.50	_____
Marketing		190	cwt.	\$0.12	\$22.80	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		190	cwt.	\$0.05	\$9.50	_____
Total of other					\$541.80	_____
TOTAL VARIABLE COSTS					\$1,690.95	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS						
Interest on Cow and Rep. ⁶		10	%	\$1,300	\$165.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	31	hour	\$155.00	\$155.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%		\$141.80	_____
Total Fixed Costs					\$721.95	_____
TOTAL COSTS					\$2,412.90	_____

Returns Above Var. Costs	\$1,145.09	_____
Returns Above Total Costs	\$423.13	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.93	_____
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Breakeven Price to Cover

Feed costs	\$6.05	_____
Total variable costs	\$8.90	_____
Total costs	\$12.70	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 47

LARGE BREED
 1990 DAIRY COW BUDGET FOR 21,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	210	cwt.	\$13.50	\$2,835.00		
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41		
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00		
Heifers sold ³	0.11	6	cwt.	\$57.00	\$37.62		
GROSS INCOME						\$3,106.03	
VARIABLE COSTS				COST PER ANIMAL			
Feed costs ⁴							
Corn equivalent	\$2.65	124	bu.	\$328.60	\$328.60		
Soybean		0	bu.	\$0.00	\$0.00		
Hay (as fed)	\$90.00	3.8	ton	\$342.00	\$342.00		
Corn silage (as fed)	\$23.75	8.4	ton	\$199.50	\$199.50		
Soybean meal	\$13.00	21.6	cwt.	\$280.80			
Dicalcium phosphate	\$0.20	98	lb.	\$19.60			
Limestone	\$0.04	145	lb.	\$5.80			
Salt	\$0.07	88	lb.	\$6.16			
Supplemental feed cost					\$312.36		
Other feed purchases				\$0.00	\$0.00		
Total feed costs						\$1,182.46	
OTHER VARIABLE COSTS							
Building repairs				\$13.00	\$13.00		
Equipment repairs				\$17.00	\$17.00		
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80		
Misc. livestock supplies				\$76.00	\$76.00		
Breeding fees				\$45.00	\$45.00		
Vet. & medicine				\$67.00	\$67.00		
Milk testing				\$15.00	\$15.00		
Gasoline, fuel, oil				\$13.00	\$13.00		
Utilities				\$66.00	\$66.00		
Insurance				\$10.00	\$10.00		
Coop dues (milk)		210	cwt.	\$0.15	\$31.50		
Milk hauling, freight		210	cwt.	\$0.65	\$136.50		
Marketing		210	cwt.	\$0.12	\$25.20		
Other cash costs				\$14.00	\$14.00		
Advertising		210	cwt.	\$0.05	\$10.50		
Total of other						\$581.50	
TOTAL VARIABLE COSTS						\$1,763.96	
				Value Per Cow or Unit	Charge		
FIXED COSTS			Rate				
Interest on Cow and Rep. ⁶		10 %		\$1,500	\$185.15		
Family labor	\$0.00	51	hour	\$0.00	\$0.00		
Hired labor	\$5.00	41	hour	\$205.00	\$205.00		
Equipment depreciation		10 %		\$800	\$80.00		
Building depreciation		10 %		\$1,800	\$180.00		
Management charge ⁷		5 %			\$155.30		
Total Fixed Costs						\$805.45	
TOTAL COSTS						\$2,569.41	

Returns Above Var. Costs	\$1,342.07	_____
Returns Above Total Costs	\$536.62	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.79	_____
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Breakeven Price to Cover

Feed costs	\$5.63	_____
Total variable costs	\$8.40	_____
Total costs	\$12.24	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\% \text{ value of heifer}$.
7. Management charge equals 5% of gross income.

TABLE 48

LARGE BREED

1990 DAIRY COW BUDGET FOR 13,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 100% Corn silage(hay fed to replacements)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	130	cwt.	\$13.50	\$1,755.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	100	lb.	\$1.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,026.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	69	bu.	\$182.85	\$182.85	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	1.3	ton	\$117.00	\$117.00	_____
Corn silage (as fed)	\$23.75	15	ton	\$356.25	\$356.25	_____
Soybean meal	\$13.00	17.6	cwt.	\$228.80		_____
Dicalcium phosphate	\$0.20	32	lb.	\$6.40		_____
Limestone	\$0.04	133	lb.	\$5.32		_____
Salt	\$0.07	73	lb.	\$5.11		_____
Supplemental feed cost					\$245.63	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$901.73	_____
OTHER VARIABLE COSTS						
Building repairs				\$7.00	\$7.00	_____
Equipment repairs				\$10.00	\$10.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Breeding fees				\$16.10	\$16.10	_____
Vet. & medicine				\$38.00	\$38.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$9.20	\$9.20	_____
Utilities				\$56.00	\$56.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		130	cwt.	\$0.15	\$19.50	_____
Milk hauling, freight		130	cwt.	\$0.65	\$84.50	_____
Marketing		130	cwt.	\$0.12	\$15.60	_____
Other cash costs				\$11.00	\$11.00	_____
Advertising		130	cwt.	\$0.05	\$6.50	_____
Total of other					\$387.20	_____
TOTAL VARIABLE COSTS					\$1,288.93	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$900	\$125.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$101.30	\$101.30	_____
Total Fixed Costs					\$611.45	_____
TOTAL COSTS					\$1,900.38	_____

Returns Above Var. Costs	\$737.10	_____
Returns Above Total Costs	\$125.65	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.58	_____
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Breakeven Price to Cover

Feed costs	\$6.94	_____
Total variable costs	\$9.91	_____
Total costs	\$14.62	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 49

LARGE BREED
 1990 DAIRY COW BUDGET FOR 15,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 100% Corn silage(hay fed to replacements)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	150	cwt.	\$13.50	\$2,025.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,296.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	75	bu.	\$198.75	\$198.75	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	1.3	ton	\$117.00	\$117.00	_____
Corn silage (as fed)	\$23.75	16.3	ton	\$387.13	\$387.13	_____
Soybean meal	\$13.00	19.5	cwt.	\$253.50		_____
Dicalcium phosphate	\$0.20	37	lb.	\$7.40		_____
Limestone	\$0.04	148	lb.	\$5.92		_____
Salt	\$0.07	80	lb.	\$5.60		_____
Supplemental feed cost					\$272.42	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$975.30	_____
OTHER VARIABLE COSTS						
Building repairs				\$9.00	\$9.00	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Milk testing				\$15.00	\$15.00	_____
Breeding fees				\$24.20	\$24.20	_____
Vet. & medicine				\$42.20	\$42.20	_____
Gasoline, fuel, oil				\$10.00	\$10.00	_____
Utilities				\$57.00	\$57.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		150	cwt.	\$0.15	\$22.50	_____
Milk hauling, freight		150	cwt.	\$0.65	\$97.50	_____
Marketing		150	cwt.	\$0.12	\$18.00	_____
Other cash costs				\$13.00	\$13.00	_____
Advertising		150	cwt.	\$0.05	\$7.50	_____
Total of other					\$426.70	_____
TOTAL VARIABLE COSTS					\$1,402.00	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$1,000	\$135.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$114.80	\$114.80	_____
Total Fixed Costs					\$634.95	_____
TOTAL COSTS					\$2,036.95	_____

Returns Above Var. Costs	\$894.04	_____
Returns Above Total Costs	\$259.08	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.31	_____
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Breakeven Price to Cover

Feed costs	\$6.50	_____
Total variable costs	\$9.35	_____
Total costs	\$13.58	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\% \text{ value of heifer}$.
7. Management charge equals 5% of gross income.

TABLE 50

LARGE BREED
1990 DAIRY COW BUDGET FOR 17,000 lb. of MILK AND REPLACEMENT HEIFER
45% concentrates and 55% forages on a dry matter basis
100% Corn silage(hay fed to replacements)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	170	cwt.	\$13.50	\$2,295.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,566.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	84	bu.	\$222.60	\$222.60	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	1.3	ton	\$117.00	\$117.00	_____
Corn silage (as fed)	\$23.75	16.6	ton	\$394.25	\$394.25	_____
Soybean meal	\$13.00	20.5	cwt.	\$266.50		_____
Dicalcium phosphate	\$0.20	40	lb.	\$8.00		_____
Limestone	\$0.04	159	lb.	\$6.36		_____
Salt	\$0.07	85	lb.	\$5.95		_____
Supplemental feed cost					\$286.81	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,020.66	_____
OTHER VARIABLE COSTS						
Building repairs				\$10.50	\$10.50	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$72.00	\$72.00	_____
Breeding fees				\$36.00	\$36.00	_____
Vet. & medicine				\$58.70	\$58.70	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$10.60	\$10.60	_____
Utilities				\$60.50	\$60.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		170	cwt.	\$0.15	\$25.50	_____
Milk hauling, freight		170	cwt.	\$0.65	\$110.50	_____
Marketing		170	cwt.	\$0.12	\$20.40	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		170	cwt.	\$0.05	\$8.50	_____
Total of other					\$506.00	_____
TOTAL VARIABLE COSTS					\$1,526.66	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS						
Interest on Cow and Rep. ⁶		10	%	\$1,100	\$143.85	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%	\$128.30	\$128.30	_____
Total Fixed Costs					\$657.15	_____
TOTAL COSTS					\$2,183.81	_____

Returns Above Var. Costs	\$1,039.37	_____
Returns Above Total Costs	\$382.22	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.09	_____
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Breakeven Price to Cover

Feed costs	\$6.00	_____
Total variable costs	\$8.98	_____
Total costs	\$12.85	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\% \text{ value of heifer}$.
7. Management charge equals 5% of gross income.

TABLE 51

LARGE BREED

1990 DAIRY COW BUDGET FOR 19,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 100% Corn silage (hay fed to replacements)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	190	cwt.	\$13.50	\$2,565.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,836.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	87	bu.	\$230.55	\$230.55	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	1.3	ton	\$117.00	\$117.00	_____
Corn silage (as fed)	\$23.75	17	ton	\$403.75	\$403.75	_____
Soybean meal	\$13.00	25	cwt.	\$325.00		_____
Dicalcium phosphate	\$0.20	49	lb.	\$9.80		_____
Limestone	\$0.04	180	lb.	\$7.20		_____
Salt	\$0.07	86	lb.	\$6.02		_____
Supplemental feed cost					\$348.02	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,099.32	_____
OTHER VARIABLE COSTS						
Building repairs				\$11.00	\$11.00	_____
Equipment repairs				\$15.00	\$15.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$74.00	\$74.00	_____
Breeding fees				\$40.00	\$40.00	_____
Vet. & medicine				\$62.00	\$62.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$11.20	\$11.20	_____
Utilities				\$63.50	\$63.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		190	cwt.	\$0.15	\$28.50	_____
Milk hauling, freight		190	cwt.	\$0.65	\$123.50	_____
Marketing		190	cwt.	\$0.12	\$22.80	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		190	cwt.	\$0.05	\$9.50	_____
Total of other					\$541.80	_____
TOTAL VARIABLE COSTS					\$1,641.12	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS						
Interest on Cow and Rep. ⁶		10	%	\$1,300	\$165.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	31	hour	\$155.00	\$155.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%		\$141.80	_____
Total Fixed Costs					\$721.95	_____
TOTAL COSTS					\$2,363.07	_____

Returns Above Var. Costs	\$1,194.91	_____
Returns Above Total Costs	\$472.96	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.93	_____
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Breakeven Price to Cover

Feed costs	\$5.79	_____
Total variable costs	\$8.64	_____
Total costs	\$12.44	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\%$ value of heifer.
7. Management charge equals 5% of gross income.

TABLE 52

LARGE BREED
 1990 DAIRY COW BUDGET FOR 21,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 100% Corn silage(hay fed to replacements)

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1		210	cwt.	\$13.50	\$2,835.00	_____
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44		1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11		6	cwt.	\$57.00	\$37.62	_____
GROSS INCOME						\$3,106.03	_____
VARIABLE COSTS					COST PER ANIMAL		
Feed costs ⁴							
Corn equivalent	\$2.65		101	bu.	\$267.65	\$267.65	_____
Soybean			0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00		1.3	ton	\$117.00	\$117.00	_____
Corn silage (as fed)	\$23.75		16.4	ton	\$389.50	\$389.50	_____
Soybean meal	\$13.00		26	cwt.	\$338.00		_____
Dicalcium phosphate	\$0.20		104	lb.	\$20.80		_____
Limestone	\$0.04		188	lb.	\$7.52		_____
Salt	\$0.07		89	lb.	\$6.23		_____
Supplemental feed cost						\$372.55	_____
Other feed purchases					\$0.00	\$0.00	_____
Total feed costs						\$1,146.70	_____
OTHER VARIABLE COSTS							
Building repairs					\$13.00	\$13.00	_____
Equipment repairs					\$17.00	\$17.00	_____
Bedding ⁵	\$55.00	0.76	ton		\$41.80	\$41.80	_____
Misc. livestock supplies					\$76.00	\$76.00	_____
Breeding fees					\$45.00	\$45.00	_____
Vet. & medicine					\$67.00	\$67.00	_____
Milk testing					\$15.00	\$15.00	_____
Gasoline, fuel, oil					\$13.00	\$13.00	_____
Utilities					\$66.00	\$66.00	_____
Insurance					\$10.00	\$10.00	_____
Coop dues (milk)			210	cwt.	\$0.15	\$31.50	_____
Milk hauling, freight			210	cwt.	\$0.65	\$136.50	_____
Marketing			210	cwt.	\$0.12	\$25.20	_____
Other cash costs					\$14.00	\$14.00	_____
Advertising			210	cwt.	\$0.05	\$10.50	_____
Total of other						\$581.50	_____
TOTAL VARIABLE COSTS						\$1,728.20	_____
FIXED COSTS					Value Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁶		10	%		\$1,500	\$185.15	_____
Family labor	\$0.00	51	hour		\$0.00	\$0.00	_____
Hired labor	\$5.00	41	hour		\$205.00	\$205.00	_____
Equipment depreciation		10	%		\$800	\$80.00	_____
Building depreciation		10	%		\$1,800	\$180.00	_____
Management charge ⁷		5	%			\$155.30	_____
Total Fixed Costs						\$805.45	_____
TOTAL COSTS						\$2,533.65	_____

Returns Above Var. Costs	\$1,377.83	_____
Returns Above Total Costs	\$572.38	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.79	_____
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Breakeven Price to Cover

Feed costs	\$5.46	_____
Total variable costs	\$8.23	_____
Total costs	\$12.07	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130 \text{ cwts.}$, value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\% \text{ value of heifer.}$
7. Management charge equals 5% of gross income.

TABLE 53

LARGE BREED
 1990 DAIRY COW BUDGET FOR 13,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis

Hay is only forage fed

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1		130	cwt.	\$13.50	\$1,755.00	_____
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44		100	lb.	\$1.00	\$44.00	_____
Heifers sold ³	0.11		600	lb.	\$0.57	\$37.62	_____
GROSS INCOME						\$2,026.03	_____
VARIABLE COSTS					COST PER ANIMAL		
Feed costs ⁴							
Corn equivalent	\$2.65		116	bu.	\$307.40	\$307.40	_____
Soybean			0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00		6.4	ton	\$576.00	\$576.00	_____
Corn silage (as fed)	\$23.75		0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00		5.7	cwt.	\$74.10		_____
Dicalcium phosphate	\$0.20		58	lb.	\$11.60		_____
Limestone	\$0.04		35	lb.	\$1.40		_____
Salt	\$0.07		73	lb.	\$5.11		_____
Supplemental feed cost						\$92.21	_____
Other feed purchases					\$0.00	\$0.00	_____
Total feed costs						\$975.61	_____
OTHER VARIABLE COSTS							
Building repairs					\$7.00	\$7.00	_____
Equipment repairs					\$10.00	\$10.00	_____
Bedding ⁵	\$55.00		0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies					\$47.00	\$47.00	_____
Breeding fees					\$16.10	\$16.10	_____
Vet. & medicine					\$38.00	\$38.00	_____
Milk testing					\$15.00	\$15.00	_____
Gasoline, fuel, oil					\$9.20	\$9.20	_____
Utilities					\$56.00	\$56.00	_____
Insurance					\$10.00	\$10.00	_____
Coop dues (milk)			130	cwt.	\$0.15	\$19.50	_____
Milk hauling, freight			130	cwt.	\$0.65	\$84.50	_____
Marketing			130	cwt.	\$0.12	\$15.60	_____
Other cash costs					\$11.00	\$11.00	_____
Advertising			130	cwt.	\$0.05	\$6.50	_____
Total of other						\$387.20	_____
TOTAL VARIABLE COSTS						\$1,362.81	_____
FIXED COSTS					Value or Cost Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁶			10	%	\$900	\$125.15	_____
Family labor	\$0.00		51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00		25	hour	\$125.00	\$125.00	_____
Equipment depreciation			10	%	\$800	\$80.00	_____
Building depreciation			10	%	\$1,800	\$180.00	_____
Management charge ⁷			5	%	\$101.30	\$101.30	_____
Total Fixed Costs						\$611.45	_____
TOTAL COSTS						\$1,974.26	_____

Returns Above Var. Costs	\$663.22	_____
Returns Above Total Costs	\$51.77	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.58	_____
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Breakeven Price to Cover

Feed costs	\$7.50	_____
Total variable costs	\$10.48	_____
Total costs	\$15.19	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 54

LARGE BREED
 1990 DAIRY COW BUDGET FOR 15,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis

Hay is only forage fed							
INCOME	Head or	Costs	Amount	Unit	Value	Total	Your
							Farm
Milk sales	1		150	cwt.	\$13.50	\$2,025.00	_____
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44		1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11		600	lb.	\$0.57	\$37.62	_____
GROSS INCOME						\$2,296.03	_____
VARIABLE COSTS					COST PER ANIMAL		
Feed costs ⁴							
Corn equivalent	\$2.65		126	bu.	\$333.90	\$333.90	_____
Soybean			0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00		6.8	ton	\$612.00	\$612.00	_____
Corn silage (as fed)	\$23.75		0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00		6.4	cwt.	\$83.20		_____
Dicalcium phosphate	\$0.20		67	lb.	\$13.40		_____
Limestone	\$0.04		39	lb.	\$1.56		_____
Salt	\$0.07		80	lb.	\$5.60		_____
Supplemental feed cost						\$103.76	_____
Other feed purchases					\$0.00	\$0.00	_____
Total feed costs						\$1,049.66	_____
OTHER VARIABLE COSTS							
Building repairs					\$9.00	\$9.00	_____
Equipment repairs					\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton		\$41.80	\$41.80	_____
Misc. livestock supplies					\$47.00	\$47.00	_____
Milk testing					\$15.00	\$15.00	_____
Breeding fees					\$24.20	\$24.20	_____
Vet. & medicine					\$42.20	\$42.20	_____
Gasoline, fuel, oil					\$10.00	\$10.00	_____
Utilities					\$57.00	\$57.00	_____
Insurance					\$10.00	\$10.00	_____
Coop dues (milk)			150	cwt.	\$0.15	\$22.50	_____
Milk hauling, freight			150	cwt.	\$0.65	\$97.50	_____
Marketing			150	cwt.	\$0.12	\$18.00	_____
Other cash costs					\$13.00	\$13.00	_____
Advertising			150	cwt.	\$0.05	\$7.50	_____
Total of other						\$426.70	_____
TOTAL VARIABLE COSTS						\$1,476.36	_____
FIXED COSTS							
Interest on Cow and Rep. ⁶		Rate			Value or Cost Per Cow or Unit	Charge	
Family labor	\$0.00	10 %			\$1,000	\$135.15	_____
Hired labor	\$5.00	51 hour			\$0.00	\$0.00	_____
Equipment depreciation		25 hour			\$125.00	\$125.00	_____
Building depreciation		10 %			\$800	\$80.00	_____
Management charge ⁷		10 %			\$1,800	\$180.00	_____
Total Fixed Costs		5 %			\$114.80	\$114.80	_____
TOTAL COSTS						\$634.95	_____
						\$2,111.31	_____

Returns Above Var. Costs	\$819.67	_____
Returns Above Total Costs	\$184.72	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.31	_____
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Breakeven Price to Cover

Feed costs	\$7.00	_____
Total variable costs	\$9.84	_____
Total costs	\$14.08	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 55

LARGE BREED
 1990 DAIRY COW BUDGET FOR 17,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis

Hay is only forage fed

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	170	cwt.	\$13.50	\$2,295.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,566.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	137	bu.	\$363.05	\$363.05	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	6.9	ton	\$621.00	\$621.00	_____
Corn silage (as fed)	\$23.75	0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00	7.2	cwt.	\$93.60		_____
Dicalcium phosphate	\$0.20	72	lb.	\$14.40		_____
Limestone	\$0.04	48	lb.	\$1.92		_____
Salt	\$0.07	83	lb.	\$5.81		_____
Supplemental feed cost					\$115.73	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,099.78	_____
OTHER VARIABLE COSTS						
Building repairs				\$10.50	\$10.50	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$72.00	\$72.00	_____
Breeding fees				\$36.00	\$36.00	_____
Vet. & medicine				\$58.70	\$58.70	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$10.60	\$10.60	_____
Utilities				\$60.50	\$60.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		170	cwt.	\$0.15	\$25.50	_____
Milk hauling, freight		170	cwt.	\$0.65	\$110.50	_____
Marketing		170	cwt.	\$0.12	\$20.40	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		170	cwt.	\$0.05	\$8.50	_____
Total of other					\$506.00	_____
TOTAL VARIABLE COSTS					\$1,605.78	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$1,100	\$143.85	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$128.30	\$128.30	_____
Total Fixed Costs					\$657.15	_____
TOTAL COSTS					\$2,262.93	_____

Returns Above Var. Costs	\$960.25	_____
Returns Above Total Costs	\$303.10	_____
Per Cwt. Milk		
Gross income/milk production (cwt.)	\$15.09	_____
Breakeven Price to Cover		
Feed costs	\$6.47	_____
Total variable costs	\$9.45	_____
Total costs	\$13.31	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 56

LARGE BREED

1990 DAIRY COW BUDGET FOR 19,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 Hay is only forage fed

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	190	cwt.	\$13.50	\$2,565.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,836.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	141	bu.	\$373.65	\$373.65	_____
Soybean			bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	7	ton	\$630.00	\$630.00	_____
Corn silage (as fed)	\$23.75	0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00	11.7	cwt.	\$152.10		_____
Dicalcium phosphate	\$0.20	84	lb.	\$16.80		_____
Limestone	\$0.04	67	lb.	\$2.68		_____
Salt	\$0.07	86	lb.	\$6.02		_____
Supplemental feed cost					\$177.60	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,181.25	_____
OTHER VARIABLE COSTS						
Building repairs				\$11.00	\$11.00	_____
Equipment repairs				\$15.00	\$15.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$74.00	\$74.00	_____
Breeding fees				\$40.00	\$40.00	_____
Vet. & medicine				\$62.00	\$62.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$11.20	\$11.20	_____
Utilities				\$63.50	\$63.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		190	cwt.	\$0.15	\$28.50	_____
Milk hauling, freight		190	cwt.	\$0.65	\$123.50	_____
Marketing		190	cwt.	\$0.12	\$22.80	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		190	cwt.	\$0.05	\$9.50	_____
Total of other					\$541.80	_____
TOTAL VARIABLE COSTS					\$1,723.05	_____
FIXED COSTS				Value or Cost Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁶		10	%	\$1,300	\$165.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	31	hour	\$155.00	\$155.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%		\$141.80	_____
Total Fixed Costs					\$721.95	_____
TOTAL COSTS					\$2,445.00	_____

Returns Above Var. Costs	\$1,112.98	_____
Returns Above Total Costs	\$391.03	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.93	_____
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Breakeven Price to Cover

Feed costs	\$6.22	_____
Total variable costs	\$9.07	_____
Total costs	\$12.87	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 57

LARGE BREED
1990 DAIRY COW BUDGET FOR 21,000 lb. of MILK AND REPLACEMENT HEIFER
45% concentrates and 55% forages on a dry matter basis
Hay is only forage fed

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1		210	cwt.	\$13.50	\$2,835.00	_____
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44		1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11		6	cwt.	\$57.00	\$37.62	_____
GROSS INCOME						\$3,106.03	_____
VARIABLE COSTS					COST PER ANIMAL		
Feed costs ⁴							
Corn equivalent	\$2.65		153	bu.	\$405.45	\$405.45	_____
Soybean			0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00		6.8	ton	\$612.00	\$612.00	_____
Corn silage (as fed)	\$23.75		0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00		13	cwt.	\$169.00		_____
Dicalcium phosphate	\$0.20		84	lb.	\$16.80		_____
Limestone	\$0.04		85	lb.	\$3.40		_____
Salt	\$0.07		89	lb.	\$6.23		_____
Supplemental feed cost						\$195.43	_____
Other feed purchases					\$0.00	\$0.00	_____
Total feed costs						\$1,212.88	_____
OTHER VARIABLE COSTS							
Building repairs					\$13.00	\$13.00	_____
Equipment repairs					\$17.00	\$17.00	_____
Bedding ⁵	\$55.00		0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies					\$76.00	\$76.00	_____
Breeding fees					\$45.00	\$45.00	_____
Vet. & medicine					\$67.00	\$67.00	_____
Milk testing					\$15.00	\$15.00	_____
Gasoline, fuel, oil					\$13.00	\$13.00	_____
Utilities					\$66.00	\$66.00	_____
Insurance					\$10.00	\$10.00	_____
Coop dues (milk)			210	cwt.	\$0.15	\$31.50	_____
Milk hauling, freight			210	cwt.	\$0.65	\$136.50	_____
Marketing			210	cwt.	\$0.12	\$25.20	_____
Other cash costs					\$14.00	\$14.00	_____
Advertising			210	cwt.	\$0.05	\$10.50	_____
Total of other						\$581.50	_____
TOTAL VARIABLE COSTS						\$1,794.38	_____
FIXED COSTS					Value Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁶			10	%	\$1,500	\$185.15	_____
Family labor	\$0.00		51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00		41	hour	\$205.00	\$205.00	_____
Equipment depreciation			10	%	\$800	\$80.00	_____
Building depreciation			10	%	\$1,800	\$180.00	_____
Management charge ⁷			5	%		\$155.30	_____
Total Fixed Costs						\$805.45	_____
TOTAL COSTS						\$2,599.83	_____

Returns Above Var. Costs	\$1,311.65	_____
Returns Above Total Costs	\$506.20	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.79	_____
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Breakeven Price to Cover

Feed costs	\$5.78	_____
Total variable costs	\$8.54	_____
Total costs	\$12.38	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 58

LARGE BREED
 1990 DAIRY COW BUDGET FOR 13,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Haylage is the only forage fed)

INCOME	Head or			Value	Total	Your Farm
	Costs	Amount	Unit			
Milk sales	1	130	cwt.	\$13.50	\$1,755.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	100	lb.	\$1.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,026.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	119	bu.	\$315.35	\$315.35	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Haylage	\$45.00	12.8	ton	\$576.00	\$576.00	_____
Corn silage (as fed)	\$23.75	0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00	4.8	cwt.	\$62.40		_____
Dicalcium phosphate	\$0.20	53	lb.	\$10.60		_____
Limestone	\$0.04	27	lb.	\$1.08		_____
Salt	\$0.07	73	lb.	\$5.11		_____
Supplemental feed cost					\$79.19	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$970.54	_____
OTHER VARIABLE COSTS						
Building repairs				\$7.00	\$7.00	_____
Equipment repairs				\$10.00	\$10.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Breeding fees				\$16.10	\$16.10	_____
Vet. & medicine				\$38.00	\$38.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$9.20	\$9.20	_____
Utilities				\$56.00	\$56.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		130	cwt.	\$0.15	\$19.50	_____
Milk hauling, freight		130	cwt.	\$0.65	\$84.50	_____
Marketing		130	cwt.	\$0.12	\$15.60	_____
Other cash costs				\$11.00	\$11.00	_____
Advertising		130	cwt.	\$0.05	\$6.50	_____
Total of other					\$387.20	_____
TOTAL VARIABLE COSTS					\$1,357.74	_____
FIXED COSTS				Value or Cost Per Cow or Unit	Charge	
Interest on Cow and Rep. ⁶		10	%	\$900	\$125.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%	\$101.30	\$101.30	_____
Total Fixed Costs					\$611.45	_____
TOTAL COSTS					\$1,969.19	_____

Returns Above Var. Costs	\$668.29	_____
Returns Above Total Costs	\$56.84	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.58	_____
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Breakeven Price to Cover

Feed costs	\$7.47	_____
Total variable costs	\$10.44	_____
Total costs	\$15.15	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals $(\text{cow value} + \text{cull value}/2)$, interest equals $10\% \times \text{value of cow} + .46 \times 10\%$ value of heifer.
7. Management charge equals 5% of gross income.

TABLE 59

LARGE BREED

1990 DAIRY COW BUDGET FOR 15,000 lb. of MILK AND REPLACEMENT HEIFER
45% concentrates and 55% forages on a dry matter basis
(Haylage is the only forage fed)

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1		150	cwt.	\$13.50	\$2,025.00	_____
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44		1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11		600	lb.	\$0.57	\$37.62	_____
GROSS INCOME						\$2,296.03	_____
VARIABLE COSTS							
						COST	
						PER	
						ANIMAL	
Feed costs ⁴							
Corn equivalent	\$2.65	138.5	bu.		\$367.03	\$367.03	_____
Soybean		0	bu.		\$0.00	\$0.00	_____
Haylage	\$45.00	12.9	ton		\$580.50	\$580.50	_____
Corn silage (as fed)	\$23.75	0	ton		\$0.00	\$0.00	_____
Soybean meal	\$13.00	5.8	cwt.		\$75.40		_____
Dicalcium phosphate	\$0.20	63	lb.		\$12.60		_____
Limestone	\$0.04	45	lb.		\$1.80		_____
Salt	\$0.07	80	lb.		\$5.60		_____
Supplemental feed cost						\$95.40	_____
Other feed purchases					\$0.00	\$0.00	_____
Total feed costs						\$1,042.93	_____
OTHER VARIABLE COSTS							
Building repairs					\$9.00	\$9.00	_____
Equipment repairs					\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton		\$41.80	\$41.80	_____
Misc. livestock supplies					\$47.00	\$47.00	_____
Milk testing					\$15.00	\$15.00	_____
Breeding fees					\$24.20	\$24.20	_____
Vet. & medicine					\$42.20	\$42.20	_____
Gasoline, fuel, oil					\$10.00	\$10.00	_____
Utilities					\$57.00	\$57.00	_____
Insurance					\$10.00	\$10.00	_____
Coop dues (milk)		150	cwt.		\$0.15	\$22.50	_____
Milk hauling, freight		150	cwt.		\$0.65	\$97.50	_____
Marketing		150	cwt.		\$0.12	\$18.00	_____
Other cash costs					\$13.00	\$13.00	_____
Advertising		150	cwt.		\$0.05	\$7.50	_____
Total of other						\$426.70	_____
TOTAL VARIABLE COSTS						\$1,469.63	_____
						Value or	
						Cost Per	
						Cow or	
						Unit	Charge
FIXED COSTS							
Interest on Cow and Rep. ⁶		10	%		\$1,000	\$135.15	_____
Family labor	\$0.00	51	hour		\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour		\$125.00	\$125.00	_____
Equipment depreciation		10	%		\$800	\$80.00	_____
Building depreciation		10	%		\$1,800	\$180.00	_____
Management charge ⁷		5	%		\$114.80	\$114.80	_____
Total Fixed Costs						\$634.95	_____
TOTAL COSTS						\$2,104.58	_____

Returns Above Var. Costs	\$826.41	<u> </u>
Returns Above Total Costs	\$191.45	<u> </u>

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.31	<u> </u>
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Breakeven Price to Cover

Feed costs	\$6.95	<u> </u>
Total variable costs	\$9.80	<u> </u>
Total costs	\$14.03	<u> </u>

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 60

LARGE BREED
 1990 DAIRY COW BUDGET FOR 17,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Haylage is the only forage fed)

INCOME	Head or			Value	Total	Your Farm
	Costs	Amount	Unit			
Milk sales	1	170	cwt.	\$13.50	\$2,295.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,566.03	_____
VARIABLE COSTS						
					COST PER ANIMAL	
Feed costs ⁴						
Corn equivalent	\$2.65	140	bu.	\$371.00	\$371.00	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Haylage	\$45.00	13.8	ton	\$621.00	\$621.00	_____
Corn silage (as fed)	\$23.75	0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00	6.14	cwt.	\$79.82		_____
Dicalcium phosphate	\$0.20	66	lb.	\$13.20		_____
Limestone	\$0.04	51	lb.	\$2.04		_____
Salt	\$0.07	83	lb.	\$5.81		_____
Supplemental feed cost					\$100.87	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,092.87	_____
OTHER VARIABLE COSTS						
Building repairs				\$10.50	\$10.50	_____
Equipment repairs				\$12.00	\$12.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$72.00	\$72.00	_____
Breeding fees				\$36.00	\$36.00	_____
Vet. & medicine				\$58.70	\$58.70	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$10.60	\$10.60	_____
Utilities				\$60.50	\$60.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		170	cwt.	\$0.15	\$25.50	_____
Milk hauling, freight		170	cwt.	\$0.65	\$110.50	_____
Marketing		170	cwt.	\$0.12	\$20.40	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		170	cwt.	\$0.05	\$8.50	_____
Total of other					\$506.00	_____
TOTAL VARIABLE COSTS					\$1,598.87	_____
FIXED COSTS						
Interest on Cow and Rep. ⁶						
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10	%	\$800	\$80.00	_____
Building depreciation		10	%	\$1,800	\$180.00	_____
Management charge ⁷		5	%	\$128.30	\$128.30	_____
Total Fixed Costs					\$657.15	_____
TOTAL COSTS					\$2,256.02	_____

Returns Above Var. Costs	\$967.16	_____
Returns Above Total Costs	\$310.01	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$15.09	_____
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Breakeven Price to Cover

Feed costs	\$6.43	_____
Total variable costs	\$9.41	_____
Total costs	\$13.27	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 61

LARGE BREED
 1990 DAIRY COW BUDGET FOR 19,000 lb. of MILK AND REPLACEMENT HEIFER
 45% concentrates and 55% forages on a dry matter basis
 (Haylage is the only forage fed)

INCOME	Head or		Unit	Value	Total	Your Farm
	Costs	Amount				
Milk sales	1	190	cwt.	\$13.50	\$2,565.00	_____
Cows culled ¹	0.31	13	cwt.	\$47.00	\$189.41	_____
Bull calves sold ²	0.44	1	cwt.	\$100.00	\$44.00	_____
Heifers sold ³	0.11	600	lb.	\$0.57	\$37.62	_____
GROSS INCOME					\$2,836.03	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	144	bu.	\$381.60	\$381.60	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Haylage	\$45.00	14	ton	\$630.00	\$630.00	_____
Corn silage (as fed)	\$23.75	0	ton	\$0.00	\$0.00	_____
Soybean meal	\$13.00	10.6	cwt.	\$137.80		_____
Dicalcium phosphate	\$0.20	78	lb.	\$15.60		_____
Limestone	\$0.04	57	lb.	\$2.28		_____
Salt	\$0.07	86	lb.	\$6.02		_____
Supplemental feed cost					\$161.70	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$1,173.30	_____
OTHER VARIABLE COSTS						
Building repairs				\$11.00	\$11.00	_____
Equipment repairs				\$15.00	\$15.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$74.00	\$74.00	_____
Breeding fees				\$40.00	\$40.00	_____
Vet. & medicine				\$62.00	\$62.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$11.20	\$11.20	_____
Utilities				\$63.50	\$63.50	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		190	cwt.	\$0.15	\$28.50	_____
Milk hauling, freight		190	cwt.	\$0.65	\$123.50	_____
Marketing		190	cwt.	\$0.12	\$22.80	_____
Other cash costs				\$14.00	\$14.00	_____
Advertising		190	cwt.	\$0.05	\$9.50	_____
Total of other					\$541.80	_____
TOTAL VARIABLE COSTS					\$1,715.10	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$1,300	\$165.15	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	31	hour	\$155.00	\$155.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %			\$141.80	_____
Total Fixed Costs					\$721.95	_____
TOTAL COSTS					\$2,437.05	_____

Returns Above Var. Costs	\$1,120.93	_____
Returns Above Total Costs	\$398.98	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.93	_____
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Breakeven Price to Cover

Feed costs	\$6.18	_____
Total variable costs	\$9.03	_____
Total costs	\$12.83	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 62

LARGE BREED
1990 DAIRY COW BUDGET FOR 21,000 lb. of MILK AND REPLACEMENT HEIFER
45% concentrates and 55% forages on a dry matter basis
(Haylage is the only forage fed)

INCOME	Head or	Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1		210	cwt.	\$13.50	\$2,835.00	
Cows culled ¹	0.31		13	cwt.	\$47.00	\$189.41	
Bull calves sold ²	0.44		1	cwt.	\$100.00	\$44.00	
Heifers sold ³	0.11		6	cwt.	\$57.00	\$37.62	
GROSS INCOME						\$3,106.03	
VARIABLE COSTS					COST PER ANIMAL		
Feed costs ⁴							
Corn equivalent		\$2.65	156	bu.	\$413.40	\$413.40	
Soybean			0	bu.	\$0.00	\$0.00	
Haylage		\$45.00	13.6	ton	\$612.00	\$612.00	
Corn silage (as fed)		\$23.75	0	ton	\$0.00	\$0.00	
Soybean meal		\$13.00	12	cwt.	\$156.00		
Dicalcium phosphate		\$0.20	81	lb.	\$16.20		
Limestone		\$0.04	73	lb.	\$2.92		
Salt		\$0.07	88	lb.	\$6.16		
Supplemental feed cost						\$181.28	
Other feed purchases					\$0.00	\$0.00	
Total feed costs						\$1,206.68	
OTHER VARIABLE COSTS							
Building repairs					\$13.00	\$13.00	
Equipment repairs					\$17.00	\$17.00	
Bedding ⁵		\$55.00	0.76	ton	\$41.80	\$41.80	
Misc. livestock supplies					\$76.00	\$76.00	
Breeding fees					\$45.00	\$45.00	
Vet. & medicine					\$67.00	\$67.00	
Milk testing					\$15.00	\$15.00	
Gasoline, fuel, oil					\$13.00	\$13.00	
Utilities					\$66.00	\$66.00	
Insurance					\$10.00	\$10.00	
Coop dues (milk)			210	cwt.	\$0.15	\$31.50	
Milk hauling, freight			210	cwt.	\$0.65	\$136.50	
Marketing			210	cwt.	\$0.12	\$25.20	
Other cash costs					\$14.00	\$14.00	
Advertising			210	cwt.	\$0.05	\$10.50	
Total of other						\$581.50	
TOTAL VARIABLE COSTS						\$1,788.18	
FIXED COSTS					Rate	Value Per Cow or Unit	Charge
Interest on Cow and Rep. ⁶			10	%	\$1,500	\$185.15	
Family labor	\$0.00		51	hour	\$0.00	\$0.00	
Hired labor	\$5.00		41	hour	\$205.00	\$205.00	
Equipment depreciation			10	%	\$800	\$80.00	
Building depreciation			10	%	\$1,800	\$180.00	
Management charge ⁷			5	%		\$155.30	
Total Fixed Costs						\$805.45	
TOTAL COSTS						\$2,593.63	

Returns Above Var. Costs	\$1,317.85	_____
Returns Above Total Costs	\$512.40	_____
Per Cwt. Milk		
Gross income/milk production (cwt.)	\$14.79	_____
Breakeven Price to Cover		
Feed costs	\$5.75	_____
Total variable costs	\$8.52	_____
Total costs	\$12.35	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 63

SMALL BREEDS
1990 DAIRY COW BUDGET FOR 13,000 lb. of MILK AND REPLACEMENTS
45% concentrates and 55% forages on a dry matter basis
(Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or			Value	Total	Your
	Costs	Amount	Unit			Farm
Milk sales	1	130	cwt.	\$13.50	\$1,755.00	_____
Cows culled ¹	0.31	9.5	cwt.	\$47.00	\$138.42	_____
Bull calves sold ²	0.44	65	lb.	\$0.50	\$14.30	_____
Heifers sold ³	0.11	475	lb.	\$0.47	\$24.56	_____
GROSS INCOME					\$1,932.27	_____
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	66	bu.	\$174.90	\$174.90	_____
Soybean		0	bu.	\$0.00	\$0.00	_____
Hay (as fed)	\$90.00	2.91	ton	\$261.90	\$261.90	_____
Corn silage (as fed)	\$23.75	6.37	ton	\$151.29	\$151.29	_____
Soybean meal	\$13.00	13.1	cwt.	\$170.30		_____
Dicalcium phosphate	\$0.20	57	lb.	\$11.40		_____
Limestone	\$0.04	75	lb.	\$3.00		_____
Salt	\$0.07	57	lb.	\$3.99		_____
Supplemental feed cost					\$188.69	_____
Other feed purchases				\$0.00	\$0.00	_____
Total feed costs					\$776.78	_____
OTHER VARIABLE COSTS						
Building repairs				\$7.00	\$7.00	_____
Equipment repairs				\$10.00	\$10.00	_____
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	_____
Misc. livestock supplies				\$47.00	\$47.00	_____
Breeding fees				\$16.10	\$16.10	_____
Vet. & medicine				\$38.00	\$38.00	_____
Milk testing				\$15.00	\$15.00	_____
Gasoline, fuel, oil				\$9.20	\$9.20	_____
Utilities				\$56.00	\$56.00	_____
Insurance				\$10.00	\$10.00	_____
Coop dues (milk)		130	cwt.	\$0.15	\$19.50	_____
Milk hauling, freight		130	cwt.	\$0.65	\$84.50	_____
Marketing		130	cwt.	\$0.12	\$15.60	_____
Other cash costs				\$11.00	\$11.00	_____
Advertising		130	cwt.	\$0.05	\$6.50	_____
Total of other					\$387.20	_____
TOTAL VARIABLE COSTS					\$1,163.98	_____
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10 %		\$750	\$101.93	_____
Family labor	\$0.00	51	hour	\$0.00	\$0.00	_____
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	_____
Equipment depreciation		10 %		\$800	\$80.00	_____
Building depreciation		10 %		\$1,800	\$180.00	_____
Management charge ⁷		5 %		\$96.61	\$96.61	_____
Total Fixed Costs					\$583.54	_____
TOTAL COSTS					\$1,747.52	_____

Returns Above Var. Costs	\$768.30	_____
Returns Above Total Costs	\$184.76	_____

Per Cwt. Milk

Gross income/milk production (cwt.)	\$14.86	_____
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Breakeven Price to Cover

Feed costs	\$5.98	_____
Total variable costs	\$8.95	_____
Total costs	\$13.44	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals \$47 x 130 cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 64

SMALL BREEDS
1990 DAIRY COW BUDGET FOR 15,000 lb. of MILK AND REPLACEMENTS
45% concentrates and 55% forages on a dry matter basis
(Hay and corn silage fed 50%/50% on a dry matter basis)

INCOME	Head or Costs	Amount	Unit	Value	Total	Your Farm
Milk sales	1	150	cwt.	\$13.50	\$2,025.00	
Cows culled ¹	0.31	9.5	cwt.	\$47.00	\$138.42	
Bull calves sold ²	0.44	60	lb.	\$0.50	\$13.20	
Heifers sold ³	0.11	500	lb.	\$0.47	\$25.85	
GROSS INCOME					\$2,202.47	
VARIABLE COSTS				COST PER ANIMAL		
Feed costs ⁴						
Corn equivalent	\$2.65	75	bu.	\$198.75	\$198.75	
Soybean		0	bu.	\$0.00	\$0.00	
Hay (as fed)	\$90.00	3	ton	\$270.00	\$270.00	
Corn silage (as fed)	\$23.75	7.2	ton	\$171.00	\$171.00	
Soybean meal	\$13.00	15	cwt.	\$195.00		
Dicalcium phosphate	\$0.20	63	lb.	\$12.60		
Limestone	\$0.04	90	lb.	\$3.60		
Salt	\$0.07	62	lb.	\$4.34		
Supplemental feed cost					\$215.54	
Other feed purchases				\$0.00	\$0.00	
Total feed costs					\$855.29	
OTHER VARIABLE COSTS						
Building repairs				\$9.00	\$9.00	
Equipment repairs				\$12.00	\$12.00	
Bedding ⁵	\$55.00	0.76	ton	\$41.80	\$41.80	
Misc. livestock supplies				\$47.00	\$47.00	
Milk testing				\$15.00	\$15.00	
Breeding fees				\$24.20	\$24.20	
Vet. & medicine				\$42.20	\$42.20	
Gasoline, fuel, oil				\$10.00	\$10.00	
Utilities				\$57.00	\$57.00	
Insurance				\$10.00	\$10.00	
Coop dues (milk)		150	cwt.	\$0.15	\$22.50	
Milk hauling, freight		150	cwt.	\$0.65	\$97.50	
Marketing		150	cwt.	\$0.12	\$18.00	
Other cash costs				\$13.00	\$13.00	
Advertising		150	cwt.	\$0.05	\$7.50	
Total of other					\$426.70	
TOTAL VARIABLE COSTS					\$1,281.99	
				Value or Cost Per Cow or Unit	Charge	
FIXED COSTS		Rate				
Interest on Cow and Rep. ⁶		10	%	\$900	\$116.93	
Family labor	\$0.00	51	hour	\$0.00	\$0.00	
Hired labor	\$5.00	25	hour	\$125.00	\$125.00	
Equipment depreciation		10	%	\$800	\$80.00	
Building depreciation		10	%	\$1,800	\$180.00	
Management charge ⁷		5	%	\$110.12	\$110.12	
Total Fixed Costs					\$612.05	
TOTAL COSTS					\$1,894.04	

Returns Above Var. Costs	\$920.48	_____
Returns Above Total Costs	\$308.43	_____
Per Cwt. Milk		
Gross income/milk production (cwt.)	\$14.68	_____
Breakeven Price to Cover		
Feed costs	\$5.70	_____
Total variable costs	\$8.55	_____
Total costs	\$12.63	_____

1. Culling rate of 31% plus a 2% death loss.
2. Sell all bull calves and death loss of 6%.
3. All heifers are raised but 11% are culled or sold during the 24 months before freshening. They are sold at an average of 12 months. Feed is included in the cow budget.
4. Feed requirements are included in the following tables.
5. Includes .3 ton per cow and 1 ton of .46 heifer or a total of .76 ton .
6. Assumes interest rate equals 10%, value of cow as listed, cull cow value equals $\$47 \times 130$ cwts., value of cow equals (cow value + cull value/2) , interest equals 10% x value of cow + .46 x 10% value of heifer.
7. Management charge equals 5% of gross income.

TABLE 65

1990 DAIRY HEIFER BUDGET- LARGE BREEDS
 Birth to freshing (24 months)
 fed hay

ITEMS	QUANTITY	UNIT	PRICE	TOTAL	YOUR FARM
RECEIPTS					
Bred heifer	1	head	\$1,100.00	\$1,100.00	_____
VARIABLE COSTS					
Feed costs					
Corn equivalent	67	bu.	\$2.65	\$177.55	_____
SBM equivalent	50	lb.	\$0.13	\$6.50	_____
Dicalcium phosphate	0	lb.	\$0.20	\$0.00	_____
Salt	35	lb.	\$0.07	\$2.45	_____
Hay equivalents	4.5	ton	\$90.00	\$405.00	_____
Milk replacer	30	lb.	\$1.00	\$30.00	_____
Total feed costs				\$621.50	_____
Other Variable Costs					
Vet & medicine	1	head	\$21.00	\$21.00	_____
Breeding and Registration	1	head	\$35.00	\$35.00	_____
Utilities	1	head	\$22.00	\$22.00	_____
Bedding	1	ton	\$60.00	\$60.00	_____
Misc. & supplies	1	head	\$15.00	\$15.00	_____
Int. on operating costs ¹				\$75.05	_____
Cost of Heifer Calf ²	1.1	head	\$125.00	\$137.50	_____
Total Other Variable Costs				\$365.55	_____
TOTAL VARIABLE COSTS				\$987.50	_____
FIXED COSTS					
Labor charge	25	hour	\$5.00	\$125.00	_____
Equipment charge	\$50.00	head	20.00%	\$20.00	_____
Building charge	\$250.00	head	15.00%	\$75.00	_____
Management charge ³				\$55.00	_____
TOTAL FIXED COSTS				\$275.00	_____
TOTAL COSTS				\$1,262.05	_____
RETURNS ABOVE VARIABLE COSTS				\$112.95	_____
RETURNS ABOVE TOTAL COSTS				(\$162.05)	_____

1. Based on 1.5 times all first year var. costs, .5 the seconded years, times 10% interest.
2. Assume a 10% death rate.
3. Management charge equals 5% of gross receipts.

TABLE 66

1990 DAIRY HEIFER BUDGET- LARGE BREEDS
 Birth to freshing (24 months)
 Hay and corn silage fed

ITEMS	QUANTITY	UNIT	PRICE	TOTAL	YOUR FARM
RECEIPTS					
Bred heifer	1	head	\$1,100.00	\$1,100.00	_____
VARIABLE COSTS					
Feed costs					
Corn equivalent	33	bu.	\$2.65	\$87.45	_____
SBM equivalent	355	lb.	\$0.13	\$46.15	_____
Dicalcium phosphate	35	lb.	\$0.20	\$7.00	_____
Salt	35	lb.	\$0.07	\$2.45	_____
Hay equivalents	3	ton	\$90.00	\$270.00	_____
Corn silage	5.4	ton	\$20.00	\$108.00	_____
Milk replacer	30	lb.	\$1.00	\$30.00	_____
Total feed costs				\$551.05	_____
Other Variable Costs					
Vet & medicine	1	head	\$21.00	\$21.00	_____
Breeding and Registration	1	head	\$35.00	\$35.00	_____
Utilities	1	head	\$22.00	\$22.00	_____
Bedding	1	ton	\$60.00	\$60.00	_____
Misc. & supplies	1	head	\$15.00	\$15.00	_____
Int. on operating costs ¹				\$68.92	_____
Cost of Heifer Calf ²	1.1	head	\$125.00	\$137.50	_____
Total Other Variable Costs				\$359.42	_____
TOTAL VARIABLE COSTS				\$910.35	_____
FIXED COSTS					
Labor charge	25	hour	\$5.00	\$125.00	_____
Equipment charge	\$50.00	head	20.00%	\$20.00	_____
Building charge	\$250.00	head	15.00%	\$75.00	_____
Management charge ³				\$55.00	_____
TOTAL FIXED COSTS				\$275.00	_____
TOTAL COSTS				\$1,185.47	_____
RETURNS ABOVE VARIABLE COSTS				\$189.53	_____
RETURNS ABOVE TOTAL COSTS				(\$85.47)	_____

1. Based on 1.5 times all first year var. costs, .5 the seconded years, times 10% interest.
2. Assume a 10% death rate.
3. Management charge equals 5% of gross receipts.

TABLE 67

1990 DAIRY HEIFER BUDGET- SMALL BREEDS
 Birth to freshing (24 months)
 Hay and corn silage fed

ITEMS	QUANTITY	UNIT	PRICE	TOTAL	YOUR FARM
RECEIPTS					
Bred Heifer	1	head	\$850.00	\$850.00	_____
VARIABLE COSTS					
Feed					
Corn equivalent	24	bu.	\$2.65	\$63.60	_____
SBM equivalent	255	lb.	\$0.13	\$33.15	_____
Dicalcium phosphate	25	lb.	\$0.20	\$5.00	_____
Salt	25	lb.	\$0.07	\$1.75	_____
Hay equivalents	2.34	ton	\$90.00	\$210.60	_____
Corn Silage	4.24	ton	\$20.00	\$84.80	_____
Milk replacer	22	lb.	\$1.00	\$22.00	_____
Total feed costs				\$420.90	_____
Other Variable Costs					
Vet & medicine	1	head	\$21.00	\$21.00	_____
Breeding and Registration	1	head	\$25.00	\$25.00	_____
Utilities	1	head	\$22.00	\$22.00	_____
Bedding	1	ton	\$60.00	\$60.00	_____
Misc. & supplies	1	head	\$15.00	\$15.00	_____
Int. on operating costs ¹				\$54.77	_____
Cost of Heifer Calf ²	1.1	head	\$85.00	\$93.50	_____
Total Other Variable Costs				\$291.27	_____
TOTAL VARIABLE COSTS				\$712.35	_____
FIXED COSTS					
Labor charge	25	hour	\$5.00	\$125.00	_____
Equipment charge	\$50.00	head	20.00%	\$20.00	_____
Building charge	\$250.00	head	15.00%	\$75.00	_____
Management charge ³				\$42.50	_____
TOTAL FIXED COSTS				\$262.50	_____
TOTAL COSTS				\$974.67	_____
RETURNS ABOVE VARIABLE COSTS				\$137.83	_____
RETURNS ABOVE TOTAL COSTS				(\$124.67)	_____

1. Based on 1.5 times all first year var. costs, .5 the seconded years, times 10% interest.

2. Assume a 10% death rate.

3. Management charge equals 5% of gross receipts.

TABLE 68

HOLSTEIN STEER BUDGET 1990
100 to 1300 lb.

NUMBER OF STEERS INCOME	1 MARKET WEIGHT	UNIT	PRICE	PER STEER	YOUR FARM
Finish Steers ¹	1261	lb.	\$0.60	\$756.60	_____
EXPENSES					
Calf Costs	100	head	\$1.35	\$135.00	_____
Feed costs					
Milk replacer	45	lb.	0.63	\$28.35	_____
Corn	40	bu.	\$2.65	\$106.00	_____
SBM	3.5	cwts	\$13.00	\$45.50	_____
Salt & minerals	50	lb.	\$0.07	\$3.50	_____
Dicalcium phosphate	55	lb.	\$0.14	\$7.70	_____
Corn silage	4	ton	\$23.75	\$95.00	_____
Hay	500	lb.	\$0.05	\$25.00	_____
Total feed costs				\$311.05	_____
OTHER VARIABLE COSTS					
Vet. and medicine				\$22.00	_____
Electricity				\$12.00	_____
Equipment & repairs				\$12.00	_____
Insurance & taxes				\$1.50	_____
Marketing & trucking				\$10.00	_____
Misc.				\$3.00	_____
Int. on operating costs ²				\$35.98	_____
TOTAL VARIABLE COST				\$542.53	_____
FIXED COSTS					
Labor	20	hour	\$5.00	\$100.00	_____
Building ³				\$21.30	_____
Equipment charge ⁴				\$29.82	_____
Management charge ⁵				\$37.83	_____
TOTAL FIXED COSTS				\$188.95	_____
TOTAL COST				\$731.48	_____
RETURNS ABOVE VARIABLE COSTS					
			\$0.55	\$151.02	_____
			\$0.60	\$214.07	_____
			0.65	\$242.12	_____
RETURNS ABOVE TOTAL COSTS					
			\$0.55	(\$37.93)	_____
			\$0.60	\$25.12	_____
			0.65	\$88.17	_____

1. Steers are sold at 1300 lb. with a 5% death loss.
2. Int. on O.C. equals 17 months X .5 x Variable cost-marketing x .1
3. Building costs equal \$150 for 10 years times 1.42(17 month).
4. Equipment costs equal \$150 for 7 years times 1.42(17 month).
5. Management charge equals 5% gross income.

TABLE 69

VEAL BUDGET 1990
100 to 400 lb.
110 Day feeding period

INCOME	MARKET WEIGHT	UNIT PRICE	PER CALF	YOUR FARM
Veal Calf ¹	381.2 lb.	\$1.25	\$476.50	_____
EXPENSES				
Bob Calf	100 head	\$1.35	\$135.00	_____
Feed costs				
Milk replacer	475 lb.	\$0.50	\$237.50	_____
Total feed costs			\$237.50	_____
OTHER VARIABLE COSTS				
Vet. and medicine			\$12.00	_____
Electricity			\$7.50	_____
Equipment & repairs			\$0.75	_____
Insurance & taxes			\$0.75	_____
Marketing			\$7.00	_____
Truck & tractor			\$3.00	_____
Misc.			\$3.50	_____
Int. on operating costs ²			\$8.06	_____
TOTAL VARIABLE COST			\$415.06	_____
FIXED COSTS				
Labor	6 hour	\$5.00	\$30.00	_____
Building ³			\$6.03	_____
Equipment charge ⁴			\$3.16	_____
Management charge ⁵			\$23.83	_____
TOTAL FIXED COSTS			\$63.02	_____
TOTAL COST			\$478.08	_____
RETURNS ABOVE VARIABLE COSTS				_____
		\$1.20	\$42.38	_____
		\$1.25	\$61.44	_____
		\$1.30	\$80.50	_____
RETURNS ABOVE TOTAL COSTS				_____
		\$1.20	(\$20.64)	_____
		\$1.25	(\$1.58)	_____
		\$1.30	\$17.48	_____

1. Vealers are sold at 400 lb. with a 4.7% death loss.
2. Int. on O.C. equals (days on feed/365) X .5 x Variable cost-marketing
3. Building costs equal \$200 for 10 years divided by three groups a year
4. Equipment costs equal \$75 for 7 years divided by three groups a year
5. Management charge equals 5% gross income.

TABLE 70

1990 COW-CALF BUDGET
Selling at 500 lb.
Hay-pasture program

ITEM	QUANTITY	UNIT	PRICE	AMOUNT	YOUR FARM
RECEIPTS					
Steer Calf ¹	220	lb.	\$0.90	\$198.00	_____
Heifer Calf ²	104.5	lb.	\$0.85	\$88.83	_____
Cull Cows and Bulls ³	222	lb.	\$0.47	\$104.34	_____
TOTAL RECEIPTS				\$391.17	_____
VARIABLE COSTS					
Feed					
Pasture (Hay equiv.)	2.6	ton	\$20.00	\$52.00	_____
HAY (Mixed grass & leg)	1.8	ton	\$75.00	\$135.00	_____
Protein	0.5	cwts.	\$13.00	\$6.50	_____
Salt and mineral	5	tot	\$1.00	\$5.00	_____
Total feed costs				\$198.50	_____
Health Program	1	cow	\$14.00	\$14.00	_____
Transportation	0.67	cow	\$5.00	\$3.33	_____
Marketing	0.67	cow	\$5.00	\$3.33	_____
Supplies & misc.	1	cow	\$15.00	\$15.00	_____
Int. on operating cap. ⁴				\$11.50	_____
TOTAL VARIABLE COSTS				\$245.54	_____
FIXED COSTS					
Labor charge	10	hour	\$6.00	\$60.00	_____
Bull replacement costs ⁵				\$13.00	_____
Interest on investment ⁶	1	cow	\$58.80	\$58.80	_____
Fence	1	cow	\$20.00	\$20.00	_____
Buildings	1	cow	\$15.00	\$15.00	_____
Management charge ⁷			5%	\$19.56	_____
TOTAL FIXED COSTS				\$186.36	_____
TOTAL COSTS				\$431.90	_____
RETURNS ABOVE VARIABLE COST				\$145.67	_____
RETURNS ABOVE TOTAL COSTS				(\$40.73)	_____

1. Avg. weaning weight = 500, 88% calf crop, .5 bulls.
2. Avg. weaning weight = 475, 88% calf crop, .5 heifers, .22 keep for rep
3. Cull cows weight = 900, bulls weight = 1400, 2% death loss, 20% cull 25 cows per bull.
4. Interest on operating costs equals .5 Times (variable costs-transportation and market costs).
5. Bull replacement cost +25% annual replacement rate, bull costs \$1200, and 25 cows per bull.
6. Interest on investment equals value of the cow(\$800)-cull value(900 lbs) divided by 2 times .1.
7. Management charge equals 5% of gross income.

TABLE 71

1990 COW-CALF BUDGET
Selling at 500 lb.
Silage-pasture program

ITEM RECEIPTS	QUANTITY	UNIT	PRICE	AMOUNT	YOUR FARM
Steer calf ¹	220	lb.	\$0.90	\$198.00	_____
Heifer calf ²	104.5	lb.	\$0.85	\$88.83	_____
Cull cows and bulls ³	222	lb.	\$0.47	\$104.34	_____
TOTAL RECEIPTS				\$391.17	_____
VARIABLE COSTS					
Feed					
Pasture (Hay equiv.)	2.6	ton	\$20.00	\$52.00	_____
Silage	4.2	ton	\$23.75	\$99.75	_____
Protein	2	cwts.	\$13.00	\$26.00	_____
Salt and mineral	5	tot	\$1.00	\$5.00	_____
Total feed costs				\$192.75	_____
Health Program	1	cow	\$14.00	\$14.00	_____
Transportation	0.67	cow	\$5.00	\$3.33	_____
Marketing	0.67	cow	\$5.00	\$3.33	_____
Supplies & misc.	1	cow	\$15.00	\$15.00	_____
Int. on operating cap. ⁴				\$10.59	_____
TOTAL VARIABLE COSTS				\$229.00	_____
FIXED COSTS					
Labor charge	10	hour	\$6.00	\$60.00	_____
Bull replacement costs ⁵				\$13.00	_____
Interest on investment ⁶	1	cow	\$58.80	\$58.80	_____
Fence	1	cow	\$20.00	\$20.00	_____
Buildings	1	cow	\$15.00	\$15.00	_____
Management charge ⁷				\$19.56	_____
TOTAL FIXED COSTS				\$186.36	_____
TOTAL COSTS				\$415.36	_____
RETURNS ABOVE VARIABLE COST				\$172.16	_____
RETURNS ABOVE TOTAL COSTS				(\$24.19)	_____

1. Avg. weaning weight = 500, 88% calf crop, .5 bulls.
2. Avg. weaning weight = 500, 88% calf crop, .5 heifers, .22 keep for rep
3. Cull cows weight = 900, bulls weight = 1400, 2% death loss, 20% cull 25 cows per bull.
4. Interest on operating costs equals .5 Times (variable costs-transportation and market costs)..
5. Bull replacement cost +25% annual replacement rate, bull costs \$1200, and 25 cows per bull.
6. Interest on investment equals value of the cow(\$800)-cull value (900 lbs.) divided by 2 times .1.
7. Management charge equals 5% of gross income.

TABLE 72

BACKGROUNDING STEER CALVES BUDGET 1990
 450 to 700 lb.
 180 days, 1.4 lb. gain/day

INCOME	MARKET WEIGHT	UNIT	PRICE	PER STEER	YOUR FARM
Yearlings ¹	686 lb.		\$0.77	\$528.22	_____
EXPENSES					
Feeder calf	450 lb.		\$0.85	\$382.50	_____
Feed costs	AMOUNT				
Pasture (Hay equiv.)	1.4 ton		\$25.00	\$35.00	_____
Salt & minerals	45 lb.		\$0.07	\$3.15	_____
Total feed costs				\$38.15	_____
OTHER VARIABLE COSTS					
Vet. and medicine				\$8.00	_____
Insurance & taxes				\$0.50	_____
Marketing & trucking				\$10.00	_____
Misc.				\$1.00	_____
Int. on operating costs ²				\$10.75	_____
TOTAL VARIABLE COST				\$450.90	_____
FIXED COSTS					
Labor	4 hour		\$5.00	\$20.00	_____
Fence and facilities				\$27.00	_____
Management charge ³				\$26.41	_____
TOTAL FIXED COSTS				\$73.41	_____
TOTAL COST				\$524.31	_____
				Market Price	
RETURNS ABOVE VARIABLE COSTS			\$0.72	\$43.02	_____
			\$0.77	\$77.32	_____
			0.82	\$111.62	_____
RETURNS ABOVE TOTAL COSTS			\$0.72	(\$30.39)	_____
			\$0.77	\$3.91	_____
			0.82	\$38.21	_____

1. Yearlings are sold at 700 lb. with a 2% death loss.
2. Int. on O.C. equals 6 months X .5 x Variable cost-marketing x .1
3. Management charge equals 5% gross income.

TABLE 73

SLAUGHTER HEIFER BUDGET 1990
500 to 1000 lb.

INCOME	MARKET WEIGHT	UNIT	PRICE	PER HEIFER	YOUR FARM
Finish Heifer ¹	970 lb.		\$0.73	\$708.10	_____
EXPENSES					
	POUNDS				
Heifer costs	500 head		\$0.75	\$375.00	_____
Feed costs	AMOUNT				
Corn	38 bu.		\$2.65	\$100.70	_____
SBM	2.5 cwts		\$13.00	\$32.50	_____
Salt & minerals	15 lb.		\$0.07	\$1.05	_____
Growth promoter	44 lb.		\$0.22	\$9.68	_____
Corn silage	3.5 ton		\$23.75	\$83.13	_____
Total feed costs				\$227.06	_____
OTHER VARIABLE COSTS					
Vet. and medicine				\$12.00	_____
Electricity				\$12.00	_____
Equipment & repairs				\$12.00	_____
Insurance & taxes				\$1.50	_____
Marketing & trucking				\$10.00	_____
Misc.				\$3.00	_____
Int. on operating costs ²				\$26.99	_____
TOTAL VARIABLE COST				\$679.54	_____
FIXED COSTS					
Labor	4 hour		\$5.00	\$20.00	_____
Building ³				\$12.45	_____
Equipment charge ⁴				\$13.94	_____
Management charge ⁵				\$35.41	_____
TOTAL FIXED COSTS				\$81.80	_____
TOTAL COST				\$761.34	_____
			Slaughter Price		
RETURNS ABOVE VARIABLE COSTS			\$0.68	(\$19.94)	_____
			\$0.73	\$28.60	_____
			0.78	\$77.00	_____
RETURNS ABOVE TOTAL COSTS			\$0.68	(\$101.74)	_____
			\$0.73	(\$53.24)	_____
			0.78	(\$4.74)	_____

1. Heifers are sold at 1000 lb. with a 3% death loss.
2. Int. on O.C. equals 10 months X .5 x Variable cost-marketing x .1
3. Building costs equal \$150 for 10 years times .83(10 month).
4. Equipment costs equal \$120 for 7 years times .83(10 month).
5. Management charge equals 5% gross income.

TABLE 74

SLAUGHTER STEER BUDGET 1990
550 to 1150 lb.

INCOME	MARKET WEIGHT	UNIT	PRICE	PER STEER	YOUR FARM
Finish Steer ¹	1115.5	lb.	\$0.77	\$858.94	_____
EXPENSES					
POUNDS					
Feeder Calf	550	head	\$0.82	\$451.00	_____
AMOUNT					
Feed costs					
Corn	46	bu.	\$2.65	\$121.90	_____
SBM	2.5	cwts	\$13.00	\$32.50	_____
Salt & minerals	15	lb.	\$0.07	\$1.05	_____
Growth promoter	44	lb.	\$0.22	\$9.68	_____
Corn silage	3.5	ton	\$23.75	\$83.13	_____
Total feed costs				\$248.26	_____
OTHER VARIABLE COSTS					
Vet. and medicine				\$12.00	_____
Electricity				\$12.00	_____
Equipment & repairs				\$12.00	_____
Insurance & taxes				\$1.50	_____
Marketing & trucking				\$10.00	_____
Misc.				\$3.00	_____
Int. on operating costs ²				\$31.07	_____
TOTAL VARIABLE COST				\$793.85	_____
FIXED COSTS					
Labor	4	hour	\$5.00	\$20.00	_____
Building ³				\$12.45	_____
Equipment charge ⁴				\$13.94	_____
Management charge ⁵				\$41.83	_____
TOTAL FIXED COSTS				\$88.23	_____
TOTAL COST				\$870.17	_____
Slaughter Price					
RETURNS ABOVE VARIABLE COSTS				\$0.72 (\$22.34)	_____
				\$0.77 \$78.11	_____
				\$0.82 \$133.89	_____
RETURNS ABOVE TOTAL COSTS				\$0.72 (\$67.01)	_____
				\$0.77 (\$11.23)	_____
				\$0.82 \$44.54	_____

1. Steers are sold at 1150 lb. with a 3% death loss.
2. Int. on O.C. equals 10 months X .5 x Variable cost-marketing x.1.
3. Building costs equal \$150 for 10 years times .83(10 month).
4. Equipment costs equal \$120 for 7 years times .83(10 month).
5. Management charge equals 5% gross income.

TABLE 75

SLAUGHTER YEARLING BUDGET 1990
650 to 1150 lb.

INCOME	MARKET WEIGHT	UNIT	PRICE	PER YEARLING	YOUR FARM
Finish Steer ¹	1121	lb.	\$0.77	\$863.17	_____
EXPENSES					
Yearling feeder	650	head	\$0.77	\$500.50	_____
Feed costs	AMOUNT				
Corn	34	bu.	\$2.65	\$90.10	_____
SBM	2	cwts	\$13.00	\$26.00	_____
Salt & minerals	12.5	lb.	\$0.07	\$0.88	_____
Growth promoter	36	lb.	\$0.22	\$7.92	_____
Corn silage	3.3	ton	\$23.75	\$78.38	_____
Total feed costs				\$203.27	_____
OTHER VARIABLE COSTS					
Vet. and medicine				\$12.00	_____
Electricity				\$8.00	_____
Equipment & repairs				\$8.50	_____
Insurance & taxes				\$1.50	_____
Marketing & trucking				\$10.00	_____
Misc.				\$3.00	_____
Int. on operating costs ²				\$19.86	_____
TOTAL VARIABLE COST				\$766.66	_____
FIXED COSTS					
Labor	4	hour	\$5.00	\$20.00	_____
Building ³				\$8.10	_____
Equipment charge ⁴				\$9.07	_____
Management charge ⁵				\$42.04	_____
TOTAL FIXED COSTS				\$79.21	_____
TOTAL COST				\$846.99	_____
Slaughter Price					
RETURNS ABOVE VARIABLE COSTS			\$0.72	\$40.46	_____
			\$0.77	\$90.51	_____
			\$0.82	\$152.50	_____
RETURNS ABOVE TOTAL COSTS			\$0.72	(\$39.87)	_____
			\$0.77	\$16.18	_____
			\$0.82	\$72.23	_____

1. Steers are sold at 1150 lb. with a 2% death loss.
2. Int. on O.C. equals 6.5 months X .5 x Variable cost-marketing x .1
3. Building costs equal \$150 for 10 years times .54(6.5 month).
4. Equipment costs equal \$120 for 7 years times .54(6.5 month).
5. Management charge equals 5% gross income.

TABLE 76

SWINE BUDGETS 1990
 Contract farrow to finish
 Sow & 2 litters
 Per sow basis

INCOME	NUMBER	UNIT	PRICE	PER	YOUR
				SOW	FARM
TOTAL RECEIPTS	18	head	\$25.00	\$450.00	_____
VARIABLE COSTS					
AMOUNT					
VARIABLE COSTS					
Electricity				\$42.00	_____
Equipment & repairs				\$15.00	_____
Heating				\$25.00	_____
Truck & tractor				\$53.00	_____
Labor	32	hour	\$5.00	\$160.00	_____
Misc.				\$34.00	_____
Int. on operating costs ¹				\$19.74	_____
TOTAL VARIABLE COST				\$348.74	_____
FIXED COSTS					
Insurance & taxes				\$14.00	_____
Farrowing building	\$1,000	crate	²	\$10.00	_____
Gestation building	\$200	sow	³	\$16.00	_____
Nursery building	\$100	pig	⁴	\$1.00	_____
Finisher building	\$125	hog	⁵	\$4.17	_____
TOTAL FIXED COSTS				\$45.17	_____
TOTAL COST				\$393.91	_____
RETURNS ABOVE VARIABLE COSTS				\$101.26	_____
RETURNS ABOVE TOTAL COSTS				\$56.09	_____

1. Equals .5 x Variable cost X 12%.
2. Based on amount shown in price column divided by 10 times/10 years
3. Based on amount shown in price column divided by 10 times/10 years
4. Based on amount shown in price column divided by 10 times/10 years
5. Based on amount shown in price column divided by 3 times/10 years

TABLE 77

SWINE BUDGETS 1990
 Contract farrow to feeder pig
 Sow & 2 litters
 Per sow basis

INCOME	NUMBER	UNIT	PRICE	PER SOW	YOUR FARM
Feeder pigs	18	cwt.	\$18.00	\$324.00	_____
TOTAL RECEIPTS				\$324.00	_____
VARIABLE COSTS					
Vet. and medicine				\$25.00	_____
Electricity				\$24.00	_____
Equipment & repairs				\$12.00	_____
Heating				\$30.00	_____
Truck & tractor				\$34.00	_____
Labor	20	hour	\$5.00	\$100.00	_____
Misc.				\$5.00	_____
Int. on operating costs ¹				\$13.80	_____
TOTAL VARIABLE COST				\$243.80	_____
FIXED COSTS					
Insurance & taxes				\$7.20	_____
Farrowing building.	\$1,000	unit	² 1%	\$10.00	_____
Gestation building.	\$200	unit	³ 8%	\$16.00	_____
Nursery building	\$100	pig	⁴	\$1.00	_____
TOTAL FIXED COSTS				\$34.20	_____
TOTAL COST				\$278.00	_____
RETURNS ABOVE VARIABLE COSTS					
				\$80.20	_____
RETURNS ABOVE TOTAL COSTS					
				\$46.00	_____

1. Equals .5 x Variable cost X 12%.
2. Based on amount shown in price column divided by 10 times/10 years
3. Based on amount shown in price column divided by 10 times/10 years
4. Based on amount shown in price column divided by 10 times/10 years

TABLE 78

SWINE BUDGETS 1990
Contract feeder to finish

FEEDER PIGS PURCHASED: 150
FEEDER PIGS SOLD: 145

INCOME

	MARKET WEIGHT	UNIT	PRICE	PER PIG	YOUR FARM
Finish pigs ¹	230 lb.		\$8.00	\$8.00	_____

VARIABLE COSTS

Electricity				\$1.00	_____
Equipment & repairs				\$0.75	_____
Heating ³				\$0.30	_____
Truck & tractor				\$0.50	_____
Labor	0.75	hr	\$2.50	\$1.88	_____
Misc.				\$0.25	_____
Int. on operating costs ⁴				\$0.09	_____
TOTAL VARIABLE COST				\$4.68	_____

FIXED COSTS

Insurance & Taxes				\$0.75	_____
Building & Equipment Ch. ⁵			\$80	\$2.67	_____
TOTAL FIXED COSTS				\$3.42	_____

TOTAL COST \$8.09 _____

RETURNS ABOVE VARIABLE COSTS \$3.33 _____

RETURNS ABOVE TOTAL COSTS (\$0.09) _____

1. Pigs are marketed at 230 lb. with a 3% death loss.
2. SBM and supplement costs are equal to the price of SBM and \$60 for supplement.
3. Facilities are heated for three weeks, four months out of the year at 150 BTU's per pig/hr., or 75,600 BTU's totals which equals 1 gallon of fuel.
4. Equals 12% X (120 days/365 days) X (.5 X all variable costs)
5. Overhead costs on facilities equal to amount shown in price column divided by 10 years divided by three groups a year.

TABLE 79

SWINE BUDGETS 1990
 Farrow to finish
 Sow & 2 litters
 Per sow basis

INCOME	MARKET WEIGHT	UNIT	PRICE	PER SOW	YOUR FARM
Market Hogs ¹	37.95	cwt.	\$48.00	\$1,821.60	_____
Sows	1.49	cwt.	\$38.00	\$56.62	_____
Non-Breeders	1.2	cwt.	\$45.00	\$54.00	_____
Boars	0.1	cwt.	\$30.00	\$3.00	_____
TOTAL RECEIPTS				\$1,935.22	_____
VARIABLE COSTS					
	AMOUNT				
Feed Costs					
Pigs to 45 lb.					
Pre-Starter	90	lb.	\$0.30	\$27.00	_____
Corn	11.7	bu.	\$2.65	\$31.01	_____
SBM and supplement	360	lb.	\$0.15	\$54.00	_____
Grower pigs (45 - 125 #)					
Corn	53.1	bu.	\$2.65	\$140.72	_____
SBM and supplement	990	lb.	\$0.15	\$148.50	_____
Finisher pigs (125# & up)					
Corn	102.78	bu.	\$2.65	\$272.37	_____
SBM and supplement	1440	lb.	\$0.15	\$216.00	_____
Sows & gilts & boars					
Corn	34.3	bu.	\$2.65	\$90.90	_____
SBM and supplement	480	lb.	\$0.15	\$72.00	_____
Total feed costs				\$1,052.48	_____
Other variable costs					
Vet. and medicine				\$42.00	_____
Boar purchase				\$13.50	_____
Electricity				\$42.00	_____
Equipment & repairs				\$15.00	_____
Heating				\$25.00	_____
Marketing				\$30.00	_____
Truck & tractor				\$53.00	_____
Labor	32	hour	\$5.00	\$160.00	_____
Misc.				\$34.00	_____
Int. on operating costs ³				\$88.02	_____
TOTAL VARIABLE COST				\$1,555.00	_____
FIXED COSTS					
				PER SOW	
Insurance & taxes				\$14.00	_____
Interest on sows ⁴				\$35.66	_____
Farrowing building \$1,000 crate ⁵				\$10.00	_____
Gestation building \$200 sow ⁶				\$16.00	_____
Nursery building \$100 pig ⁷				\$1.00	_____
Finisher building \$125 hog ⁸				\$4.17	_____
TOTAL FIXED COSTS				\$80.83	_____
TOTAL COST				\$1,635.83	_____

RETURNS ABOVE VARIABLE COSTS

Low Hog Prices	\$43.00	\$190.47	_____
Moderate Hog Prices	\$48.00	\$380.22	_____
High Hog Prices	\$53.00	\$569.97	_____

RETURNS ABOVE TOTAL COSTS

Low Hog Prices	\$43.00	\$109.64	_____
Moderate Hog Prices	\$48.00	\$299.39	_____
High Hog Prices	\$53.00	\$489.14	_____

1. Based on number of pigs raised per sow per year.
2. SBM and supplement costs are equal to the price of SBM and \$60 for supplement.
3. Equals $.5 \times \text{Variable cost} \times 12\%$.
4. Interest on the sows is equal to the sows value $(\$300 + \text{salvage value} / 2) \times .1$
5. Based on amount shown in price column divided by 10 times/year for 10 years.
6. Based on amount shown in price column $\times 4/5$ year for 10 years.
7. Based on amount shown in price column divided by 10 times/10 years
8. Based on amount shown in price column divided by 3 times/10 years

TABLE 80

SWINE BUDGETS 1990
Farrow to feeder pig
Sow & 2 litters
Per sow basis

INCOME	MARKET UNIT WEIGHT	PRICE	PER SOW	YOUR FARM
Feeder pigs ¹	8.5 cwt.	\$85.00	\$722.50	_____
Sows	1.49 cwt.	\$38.00	\$56.62	_____
Non-Breeders	1.2 cwt.	\$45.00	\$54.00	_____
Boars	0.1 cwt.	\$30.00	\$3.00	_____
TOTAL RECEIPTS			\$836.12	_____
VARIABLE COSTS				
Feed costs	AMOUNT			
Pigs to 45 lb.				
Pre-starter	90 lb.	\$0.30	\$27.00	_____
Corn	11.7 bu.	\$2.65	\$31.01	_____
SBM and supplement	360 lb.	\$0.15	\$54.00	_____
Sows & gilts & boars				
Corn	38.63 bu.	\$2.65	\$102.37	_____
SBM and supplement	547.5 lb.	\$0.15	\$82.13	_____
Total feed costs			\$296.50	_____
Other variable costs				
Vet. and medicine			\$25.00	_____
Boar purchase			\$13.50	_____
Electricity			\$24.00	_____
Equipment & repairs			\$12.00	_____
Heating			\$30.00	_____
Marketing			\$18.00	_____
Truck & tractor			\$34.00	_____
Labor	20 hour	\$5.00	\$100.00	_____
Misc.			\$10.00	_____
Int. on operating costs ³			\$33.78	_____
TOTAL VARIABLE COST			\$596.78	_____
FIXED COSTS				
Insurance & taxes			\$7.20	_____
Interest on sows ⁴			\$35.66	_____
Farrowing Building \$1,000 unit ⁵			\$10.00	_____
Gestation Building \$200 unit ⁶			\$16.00	_____
Nursery Building \$100 pig ⁷			\$1.00	_____
TOTAL FIXED COSTS			\$69.86	_____
TOTAL COST			\$666.64	_____

RETURNS ABOVE VARIABLE COSTS

Low pig prices	\$60.00	\$26.84	_____
Moderate pig prices	\$85.00	\$239.34	_____
High pig prices	\$110.00	\$451.84	_____

RETURNS ABOVE TOTAL COSTS

Low pig prices	\$60.00	(\$43.02)	_____
Moderate pig prices	\$85.00	\$169.48	_____
High pig prices	\$110.00	\$381.98	_____

1. Based on number of pigs raised per sow per year.
2. SBM and supplement costs are equal to the price of SBM and \$60 for supplement.
3. Equals $.5 \times \text{Variable cost} \times 12\%$
4. Interest on the sows is equal to the sows value $(\$300 + \text{salvage value}/2) \times .1$
5. Based on amount shown in price column divided by 10 times/year for 10 years.
6. Based on amount shown in price column $\times 4/5$ year for 10 years.
7. Based on amount shown in price column divided by 10 times/year for 10 years.

TABLE 81

SWINE BUDGETS 1990
Feeder to finish

FEEDER PIGS PURCHASED: 150
MARKET HOGS SOLD: 145

INCOME

	MARKET WEIGHT	UNIT	PRICE	PER PIG	YOUR FARM
Finish pigs ¹	230	lb.	\$0.48	\$110.40	_____
VARIABLE COSTS					
	POUNDS				
Feeder pigs	45	lb.	\$0.95	\$42.75	_____
Feed					
	AMOUNT				
Grower pigs (45 - 125 lbs)					
Corn	2.95	bu.	\$2.65	\$7.82	_____
SBM and supplement	55	lb.	\$0.15	\$8.25	_____
Finisher pigs (125 lb. & up)					
Corn	5.71	bu.	\$2.65	\$15.13	_____
SBM and supplement	80	lb.	\$0.15	\$12.00	_____
Total feed costs				\$43.20	_____
Other Variable Costs					
Vet. and medicine				\$1.50	_____
Electricity				\$1.00	_____
Equipment & repairs				\$0.75	_____
Heating ³				\$0.30	_____
Marketing				\$1.50	_____
Truck & tractor				\$3.00	_____
Labor	0.75	hr	\$5.00	\$3.75	_____
Misc.				\$0.50	_____
Int. on operating costs ⁴				\$2.78	_____
TOTAL VARIABLE COST				\$101.03	_____
FIXED COSTS					
Insurance & Taxes				\$0.75	_____
Building & Equipment Ch. ⁵			\$125	\$4.17	_____
TOTAL FIXED COSTS				\$4.92	_____
TOTAL COST				\$105.95	_____

RETURNS ABOVE VARIABLE COSTS

Low Hog Prices	\$0.43	(\$2.13)	_____
Moderate Hogs Prices	\$0.48	\$9.37	_____
High Hog Prices	\$0.53	\$20.87	_____

RETURNS ABOVE TOTAL COSTS

Low Hog Prices	\$0.43	(\$7.05)	_____
Moderate Hog Prices	\$0.48	\$4.45	_____
High Hog Prices	\$0.53	\$15.95	_____

1. Pigs are sold at 230 lb. with a 3% death loss.
2. SBM and supplement costs are equal to the price of SBM and \$60 for supplement.
3. Facilities are heated for three weeks, four months out of the year. at 150 BTU's per pig/hr., or 75,600 BTU's totals which equals 1 gallon.
4. Equals $.5 \times .5 \times \text{Variable cost-marketing} \times .1$
5. Overhead costs on facilities equal \$140 for 10 years divided by three groups a year.

TABLE 82

1990 CONTRACT BROILERS BUDGET
 50,000 square feet floor space
 6.5 lots per year

EXPENSES	AMOUNT	YOUR FARM
VARIABLE COSTS		
Repair & maintenance	\$3,975.00	_____
Electricity	\$4,000.00	_____
Auto, truck, tractor, misc	\$3,500.00	_____
TOTAL VARIABLE COST	\$11,475.00	_____
FIXED COSTS		
Labor		
Taxes Insurance	\$4,900.00	_____
Building \$200,000 @ 10 yrs.	\$20,000.00	_____
Generator \$13,000 @ 10 yrs.	\$1,300.00	_____
Equip. \$124,250 @10 yrs.	\$12,425.00	_____
TOTAL FIXED COSTS	\$38,625.00	_____
TOTAL COSTS	\$50,100.00	_____

INCOME FOR DIFFERENT CONTRACT PRICES AT 4 LB. BIRD

PRICES IN CENTS	BIRDS 464,000	GROSS INCOME	NET INCOME
0.03		\$55,680.00	\$ 5,580.00
0.0325		\$60,320.00	\$10,220.00
0.035		\$64,960.00	\$14,860.00
0.0375		\$69,600.00	\$19,500.00
0.04		\$74,240.00	\$24,140.00

Broilers are marketed at 44 to 49 days. There are 6.5 lots of birds produced per year. Birds are housed at a density of 0.7 sq. ft. per bird.

TABLE 83

1990 CONTRACT TABLE EGG LAYERS-WHITE BUDGET ¹
 80,000 birds, cage system, 4-deck, 7 birds/cage
 Paid for birds per week, for 52 weeks

INCOME	AMOUNT	UNIT	PRICE	TOTAL	YOUR FARM
TOTAL RECEIPTS ²	77,200	bird	2.6	\$104,374	_____
EXPENSES					
VARIABLE COSTS					
Electricity				\$5,600	_____
Auto, truck, sup. misc.				\$10,000	_____
Repairs and maintenance				\$5,000	_____
TOTAL VARIABLE COST				\$20,600	_____
FIXED COSTS					
Labor	0 hour		\$6.00	\$0	_____
Insurance & taxes				\$4,900	_____
Building \$237,700@10	10 yrs		\$237,700	\$23,770	_____
Equip. \$301,246	7 yrs		\$301,246	\$43,035	_____
TOTAL FIXED COST				\$71,705	_____
TOTAL COST				\$92,305	_____
NET RETURN				\$12,069	_____
INCOME AT DIFFERENT PRICES PER BIRD					
		PRICE	GROSS INCOME	NET INCOME	
	2.4 CENT		\$96,346	\$4,040	_____
	2.5 CENT		\$100,360	\$8,055	_____
	2.7 CENT		\$108,389	\$16,084	_____
	2.8 CENT		\$112,403	\$20,098	_____

1. Assume birds are housed at 20 weeks of age, sold at 72 weeks of age (52 weeks of production), mortality rate of 7%, eggs per hen housed = 253 (70% rate lay based on average numbers).

2. With a 7% mortality rate assume the chickens will die equally during the 52 weeks.

TABLE 84

1990 CONTRACT TABLE EGG LAYERS-WHITE BUDGET ¹
 80,000 birds, cage system, 4-deck, 7 birds/cage
 Paid for dozens of eggs produced

INCOME	AMOUNT	UNIT	PRICE	TOTAL
			in cents	
Jumbo 2.8% of total	47,280	doz.	7.4	\$3,499
Ex. Large 23% of total	389,600	doz.	7.4	\$28,830
Large 45.9% of total	774,400	doz.	7.4	\$57,306
Medium 20.1% of total	339,120	doz.	7.4	\$25,095
Small 2.7% of total	45,920	doz.	7.4	\$3,398
Undergrades 5.7%	90,720	doz.	3	\$2,722
TOTAL RECEIPTS				\$120,849
EXPENSES				
VARIABLE COSTS				
Electricity				\$5,600
Auto, truck, sup. misc.				\$10,000
Repairs and maintenance				\$5,000
TOTAL VARIABLE COST				\$20,600
RETURNS ABOVE VAR. COST				\$100,249
FIXED COSTS				
Labor		hour	\$6.00	\$0
Insurance & taxes				\$4,900
Building \$237,700@10	10 yrs		\$237,700	\$23,770
Equip. \$301,246@ 7 y	7 yrs		\$301,246	\$43,035
TOTAL FIXED COST				\$71,705
TOTAL COST				\$92,305
NET RETURN				\$28,544

1. Assume birds are housed at 20 weeks of age,
 sold at 72 weeks of age (52 weeks of production),
 mortality rate of 7%, eggs per hen housed = 253
 (70% rate lay based on average numbers).

TABLE 85

1990 TABLE EGG LAYERS-WHITE BUDGET ¹
 80,000 birds, cage system, 4-deck, 7 birds/cage

INCOME	AMOUNT	UNIT	PRICE	TOTAL	YOUR FARM
			In Cents		
Jumbo 2.8% of total	47,280	doz.	60	\$28,368	_____
Extra Large 23% of t	389,600	doz.	55.5	\$216,982	_____
Large 45.9% of total	774,400	doz.	53	\$410,432	_____
Medium 20.1% of total	339,120	doz.	46.8	\$158,708	_____
Small 2.7% of total	45,920	doz.	33	\$15,154	_____
Undergrades 5.7%	90,720	doz.	23	\$20,866	_____
Total Receipts From	1687,040	doz.		\$849,756	_____
			PRICE		
Layers sold 74400 4#	297,600	lb.	\$0.10	\$29,760	_____
TOTAL RECEIPTS				\$879,516	_____
EXPENSES					
VARIABLE COSTS					
Pullets	80,000	bird	\$2.17	\$173,600	_____
Feed	62,800	cwt.	\$8.25	\$491,724	_____
Electricity				\$5,600	_____
Auto, truck, sup. misc.				\$10,000	_____
Repairs and maintenance				\$5,000	_____
TOTAL VARIABLE COST				\$685,924	_____
RETURNS ABOVE VAR. COST				\$193,592	_____
FIXED COSTS					
Labor		hour	\$6.00	\$0	_____
Insurance & taxes				\$4,900	_____
Building \$237,700	10 yrs		\$237,700	\$23,770	_____
Equip. \$301,246	7 yrs		\$301,246	\$43,035	_____
Management charge 5% gross income			\$879,516	\$43,975	_____
TOTAL FIXED COST				\$115,680	_____
TOTAL COST				\$801,605	_____
NET RETURN				\$77,911	_____
NET RETURNS+MANAGEMENT				\$121,886	_____

1. Assume birds are housed at 20 weeks of age, sold at 72 weeks of age (52 weeks of production), mortality rate of 7%, eggs per hen housed = 253 (70% rate lay based on average numbers), Feed fed during the 52 wks. = 78.5 lb./bird.

TABLE 86

1990 PULLET REPLACEMENT-WHITE BUDGET¹
 80,000 pullets to 20 wks. 2.4 flocks per year
 192,000 birds per year

INCOME	AMOUNT	UNIT	PRICE	TOTAL	YOUR FARM
Pullets	192,000	bird	\$2.17	\$416,640	_____
TOTAL RECEIPTS				\$416,640	_____
 EXPENSES					
VARIABLE COSTS					
Pullets	197,760	bird	\$0.41	\$81,082	_____
Feed	197,760	bird	\$1.20	\$225,466	_____
Fuel, med, sup. misc.				\$44,076	_____
Repairs and maintenance				\$5,000	_____
Int. on operating costs ²				\$5,782	_____
TOTAL VARIABLE COST				\$361,386	_____
RETURNS ABOVE VAR. COST				\$55,254	_____
 FIXED COSTS					
Labor	560	hour	\$6.00	\$3,360	_____
Insurance & taxes				\$3,400	_____
Building \$128,000	10	yrs	\$128,000	\$12,800	_____
Equip. \$120,000	7	yrs	\$120,000	\$17,143	_____
Management charge ³			\$416,640	\$20,832	_____
TOTAL FIXED COST				\$57,535	_____
TOTAL COST				\$418,921	_____
NET RETURN				(\$2,281)	_____
NET RETURNS+MANAGEMENT				\$23,113	_____
 INCOME AT DIFFERENT PRICES PER BIRD ⁴					
	PRICES		GROSS RETURN	NET RETURN	
	\$2.07		\$397,440	(\$21,481)	_____
	\$2.12		\$407,040	(\$11,881)	_____
	\$2.22		\$426,240	\$7,319	_____
	\$2.27		\$435,840	\$16,928	_____

1. Assume birds are sold at 20 weeks of age,
3% death loss, 2.4 flocks per year,
feed costs are \$1.20 per bird for the 20 wks.
2. Interest on operating costs equals .5 the variable cost,
time .38 times 10% interest.
3. Management charge equals 5% of gross income.
4. Covers all costs, and management charge is held constant.

TABLE 87

1990 CONTRACT TURKEY HENS BUDGET¹
 10,000 hens per lot, and 6.5 lots per year
 10,000 sq. ft. starter house, 20,000 sq. ft. grower house

EXPENSES	AMOUNT	YOUR FARM
VARIABLE COSTS		
Repair & maintenance	\$3,975.00	_____
Electricity	\$3,500.00	_____
Auto, truck, tractor, misc	\$3,500.00	_____
TOTAL VARIABLE COST	\$10,975.00	_____
FIXED COSTS		
Labor	\$0.00	_____
Taxes Insurance	\$4,900.00	_____
Building \$125,000 @ 10 yrs.	\$12,500.00	_____
Generator \$9500 @ 10 yrs.	\$950.00	_____
Equip. \$59,500 @10 yrs.	\$5,950.00	_____
TOTAL FIXED COSTS	\$24,300.00	_____
TOTAL COSTS	\$35,275.00	_____

INCOME FOR DIFFERENT CONTRACT PRICES

		GROSS INCOME	NET INCOME
Hens per year minus death	60,450		
Lbs. per hen	16		
PRICES IN CENTS			
	0.045	\$43,524.00	\$8,249.00
	0.05	\$48,360.00	\$13,085.00
	0.055	\$53,196.00	\$17,921.00
	0.06	\$58,032.00	\$22,757.00
	0.065	\$62,868.00	\$27,593.00

1. Turkey hens are housed in the starter facility for 7 weeks, one hen per square ft. Turkey hens are housed in the grower facility for 7 weeks, one hen per two square ft. Turkey hens are sold at 14 weeks of age, and weight 16 lb. Mortality rate is 7 percent.

TABLE 88

1990 CONTRACT TURKEY TOMS BUDGET¹
 10,000 toms per lot, and 4.5 lots per year
 10,000 sq. ft. starter house, 30,000 sq. ft. grower house

EXPENSES	AMOUNT	YOUR FARM
VARIABLE COSTS		
Repair & maintenance	\$3,975.00	_____
Electricity	\$3,500.00	_____
Auto, truck, tractor, misc	\$3,500.00	_____
TOTAL VARIABLE COST	\$10,975.00	_____
FIXED COSTS		
Labor	\$0.00	_____
Taxes Insurance	\$4,900.00	_____
Building \$159,000 @ 10 yrs.	\$15,900.00	_____
Generator \$9500 @ 10 yrs.	\$950.00	_____
Equip. \$71,000 @10 yrs.	\$7,100.00	_____
TOTAL FIXED COSTS	\$28,850.00	_____
TOTAL COSTS	\$39,825.00	_____

INCOME FOR DIFFERENT CONTRACT PRICES

		GROSS INCOME	NET INCOME
Toms per year minus death	41,850		
Lbs. per tom	26		
PRICES IN CENTS			
	0.045	\$48,964.50	\$9,139.50
	0.05	\$54,405.00	\$14,580.00
	0.055	\$59,845.50	\$20,020.50
	0.06	\$65,286.00	\$25,461.00
	0.065	\$70,726.50	\$30,901.50

1. Turkey toms are housed in the starter facility for 7 weeks, one tom per square ft. Turkey toms are housed in the grower facility for 11 weeks, one tom three square ft. Turkey toms are sold at 18 weeks of age, and weight 26 lb. Mortality rate is 7 percent.

TABLE 89

1990 EWE AND WINTER LAMB BUDGET
 Lambing January through March 15
 Marketed July and August 1.25% lambing rate

Item	1.25 Quat.	Unit	Price	1.25 Lamb Crop	Your Farm
Receipts					
Lambs ¹	105	lb.	\$0.70	\$73.50	_____
Wool sales & payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
.2% of lambs shorn	1.2	lb.	\$1.10	\$1.32	_____
.8 la un inc.pay.	1.03	head	\$3.65	\$3.76	_____
Cull ewe & ram ²				\$7.63	_____
TOTAL RECEIPTS				\$95.81	_____
Variable Costs					
Feed					
Salt	11	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate	4	lb.	\$0.20	\$0.80	_____
Lamb feed 65-100 lbs					_____
Corn	4.63	bu.	\$2.65	\$12.27	_____
Protein pellets	28.75	lb.	\$0.17	\$4.89	_____
Milk replacer	1.25	lb.	\$1.00	\$1.25	_____
Alfalfa hay	0.03	ton	\$90.00	\$2.43	_____
Ewes					_____
Corn	2.5	bu.	\$2.65	\$6.63	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$52.35	_____
Health Program				\$4.00	_____
Marketing ³	1.21	head	\$2.00	\$2.42	_____
Shearing	1.04	head	\$2.00	\$2.08	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$2.62	_____
Total Variable Costs				\$65.47	_____
FIXED COSTS					
Labor charge	4	hour	\$6.00	\$24.00	_____
Ram replacement ⁵				\$3.00	_____
Int.on breed.stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$4.79	_____
TOTAL FIXED COSTS				\$51.50	_____
TOTAL COSTS				\$116.97	_____
RETURN OVER VARIABLE COSTS LAMBS					
			\$0.65	\$25.09	_____
			\$0.70	\$30.34	_____
			\$0.75	\$35.59	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$0.65	(\$26.41)	_____
			\$0.70	(\$21.16)	_____
			\$0.75	(\$15.91)	_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 90

1990 EWE AND WINTER LAMB BUDGET
 Lambing January through March 15
 Marketed July and August 1.65% lambing rate

Item	1.65 Quantity	Unit	Price	1.65 Lamb Crop	Your Farm
Receipts					
Lambs ¹	145	lb.	\$0.70	\$101.50	_____
Wool Sales & Payments					
Ewe	8	lb.	\$1.20	\$9.60	_____
.2% of lambs shorn	1.65	lb.	\$1.10	\$1.82	_____
.8 lambs un. inc. pay.	1.33	head	\$3.65	\$4.85	_____
Cull Ewe & Ram ²				\$7.63	_____
TOTAL RECEIPTS				\$125.40	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80	_____
Lamb feed 65-100 lb.					_____
Corn	6.11	bu.	\$2.65	\$16.19	_____
Protein pellets	37.95	lb.	\$0.17	\$6.45	_____
Milk replacer	1.65	lb.	\$1.00	\$1.65	_____
Alfalfa hay	0.03	ton	\$90.00	\$3.06	_____
Ewes					
Corn	3.30	bu.	\$2.65	\$8.75	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture (hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$60.99	_____
Health Program					
Marketing ³	1.50	head	\$2.00	\$3.00	_____
Shearing	1.16	head	\$2.00	\$2.32	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$3.05	_____
TOTAL VARIABLE COSTS				\$75.36	_____
Fixed Costs					
Labor charge	4.00	hour	\$6.00	\$24.00	_____
Ram replacement ⁵				\$3.00	_____
Int. on br. stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$6.27	_____
TOTAL FIXED COSTS				\$52.98	_____
TOTAL COSTS				\$128.34	_____
RETURN OVER VARIABLE COSTS LAMB					
			\$0.65	\$42.79	_____
			\$0.70	\$50.04	_____
			\$0.75	\$57.29	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$0.65	(\$10.19)	_____
			\$0.70	(\$2.94)	_____
			\$0.75	\$4.31	_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 91

1990 EWE AND SPRING LAMB BUDGET
 Pasture lambing May through June
 Marketed November and December, 1.25% lambing rate

Item	1.25		Price	1.25		Your Farm
	Quantity	Unit		Lamb	Crop	
Receipts						
Lambs ¹	105	lb.	\$0.50	\$52.50		_____
Wool sales & payments						
Ewe	8	lb.	\$1.20	\$9.60		_____
.2% of lambs shorn	1.2	lb.	\$1.10	\$1.32		_____
.8 lambs un inc. pay.	1.03	head	\$3.65	\$3.76		_____
Cull Ewe & Ram ²				\$7.63		_____
TOTAL RECEIPTS				\$74.81		_____
Variable Costs						
Feed						
Salt	11.00	lb.	\$0.07	\$0.77		_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80		_____
Lamb feed 65-100 lb.						
Corn	4.63	bu.	\$2.65	\$12.27		_____
Protein pellets	28.75	lb.	\$0.17	\$4.89		_____
Milk replacer	1.25	lb.	\$1.00	\$1.25		_____
Alfalfa hay	0.03	ton	\$90.00	\$2.43		_____
Ewes						
Corn	1.00	bu.	\$2.65	\$2.65		_____
Hay	0.22	ton	\$60.00	\$13.20		_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12		_____
Total feed costs				\$48.38		_____
Health Program						
Marketing ³	1.21	head	\$2.00	\$2.42		_____
Shearing	1.04	head	\$2.00	\$2.08		_____
Util., supp. & misc.				\$2.00		_____
Int. on operating costs ⁴				\$2.42		_____
TOTAL VARIABLE COSTS				\$61.30		_____
FIXED COSTS						
Labor charge	1.00	hour	\$6.00	\$6.00		_____
Ram replacement ⁵				\$3.00		_____
Int. on br.stock ⁶				\$7.00		_____
Equipment charge ⁷				\$2.00		_____
Buildings charge ⁸				\$10.71		_____
Mgmt. charge 5% of gross income				\$3.74		_____
TOTAL FIXED COSTS				\$32.45		_____
TOTAL COSTS				\$93.75		_____
RETURN OVER VARIABLE Costs						
		Lambs	\$0.45	\$8.26		_____
			\$0.50	\$13.51		_____
			\$0.55	\$18.76		_____
RETURN OVER TOTAL COSTS LAMBS						
			\$0.45	(\$24.19)		_____
			\$0.50	(\$18.94)		_____
			\$0.55	(\$13.69)		_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150) / 35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300) / 35 = \3.00
6. Average value of breeding animal is \$65 per ewe $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value $[(\$60 + (.5 \times \$240)) / 35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 92

1990 EWE AND SPRING LAMB BUDGET
 Pasture lambing May through June
 Marketed November and December, 1.65% lambing rate

Item	1.65 Quantity	Unit	Price	1.65 Lamb	Your Farm
Lambs ¹	145	lb.	\$0.50	\$72.50	_____
Wool Sales & Payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
.2% of lambs shorn	1.65	lb.	\$1.10	\$1.82	_____
.8 lambs un inc.pay.	1.33	head	\$3.65	\$4.85	_____
Cull ewe & ram ²				\$7.63	_____
TOTAL RECEIPTS				\$96.40	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80	_____
Lamb feed 65-100 lbs					_____
Corn	6.11	bu.	\$2.65	\$16.19	_____
Protein pellets	37.95	lb.	\$0.17	\$6.45	_____
Milk replacer	1.65	lb.	\$1.00	\$1.65	_____
Alfalfa hay	0.03	ton	\$90.00	\$3.06	_____
Ewes					_____
Corn	1.50	bu.	\$2.65	\$3.98	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$56.22	_____
Health Program					
Marketing ³	1.50	head	\$2.00	\$3.00	_____
Shearing	1.16	head	\$2.00	\$2.32	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$2.81	_____
TOTAL VARIABLE COSTS				\$70.35	_____
FIXED COSTS					
Labor charge	1.00	hour	\$6.00	\$6.00	_____
Ram Replacement ⁵				\$3.00	_____
Int. on Br. Stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$4.82	_____
TOTAL FIXED COSTS				\$33.53	_____
TOTAL COSTS				\$103.88	_____
RETURN OVER VARIABLE COSTS LAMBS					
			\$0.45	\$18.80	_____
			\$0.50	\$26.05	_____
			\$0.55	\$33.30	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$0.45	(\$14.73)	_____
			\$0.50	(\$7.48)	_____
			\$0.55	(\$0.23)	_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe [$\$45 + (.5 \times \$40) = \65] plus \$5.14 ram value [$(\$60 + (.5 \times \$240))/35 = \5.14] per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 93

1990 EWE AND SPRING LAMB BUDGET
 Pasture lambing September 21 through December 21
 Marketed January and February, 1.25% lambing rate

Item	1.25 Quantity	Unit	Price	1.25 Lamb Crop	Your Farm
Receipts					
Lambs ¹	10	lb.	\$0.77	\$80.85	_____
Wool sales & payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
.2% of lambs shorn	1.2	lb.	\$1.10	\$1.32	_____
.8 lambs un.inc.pay	1.03	head	\$3.65	\$3.76	_____
Cull ewe & ram ²				\$7.63	_____
TOTAL RECEIPTS				\$103.16	_____
Variable Costs					
Feed					
Salt	4.00	lb.	\$0.20	\$0.80	_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80	_____
Lamb feed 65-100 lbs					_____
Corn	4.63	bu.	\$2.65	\$12.27	_____
Protein pellets	28.75	lb.	\$0.17	\$4.89	_____
Milk replacer	1.25	lb.	\$1.00	\$1.25	_____
Alfalfa hay	0.03	ton	\$90.00	\$2.43	_____
Ewes					
Corn	2.00	bu.	\$2.65	\$5.30	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equip.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$51.03	_____
Health program				\$4.00	_____
Marketing ³	1.21	head	\$2.00	\$2.42	_____
Shearing	1.04	head	\$2.00	\$2.08	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating cap. ⁴				\$2.55	_____
TOTAL VARIABLE COSTS				\$64.08	_____
FIXED COSTS					
Labor charge	2.50	hour	\$6.00	\$15.00	_____
Ram Replacement ⁵				\$3.00	_____
Int. on Br.Stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$5.16	_____
TOTAL FIXED COSTS				\$42.87	_____
TOTAL COSTS				\$106.95	_____
RETURN OVER VARIABLE COSTS LAMBS					
			\$0.72	\$33.83	_____
			\$0.77	\$39.08	_____
			\$0.82	\$44.33	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$0.72	(\$9.04)	_____
			\$0.77	(\$3.79)	_____
			\$0.82	\$1.46	_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150) / 35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300) / 35 = \3.00
6. Average value of breeding animal is \$65 per ewe $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value $[(\$60 + (.5 \times \$240)) / 35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 94

1990 EWE AND SPRING LAMB BUDGET
 Pasture lambing September 21 through December 21
 Marketed January and February, 1.65% lambing rate

Item	1.65 Quantity	Unit	Price	1.65 Lamb Crop	Your Farm
Receipts					
Lambs ¹	145	lb.	\$0.77	\$111.65	_____
Wool sales & payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
.2 lambs shorn	1.65	lb.	\$1.10	\$1.82	_____
.8 lambs un.inc.pay.	1.33	head	\$3.65	\$4.85	_____
Cull ewe & ram ²				\$7.63	_____
TOTAL RECEIPTS				\$135.55	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate.	4.00	lb.	\$0.20	\$0.80	_____
Lamb feed 65-100 lb.					_____
Corn	6.11	bu.	\$2.65	\$16.19	_____
Protein pellets	37.95	lb.	\$0.17	\$6.45	_____
Milk replacer	1.65	lb.	\$1.00	\$1.65	_____
Alfalfa hay	0.03	ton	\$90.00	\$3.06	_____
Ewes					
Corn	2.60	bu.	\$2.65	\$6.89	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$59.13	_____
Health program					
Marketing ³	1.50	head	\$2.00	\$3.00	_____
Shearing	1.16	head	\$2.00	\$2.32	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$2.96	_____
TOTAL VARIABLE COSTS				\$73.41	_____
FIXED COSTS					
Labor charge	2.50	hour	\$6.00	\$15.00	_____
Ram Replacement ⁵				\$3.00	_____
Int.on Br. Stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$6.78	_____
TOTAL FIXED COSTS				\$44.49	_____
TOTAL COSTS				\$117.90	_____
RETURN OVER VARIABLE COSTS LAMBS					
			\$0.72	\$54.89	_____
			\$0.77	\$62.14	_____
			\$0.82	\$69.39	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$0.72	\$10.40	_____
			\$0.77	\$17.65	_____
			\$0.82	\$24.90	_____

1. Lambs sold at 100 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$ (fixed costs) = \$11

TABLE 95

1990 EWE AND WINTER LAMB BUDGET
 Lambing January through February
 Marketed during Easter 1.25% lambing rate

Item	1.25 Quat.	Unit	Price	1.25 Lamb Crop	Your Farm
Receipts					
Lambs ¹	42	lb.	\$1.60	\$67.20	_____
Wool sales & payments					
Ewe	8	lb.	\$1.20	\$9.60	_____
Lambs un.inc. pay.	0.42	head	\$3.65	\$1.53	_____
Cull Ewe & Ram ²				\$7.63	_____
TOTAL RECEIPTS				\$85.96	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80	_____
Lamb Feed /for Replacement					
Corn	0.74	bu.	\$2.65	\$1.96	_____
Protein pellets	4.60	lb.	\$0.17	\$0.78	_____
Milk replacer	0.20	lb.	\$1.00	\$0.20	_____
Alfalfa hay	0.03	ton	\$90.00	\$2.43	_____
Ewes					
Corn	1.20	bu.	\$2.65	\$3.18	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$33.44	_____
Health Program					
Marketing ³	1.21	head	\$2.00	\$2.42	_____
Shearing	1.04	head	\$2.00	\$2.08	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$1.67	_____
TOTAL VARIABLE COSTS				\$45.12	_____
FIXED COSTS					
Labor charge	3.00	hour	\$6.00	\$18.00	_____
Ram replacement ⁵				\$3.00	_____
Int. on br.stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$4.30	_____
TOTAL FIXED COSTS				\$45.01	_____
TOTAL COSTS				\$90.12	_____
RETURN OVER VARIABLE COSTS LAMBS					
			\$1.50	\$36.65	_____
			\$1.60	\$40.85	_____
			\$1.70	\$45.05	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$1.50	(\$8.36)	_____
			\$1.60	(\$4.16)	_____
			\$1.70	\$0.04	_____

1. Lambs sold at 40 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price
 $(16 \times \$0.30 \times 150) / 35 \text{ ewes} = \0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300) / 35 = \3.00
6. Average value of breeding animal is \$65 per ewe
 $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value
 $[(\$60 + (.5 \times \$240)) / 35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. $\$10.00 \text{ investment} \times 20\% \text{ (fixed costs)} = \2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$
 (fixed costs) = \$11

TABLE 96

1990 EWE AND WINTER LAMB BUDGET
 Lambing January through February
 Marketed during Easter 1.65% lambing rate

Item	1.65 Quat.	Unit	Price	1.65 Lamb Crop	Your Farm
Receipts					
Lambs ¹	58	lb.	\$1.60	\$92.80	_____
Wool sales & payments					
Ewe	8	lb.	\$1.20	\$9.60	_____
Lambs un.inc. pay.	0.58	head	\$3.65	\$2.12	_____
Cull Ewe & Ram ²				\$7.63	_____
TOTAL RECEIPTS				\$112.15	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate.	4.00	lb.	\$0.20	\$0.80	_____
Lamb feed /for replacement					
Corn	0.74	bu.	\$2.65	\$1.96	_____
Protein pellets	4.60	lb.	\$0.17	\$0.78	_____
Milk replacer	0.20	lb.	\$1.00	\$0.20	_____
Alfalfa hay	0.03	ton	\$90.00	\$3.06	_____
Ewes					
Corn	1.70	bu.	\$2.65	\$4.51	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$35.40	_____
Health program				\$3.50	_____
Marketing ³	1.50	head	\$2.00	\$3.00	_____
Shearing	1.16	head	\$2.00	\$2.32	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$1.77	_____
TOTAL VARIABLE COSTS				\$47.99	_____
FIXED COSTS					
Labor charge	3.00	hour	\$6.00	\$18.00	_____
Ram Replacement ⁵				\$3.00	_____
Int. on br. stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$5.61	_____
TOTAL FIXED COSTS				\$46.32	_____
TOTAL COSTS				\$94.31	_____
RETURN OVER VARIABLE Costs	Lambs		\$1.50	\$58.36	_____
			\$1.60	\$64.16	_____
			\$1.70	\$69.96	_____
RETURN OVER TOTAL COSTS LAMBS			\$1.50	\$12.04	_____
			\$1.60	\$17.84	_____
			\$1.70	\$23.64	_____

1. Lambs sold at 40 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe
 $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value
 $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$
 (fixed costs) = \$11

TABLE 97

1990 HOLIDAY LAMB BUDGET
 Lambing September 21 through October
 Marketed during the holidays 1.25% lambing rate

Item	1.25 Quat.	Unit	Price	1.25 Lamb Crop	Your Farm
Receipts					
Lambs ¹	42	lb.	\$1.80	\$75.60	_____
Wool sales & payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
Lambs un.inc. pay.	0.42	head	\$3.65	\$1.53	_____
Cull Ewe & Ram ²				\$7.63	_____
TOTAL RECEIPTS				\$94.36	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate.	4.00	lb.	\$0.20	\$0.80	_____
Lamb Feed /for Replacement					
Corn	0.74	bu.	\$2.65	\$1.96	_____
Protein pellets	4.60	lb.	\$0.17	\$0.78	_____
Milk replacer	0.20	lb.	\$1.00	\$0.20	_____
Alfalfa hay	0.03	ton	\$90.00	\$2.43	_____
Ewes					
Corn	1.20	bu.	\$2.65	\$3.18	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture (hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$33.44	_____
Health program					
Marketing ³	1.21	head	\$2.00	\$2.42	_____
Shearing	1.04	head	\$2.00	\$2.08	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$1.67	_____
TOTAL VARIABLE COSTS				\$45.12	_____
FIXED COSTS					
Labor charge	2.00	hour	\$6.00	\$12.00	_____
Ram Replacement ⁵				\$3.00	_____
Int. on Br. Stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$4.72	_____
TOTAL FIXED COSTS				\$39.43	_____
TOTAL COSTS				\$84.54	_____
RETURN OVER VARIABLE Costs					
	Lambs		\$1.70	\$45.05	_____
			\$1.80	\$49.25	_____
			\$1.90	\$53.45	_____
RETURN OVER TOTAL COSTS LAMBS					
			\$1.70	\$5.62	_____
			\$1.80	\$9.82	_____
			\$1.90	\$14.02	_____

1. Lambs sold at 40 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull Receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe
 $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value
 $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$
 (fixed costs) = \$11

TABLE 98

1990 HOLIDAY LAMB BUDGET
 Lambing September 21 through October
 Marketed during the holidays 1.65% lambing rate

Item	1.65 Quat.	Unit	Price	1.65 Lamb Crop	Your Farm
Receipts					
Lambs ¹	58	lb.	\$1.80	\$104.40	_____
Wool sales & payments					_____
Ewe	8	lb.	\$1.20	\$9.60	_____
Lambs un.inc. pay.	0.58	head	\$3.65	\$2.12	_____
Cull ewe & ram ²				\$7.63	_____
TOTAL RECEIPTS				\$123.75	_____
Variable Costs					
Feed					
Salt	11.00	lb.	\$0.07	\$0.77	_____
Dicalcium phosphate	4.00	lb.	\$0.20	\$0.80	_____
Lamb Feed /for Replacement					_____
Corn	0.74	bu.	\$2.65	\$1.96	_____
Protein pellets	4.60	lb.	\$0.17	\$0.78	_____
Milk replacer	0.20	lb.	\$1.00	\$0.20	_____
Alfalfa hay	0.03	ton	\$90.00	\$3.06	_____
Ewes					
Corn	1.70	bu.	\$2.65	\$4.51	_____
Hay	0.22	ton	\$60.00	\$13.20	_____
Pasture(hay equiv.)	0.44	ton	\$23.00	\$10.12	_____
Total feed costs				\$35.40	_____
Health program				\$3.50	_____
Marketing ³	1.50	head	\$2.00	\$3.00	_____
Shearing	1.16	head	\$2.00	\$2.32	_____
Util., supp. & misc.				\$2.00	_____
Int. on operating costs ⁴				\$1.77	_____
TOTAL VARIABLE COSTS				\$47.99	_____
FIXED COSTS					
Labor charge	2.00	hour	\$6.00	\$12.00	_____
Ram replacement ⁵				\$3.00	_____
Int. on Br. Stock ⁶				\$7.00	_____
Equipment charge ⁷				\$2.00	_____
Buildings charge ⁸				\$10.71	_____
Mgmt. charge 5% of gross income				\$6.19	_____
TOTAL FIXED COSTS				\$47.42	_____
TOTAL COSTS				\$95.41	_____
RETURN OVER VARIABLE Costs	Lambs		\$1.70	\$69.96	_____
			\$1.80	\$75.76	_____
			\$1.90	\$81.56	_____
RETURN OVER TOTAL COSTS LAMBS			\$1.70	\$69.96	_____
			\$1.80	\$75.76	_____
			\$1.90	\$81.56	_____

1. Lambs sold at 40 lb. 1.25 and 1.65 less 16% for replacement ewes and 4% for death loss so 1.05 and 1.45 lambs sold/ewe exposed to ram.
2. Cull Receipts
 150 # ewe at a 16 % culling rate and \$0.30 price $16 \times \$0.30 \times 150 = \7.20
 200 # ram at a 25 % culling rate and \$0.30 price $(16 \times \$0.30 \times 150)/35$
 ewes = \$0.43
3. Head marketed equals the lambs sold plus the cull animals.
4. Includes .5 value of the feed and other variable cost times an interest rate of 10%.
5. Ram replacement cost based on a 25% replacement rate, 10% death loss, ram cost of \$300, 35 ewes per ram $(.35 \times 300)/35 = \$3.00$
6. Average value of breeding animal is \$65 per ewe
 $[\$45 + (.5 \times \$40) = \$65]$ plus \$5.14 ram value
 $[(\$60 + (.5 \times \$240))/35 = \$5.14]$ per ewe figured at cull value plus .5 depreciable amount.
7. \$10.00 investment x 20% (fixed costs) = \$2.00
8. 14 sq. ft. per ewe plus lambs at \$4.50/sq. ft. $\$63 \times 17\%$
 (fixed costs) = \$11

**Crop Budget
Tables**

CROP BUDGETS AND GUIDES FOR CHOOSING CROPPING SYSTEMS

Land is the basic resource and the primary source of income on most Pennsylvania farms. While cash receipts from the sale of livestock and livestock products may account for a large share of cash income on many farms, feed is the major input in livestock production and has its origin from the the farm land.

Farm records for many years have shown that gross farm income and net earnings are closely correlated with the use of land and the kind and volume of crop production. With land values again escalating, increased input costs, and high cash outlays for family living, pressures are exerted for sharp increases in farm income. On many farms, this has resulted in expanding the acreage of high income crops or higher value animal crops such as corn, soybeans, etc, and expanded into double crop production. In some cases, the land is not capable for such production, thus causing economic loss to the farmer and damage to the land.

GENERAL CONSIDERATIONS

It is usually best to decide on the kinds and acreages of crops to be grown before the livestock organization is considered. Even if it is not practical to change your present livestock organization, such as dairying, it still will be useful to determine the most profitable cropping system, and then adapt it to the present livestock organization. If the livestock system is flexible, the kinds of livestock best suited to the cropping system can be selected after the cropping system is established.

Highest net farm income is most likely when a farmer devotes the most land possible to high profit crops without serious soil loss.

FIGURE SEVERAL DIFFERENT CROPPING SYSTEMS

The most profitable cropping system will be determined mainly by:

- (1) Acreages in the various classes of land available.
- (2) Probable net returns from each suitable crop that is adapted to the various soil classes.
- (3) Distribution of labor required during the year.

Worksheets with directions are provided in Part IIV to determine the most profitable cropping system.

HOW TO USE THE BUDGETS IN THIS HANDBOOK AND THE TYPE OF CROP BUDGETS

Farm prices in the crop budgets are considered to be long-range planning prices. As such, crop budgets were developed to reflect the expected costs and returns relationships among enterprises over the next few years. Due to widely fluctuating farm product prices, these budgets may not reflect the current or short-run situation. However, each budget has a YOUR FARM column which can be used to make price, yield, or cost changes as needed.

There are two types of budget for each crop. The first set of budgets shows the cost of production based on the total cost of an input used on a specific crop on a per acre. The second set of budget are based on the cost of doing a certain field operation on a specific crop on a per acre.

TABLE 99. CORN PRODUCTION BUDGET
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
				DOLLARS	DOLLARS
INCOME					
Corn	bu.	2.65	125.000	331.25	_____
TOTAL INCOME				331.25	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	135.000	32.40	_____
P2O5	lb.	0.25	50.000	12.50	_____
K2O	lb.	0.14	35.000	4.90	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.250	2.32	_____
Lasso	gal.	20.24	0.375	7.59	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	25.000	24.25	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.330	6.65	_____
Self-propelled eq.	hour	5.00	0.330	1.65	_____
Additional labor	hour	5.00	0.078	0.39	_____
DIESEL FUEL					
Tractors	gal.	0.87	5.416	4.71	_____
Self-propelled eq.	gal.	0.87	1.584	1.38	_____
DRY	gal.	0.87	20.000	17.38	_____
REPAIR & MAINTENANCE					
Tractors	acre	5.72	1.000	5.72	_____
Self-propelled eq.	acre	5.11	1.000	5.11	_____
Implements	acre	3.40	1.000	3.40	_____
UNALLOCATED LABOR	hour	5.00	1.738	8.69	_____
INT. ON OPERATING CAP.	acre	6.92	1.000	6.92	_____
TOTAL DIRECT EXPENSES				157.69	_____
RETURNS ABOVE DIRECT EXPENSES				173.56	_____
FIXED EXPENSES					
Tractors	acre	9.83	1.000	9.83	_____
Self-propelled eq.	acre	9.45	1.000	9.45	_____
Implements	acre	8.08	1.000	8.08	_____
TOTAL FIXED EXPENSES				27.36	_____
TOTAL SPECIFIED EXPENSES				185.05	_____
RETURNS ABOVE SPECIFIED EXPENSES				146.20	_____
RESIDUALS					
MANAGEMENT CHARGE				16.56	_____
RESIDUAL RETURNS				129.65	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				69.65	_____

TABLE 100. CORN SILAGE PRODUCTION
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Corn silage	tons	23.75	21.000	498.75	_____
TOTAL INCOME				498.75	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	150.000	36.00	_____
P2O5	lb.	0.25	80.000	20.00	_____
K2O	lb.	0.14	150.000	21.00	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.250	2.32	_____
Lasso	gal.	20.24	0.375	7.59	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	30.000	29.10	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.620	13.10	_____
Additional labor	hour	5.00	0.078	0.39	_____
DIESEL FUEL					
Tractors	gal.	0.87	10.094	8.77	_____
REPAIR & MAINTENANCE					
Tractors	acre	10.63	1.000	10.63	_____
Implements	acre	17.25	1.000	17.25	_____
UNALLOCATED LABOR	hour	5.00	2.698	13.49	_____
INT. ON OPERATING CAP.	acre	6.34	1.000	6.34	_____
TOTAL DIRECT EXPENSES				197.72	_____
RETURNS ABOVE DIRECT EXPENSES				301.03	_____
FIXED EXPENSES					
Tractors	acre	18.29	1.000	18.29	_____
Implements	acre	28.63	1.000	28.63	_____
TOTAL FIXED EXPENSES				46.92	_____
TOTAL SPECIFIED EXPENSES				244.64	_____
RETURNS ABOVE SPECIFIED EXPENSES				254.11	_____
RESIDUALS					
MANAGEMENT CHARGE				24.94	_____
RESIDUAL RETURNS				229.17	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				169.17	_____

TABLE 101. SOYBEAN PRODUCTION BUDGETS
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Soybeans	bu.	5.50	40.000	220.00	_____
TOTAL INCOME				220.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
P2O5	lb.	0.25	45.000	11.25	_____
K2O	lb.	0.14	80.000	11.20	_____
HERBICIDES					
Lasso	gal.	20.24	0.375	7.59	_____
Lorox 4L	gal.	54.00	0.125	6.75	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Soybean seed	bu.	16.00	1.170	18.72	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.080	5.40	_____
Self-propelled eq.	hour	5.00	0.440	2.20	_____
Additional labor	hour	5.00	0.039	0.20	_____
DIESEL FUEL					
Tractors	gal.	0.87	4.432	3.85	_____
Self-propelled eq.	gal.	0.87	1.804	1.57	_____
REPAIR & MAINTENANCE					
Tractors	acre	4.66	1.000	4.66	_____
Self-propelled eq.	acre	6.68	1.000	6.68	_____
Implements	acre	2.18	1.000	2.18	_____
UNALLOCATED LABOR					
	hour	5.00	1.559	7.79	_____
INT. ON OPERATING CAP.					
	acre	4.89	1.000	4.89	_____
TOTAL DIRECT EXPENSES				106.68	_____
RETURNS ABOVE DIRECT EXPENSES				113.32	_____
FIXED EXPENSES					
Tractors	acre	8.02	1.000	8.02	_____
Self-propelled eq.	acre	12.36	1.000	12.36	_____
Implements	acre	5.16	1.000	5.16	_____
TOTAL FIXED EXPENSES				25.54	_____
TOTAL SPECIFIED EXPENSES				132.21	_____
RETURNS ABOVE SPECIFIED EXPENSES				87.79	_____
RESIDUALS					
MANAGEMENT CHARGE				13.00	_____
RESIDUAL RETURNS				74.79	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				14.79	_____

TABLE 102. WHEAT PRODUCTION BUDGET (Grain only)
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Wheat	bu.	3.80	60.000	228.00	_____
TOTAL INCOME				228.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	75.000	18.00	_____
P2O5	lb.	0.25	40.000	10.00	_____
K2O	lb.	0.14	40.000	5.60	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Wheat seed	bu.	7.75	2.000	15.50	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.070	5.35	_____
Self-propelled eq.	hour	5.00	0.360	1.80	_____
DIESEL FUEL					
Tractors	gal.	0.87	4.562	3.96	_____
Self-propelled eq.	gal.	0.87	1.476	1.28	_____
REPAIR & MAINTENANCE					
Tractors	acre	4.79	1.000	4.79	_____
Self-propelled eq.	acre	5.47	1.000	5.47	_____
Implements	acre	2.52	1.000	2.52	_____
UNALLOCATED LABOR					
	hour	5.00	1.430	7.15	_____
INT. ON OPERATING CAP.					
	acre	6.96	1.000	6.96	_____
TOTAL DIRECT EXPENSES				100.13	_____
RETURNS ABOVE DIRECT EXPENSES				127.87	_____
FIXED EXPENSES					
Tractors	acre	8.25	1.000	8.25	_____
Self-propelled eq.	acre	8.09	1.000	8.09	_____
Implements	acre	5.67	1.000	5.67	_____
TOTAL FIXED EXPENSES				22.00	_____
TOTAL SPECIFIED EXPENSES				122.14	_____
RETURNS ABOVE SPECIFIED EXPENSES				105.86	_____
RESIDUALS					
MANAGEMENT CHARGE				11.40	_____
RESIDUAL RETURNS				94.46	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				34.46	_____

TABLE 103. WHEAT PRODUCTION BUDGET (Grain & straw)
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Wheat	bu.	3.80	60.000	298.00	_____
Straw	ton	55.00	1.500	82.50	_____
TOTAL INCOME				310.50	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	75.000	18.00	_____
P2O5	lb.	0.25	40.000	10.00	_____
K2O	lb.	0.14	80.000	11.20	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Wheat seed	bu.	7.75	2.000	15.50	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.820	9.10	_____
Self-propelled eq.	hour	5.00	0.360	1.80	_____
HAND LABOR					
Additional labor	hour	5.00	0.750	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	6.662	5.79	_____
Self-propelled eq.	gal.	0.87	1.476	1.28	_____
REPAIR & MAINTENANCE					
Tractors	acre	7.03	1.000	7.03	_____
Self-propelled eq.	acre	5.47	1.000	5.47	_____
Implements	acre	3.92	1.000	3.92	_____
UNALLOCATED LABOR					
	hour	5.00	2.180	10.90	_____
INT. ON OPERATING CAP.					
	acre	2.87	1.000	2.87	_____
TOTAL DIRECT EXPENSES				118.36	_____
RETURNS ABOVE DIRECT EXPENSES				192.14	_____
FIXED EXPENSES					
Tractors	acre	12.09	1.000	12.09	_____
Self-propelled eq.	acre	8.09	1.000	8.09	_____
Implements	acre	8.62	1.000	8.62	_____
TOTAL FIXED EXPENSES				28.79	_____
TOTAL SPECIFIED EXPENSES				147.15	_____
RETURNS ABOVE SPECIFIED EXPENSES				163.35	_____
RESIDUALS					
MANAGEMENT CHARGE				15.53	_____
RESIDUAL RETURNS				147.82	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				87.82	_____

TABLE 104. BARLEY PRODUCTION BUDGET (Grain & straw)
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Barley	bu.	1.80	80.000	144.00	_____
Straw	ton	55.00	1.500	82.50	_____
TOTAL INCOME				226.50	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	30.000	7.20	_____
P2O5	lb.	0.25	45.000	11.25	_____
K2O	lb.	0.14	80.000	11.20	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Barley seed	bu.	6.00	2.500	15.00	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.832	9.16	_____
Self-propelled eq.	hour	5.00	0.360	1.80	_____
HAND LABOR					
Additional labor	hour	5.00	0.750	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	6.711	5.83	_____
Self-propelled eq.	gal.	0.87	1.476	1.28	_____
REPAIR & MAINTENANCE					
Tractors	acre	7.08	1.000	7.08	_____
Self-propelled eq.	acre	5.47	1.000	5.47	_____
Implements	acre	3.94	1.000	3.94	_____
UNALLOCATED LABOR					
	hour	5.00	2.192	10.96	_____
INT. ON OPERATING CAP.					
	acre	2.71	1.000	2.71	_____
TOTAL DIRECT EXPENSES				108.38	_____
RETURNS ABOVE DIRECT EXPENSES				118.12	_____
FIXED EXPENSES					
Tractors	acre	12.17	1.000	12.17	_____
Self-propelled eq.	acre	8.09	1.000	8.09	_____
Implements	acre	8.65	1.000	8.65	_____
TOTAL FIXED EXPENSES				28.91	_____
TOTAL SPECIFIED EXPENSES				137.29	_____
RETURNS ABOVE SPECIFIED EXPENSES				89.21	_____
RESIDUALS					
MANAGEMENT CHARGE				11.33	_____
RESIDUAL RETURNS				77.89	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				17.89	_____

TABLE 105. OATS PRODUCTION BUDGET (Grain & straw)
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Oats	bu.	1.50	90.000	135.00	_____
Straw	ton	55.00	1.000	55.00	_____
TOTAL INCOME				190.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	75.000	18.00	_____
P2O5	lb.	0.25	60.000	15.00	_____
K2O	lb.	0.14	80.000	11.20	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Oats seed	bu.	5.50	3.000	16.50	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.720	8.60	_____
Self-propelled eq.	hour	5.00	0.360	1.80	_____
HAND LABOR					
Additional labor	hour	5.00	0.750	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	6.174	5.37	_____
Self-propelled eq.	gal.	0.87	1.476	1.28	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.52	1.000	6.52	_____
Self-propelled eq.	acre	5.47	1.000	5.47	_____
Implements	acre	3.50	1.000	3.50	_____
UNALLOCATED LABOR	hour	5.00	2.080	10.40	_____
INT. ON OPERATING CAP.	acre	3.44	1.000	3.44	_____
TOTAL DIRECT EXPENSES				122.57	_____
RETURNS ABOVE DIRECT EXPENSES				67.43	_____
FIXED EXPENSES					
Tractors	acre	11.21	1.000	11.21	_____
Self-propelled eq.	acre	8.09	1.000	8.09	_____
Implements	acre	7.84	1.000	7.84	_____
TOTAL FIXED EXPENSES				27.14	_____
TOTAL SPECIFIED EXPENSES				149.71	_____
RETURNS ABOVE SPECIFIED EXPENSES				40.29	_____
RESIDUALS					
MANAGEMENT CHARGE				9.50	_____
RESIDUAL RETURNS				30.79	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				(29.21)	_____

TABLE 106. CORN PROD. BUDGET (Conventional tillage practices)
 Summary of estimated costs and returns per acre,
 Government programs expected yield=120, ASCS yield=100 Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
				DOLLARS	DOLLARS
INCOME					
Ad. def. paym. corn	bu.	0.36	100.000	35.60	_____
Corn	bu.	2.45	112.500	275.63	_____
Def. paym. corn	bu.	0.03	100.000	3.40	_____
TOTAL INCOME				314.63	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.450	9.90	_____
FERTILIZER					
Nitrogen	lb.	0.24	121.500	29.16	_____
P2O5	lb.	0.25	45.000	11.25	_____
K2O	lb.	0.14	31.500	4.41	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.225	2.08	_____
Lasso	gal.	20.24	0.337	6.83	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	22.500	21.83	_____
Cover seed	bu.	4.00	0.200	0.80	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.207	6.03	_____
Self-propelled eq.	hour	5.00	0.297	1.48	_____
Additional labor	hour	5.00	0.070	0.35	_____
DIESEL FUEL					
Tractors	gal.	0.87	4.915	4.27	_____
Self-propelled eq.	gal.	0.87	1.426	1.24	_____
DRY	gal.	0.87	16.200	14.08	_____
REPAIR & MAINTENANCE					
Tractors	acre	5.19	1.000	5.19	_____
Self-propelled eq.	acre	4.60	1.000	4.60	_____
Implements	acre	3.10	1.000	3.10	_____
UNALLOCATED LABOR	hour	5.00	1.433	7.16	_____
INT. ON OPERATING CAP.	acre	3.62	1.000	3.62	_____
TOTAL DIRECT EXPENSES				138.13	_____
RETURNS ABOVE DIRECT EXPENSES				176.49	_____
FIXED EXPENSES					
Tractors	acre	8.92	1.000	8.92	_____
Self-propelled eq.	acre	8.51	1.000	8.51	_____
Implements	acre	7.35	1.000	7.35	_____
TOTAL FIXED EXPENSES				24.78	_____
TOTAL SPECIFIED EXPENSES				162.91	_____
RETURNS ABOVE SPECIFIED EXPENSES				151.71	_____
RESIDUALS					
MANAGEMENT CHARGE				15.73	_____
RESIDUAL RETURNS				135.98	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				75.98	_____

TABLE 107. CORN SILAGE (Conventional tillage practices)
 Summary of estimated costs and returns per acre,
 Government programs ASCS yield=100 Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Ad. def. paym. corn	bu.	0.36	100.000	35.60	_____
Corn silage	tons	23.75	18.900	448.88	_____
Def. paym. corn	bu.	0.03	100.000	3.40	_____
TOTAL INCOME				487.88	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.450	9.90	_____
FERTILIZER					
Nitrogen	lb.	0.24	135.000	32.40	_____
P2O5	lb.	0.25	72.000	18.00	_____
K2O	lb.	0.14	135.000	18.90	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.225	2.08	_____
Lasso	gal.	20.24	0.337	6.83	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	27.000	26.19	_____
Cover seed	bu.	4.00	0.200	0.80	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.368	11.84	_____
Additional labor	hour	5.00	0.070	0.35	_____
DIESEL FUEL					
Tractors	gal.	0.87	9.126	7.93	_____
REPAIR & MAINTENANCE					
Tractors	acre	9.61	1.000	9.61	_____
Implements	acre	15.56	1.000	15.56	_____
UNALLOCATED LABOR	hour	5.00	2.438	12.19	_____
INT. ON OPERATING CAP.	acre	3.70	1.000	3.70	_____
TOTAL DIRECT EXPENSES				177.05	_____
RETURNS ABOVE DIRECT EXPENSES				310.83	_____
FIXED EXPENSES					
Tractors	acre	16.53	1.000	16.53	_____
Implements	acre	25.85	1.000	25.85	_____
TOTAL FIXED EXPENSES				42.38	_____
TOTAL SPECIFIED EXPENSES				219.42	_____
RETURNS ABOVE SPECIFIED EXPENSES				268.45	_____
RESIDUALS					
MANAGEMENT CHARGE				24.39	_____
RESIDUAL RETURNS				244.06	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				184.06	_____

TABLE 108. CORN PRODUCTION BUDGET
 Summary of estimated costs and returns per acre,
 (No-till practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Corn	bu.	2.65	125.000	331.25	_____
TOTAL INCOME				331.25	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	135.000	32.40	_____
P2O5	lb.	0.25	50.000	12.50	_____
K2O	lb.	0.14	35.000	4.90	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.250	2.32	_____
Gramoxone Super	gal.	35.00	0.375	13.13	_____
Lasso	gal.	20.24	0.750	15.18	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	25.000	24.25	_____
OPERATOR LABOR					
Tractors	hour	5.00	0.550	2.75	_____
Self-propelled eq.	hour	5.00	0.330	1.65	_____
Additional labor	hour	5.00	0.078	0.39	_____
DIESEL FUEL					
Tractors	gal.	0.87	2.036	1.77	_____
Self-propelled eq.	gal.	0.87	1.584	1.38	_____
DRY	gal.	0.87	20.000	17.38	_____
REPAIR & MAINTENANCE					
Tractors	acre	2.16	1.000	2.16	_____
Self-propelled eq.	acre	5.11	1.000	5.11	_____
Implements	acre	1.03	1.000	1.03	_____
UNALLOCATED LABOR	hour	5.00	0.958	4.79	_____
INT. ON OPERATING CAP.	acre	6.85	1.000	6.85	_____
TOTAL DIRECT EXPENSES				161.67	_____
RETURNS ABOVE DIRECT EXPENSES				169.58	_____
FIXED EXPENSES					
Tractors	acre	3.71	1.000	3.71	_____
Self-propelled eq.	acre	9.45	1.000	9.45	_____
Implements	acre	2.62	1.000	2.62	_____
TOTAL FIXED EXPENSES				15.79	_____
TOTAL SPECIFIED EXPENSES				177.46	_____
RETURNS ABOVE SPECIFIED EXPENSES				153.79	_____
RESIDUALS					
MANAGEMENT CHARGE				16.56	_____
RESIDUAL RETURNS				137.23	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				77.23	_____

TABLE 109. CORN SILAGE PRODUCTION
 Summary of estimated costs and returns per acre,
 (No-till practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Corn silage	tons	23.75	21.000	498.75	_____
TOTAL INCOME				498.75	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	150.000	36.00	_____
P2O5	lb.	0.25	80.000	20.00	_____
K2O	lb.	0.14	150.000	21.00	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.250	2.32	_____
Gramoxone Super	gal.	35.00	0.375	13.13	_____
Lasso	gal.	20.24	0.750	15.18	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	30.000	29.10	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.850	9.25	_____
Additional labor	hour	5.00	0.078	0.39	_____
DIESEL FUEL					
Tractors	gal.	0.87	6.762	5.88	_____
REPAIR & MAINTENANCE					
Tractors	acre	7.12	1.000	7.12	_____
Implements	acre	15.63	1.000	15.63	_____
UNALLOCATED LABOR					
	hour	5.00	1.928	9.64	_____
INT. ON OPERATING CAP.					
	acre	6.22	1.000	6.22	_____
TOTAL DIRECT EXPENSES				202.60	_____
RETURNS ABOVE DIRECT EXPENSES				296.15	_____
FIXED EXPENSES					
Tractors	acre	12.25	1.000	12.25	_____
Implements	acre	25.02	1.000	25.02	_____
TOTAL FIXED EXPENSES				37.27	_____
TOTAL SPECIFIED EXPENSES				239.86	_____
RETURNS ABOVE SPECIFIED EXPENSES				258.89	_____
RESIDUALS					
MANAGEMENT CHARGE				24.94	_____
RESIDUAL RETURNS				233.95	_____
CASH RENT					
RESIDUAL RETURNS				60.00	_____
RESIDUAL RETURNS				173.95	_____

TABLE 110. CORN PROD. BUDGETS (No-till practices)
 Summary of estimated costs and returns per acre,
 Government programs expected yield=120, ASCS yield=100 Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Ad. def. paym. corn	bu.	0.36	100.000	35.60	_____
Corn	bu.	2.45	112.500	275.63	_____
Def. paym. corn	bu.	0.03	100.000	3.40	_____
TOTAL INCOME				314.63	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.450	9.90	_____
FERTILIZER					
Nitrogen	lb.	0.24	121.500	29.16	_____
P2O5	lb.	0.25	45.000	11.25	_____
K2O	lb.	0.14	31.500	4.41	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.225	2.08	_____
Gramoxone Super	gal.	35.00	0.337	11.81	_____
Lasso	gal.	20.24	0.675	13.66	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	22.500	21.83	_____
Cover seed	bu.	4.00	0.200	0.80	_____
OPERATOR LABOR					
Tractors	hour	5.00	0.514	2.57	_____
Self-propelled eq.	hour	5.00	0.297	1.48	_____
Additional labor	hour	5.00	0.070	0.35	_____
DIESEL FUEL					
Tractors	gal.	0.87	1.917	1.67	_____
Self-propelled eq.	gal.	0.87	1.426	1.24	_____
DRY	gal.	0.87	16.200	14.08	_____
REPAIR & MAINTENANCE					
Tractors	acre	2.03	1.000	2.03	_____
Self-propelled eq.	acre	4.60	1.000	4.60	_____
Implements	acre	1.64	1.000	1.64	_____
UNALLOCATED LABOR	hour	5.00	0.802	4.01	_____
INT. ON OPERATING CAP.	acre	3.90	1.000	3.90	_____
TOTAL DIRECT EXPENSES				143.23	_____
RETURNS ABOVE DIRECT EXPENSES				171.40	_____
FIXED EXPENSES					
Tractors	acre	3.49	1.000	3.49	_____
Self-propelled eq.	acre	8.51	1.000	8.51	_____
Implements	acre	4.09	1.000	4.09	_____
TOTAL FIXED EXPENSES				16.09	_____
TOTAL SPECIFIED EXPENSES				159.32	_____
RETURNS ABOVE SPECIFIED EXPENSES				155.31	_____
RESIDUALS					
MANAGEMENT CHARGE				15.73	_____
RESIDUAL RETURNS				139.57	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				79.57	_____

TABLE 111. CORN SILAGE (No-till practices)
 Summary of estimated costs and returns per acre,
 Government programs ASCS yield=100 Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Ad. def. paym. corn	bu.	0.36	100.000	35.60	_____
Corn silage	tons	23.75	18.900	448.88	_____
Def. paym. corn	bu.	0.03	100.000	3.40	_____
TOTAL INCOME				487.88	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.450	9.90	_____
FERTILIZER					
Nitrogen	lb.	0.24	135.000	32.40	_____
P2O5	lb.	0.25	72.000	18.00	_____
K2O	lb.	0.14	135.000	18.90	_____
HERBICIDES					
Atrazine 4L	gal.	9.26	0.225	2.08	_____
Gramoxone Super	gal.	35.00	0.337	11.81	_____
Lasso	gal.	20.24	0.675	13.66	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Corn seed	kernal	0.97	27.000	26.19	_____
Cover seed	bu.	4.00	0.200	0.80	_____
OPERATOR LABOR					
Tractors	hour	5.00	1.675	8.37	_____
Additional labor	hour	5.00	0.070	0.35	_____
DIESEL FUEL					
Tractors	gal.	0.87	6.127	5.32	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.45	1.000	6.45	_____
Implements	acre	14.11	1.000	14.11	_____
UNALLOCATED LABOR	hour	5.00	1.745	8.73	_____
INT. ON OPERATING CAP.	acre	3.88	1.000	3.88	_____
TOTAL DIRECT EXPENSES				181.72	_____
RETURNS ABOVE DIRECT EXPENSES				306.16	_____
FIXED EXPENSES					
Tractors	acre	11.10	1.000	11.10	_____
Implements	acre	22.59	1.000	22.59	_____
TOTAL FIXED EXPENSES				33.69	_____
TOTAL SPECIFIED EXPENSES				215.41	_____
RETURNS ABOVE SPECIFIED EXPENSES				272.47	_____
RESIDUALS					
MANAGEMENT CHARGE				24.39	_____
RESIDUAL RETURNS				248.07	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				188.07	_____

TABLE 112. DOUBLE CROP BARLEY & SOYBEANS
 Summary of estimated costs and returns per acre,
 (Conv. on Barley No-Till on Soybeans) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Barley	bu.	1.80	80.000	144.00	_____
Straw	ton	55.00	1.500	82.50	_____
Soybeans	bu.	5.50	35.000	<u>192.50</u>	_____
TOTAL INCOME				419.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	30.000	7.20	_____
P2O5	lb.	0.25	60.000	15.00	_____
K2O	lb.	0.14	100.000	14.00	_____
HERBICIDES					
Gramoxone Super	gal.	35.00	0.375	13.13	_____
Lorox 4L	gal.	54.00	0.190	10.26	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Soybean seed	bu.	16.00	1.500	24.00	_____
Barley seed	bu.	6.00	2.500	15.00	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.152	10.76	_____
Self-propelled eq.	hour	5.00	0.800	4.00	_____
Additional labor	hour	5.00	0.039	0.20	_____
HAND LABOR					
Additional labor	hour	5.00	0.750	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	7.958	6.92	_____
Self-propelled eq.	gal.	0.87	3.280	2.85	_____
REPAIR & MAINTENANCE					
Tractors	acre	8.40	1.000	8.40	_____
Self-propelled eq.	acre	12.15	1.000	12.15	_____
Implements	acre	4.71	1.000	4.71	_____
UNALLOCATED LABOR					
	hour	5.00	2.991	14.95	_____
INT. ON OPERATING CAP.					
	acre	2.50	1.000	<u>2.50</u>	_____
TOTAL DIRECT EXPENSES				181.51	_____
RETURNS ABOVE DIRECT EXPENSES				237.49	_____
FIXED EXPENSES					
Tractors	acre	14.45	1.000	14.45	_____
Self-propelled eq.	acre	20.45	1.000	20.45	_____
Implements	acre	10.61	1.000	<u>10.61</u>	_____
TOTAL FIXED EXPENSES				45.50	_____
TOTAL SPECIFIED EXPENSES				227.02	_____
RETURNS ABOVE SPECIFIED EXPENSES				191.98	_____
RESIDUALS					
MANAGEMENT CHARGE				20.95	_____
RESIDUAL RETURNS				171.04	_____
CASH RENT					
RESIDUAL RETURNS				111.04	_____

TABLE 113. DOUBLE CROP WHEAT AND SOYBEANS
 Summary of estimated costs and returns per acre,
 (Conv. on Wheat No-Till on Soybeans) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Wheat	bu.	3.80	60.000	228.00	_____
Straw	ton	55.00	1.500	82.50	_____
Soybeans	bu.	5.50	25.000	<u>137.50</u>	_____
TOTAL INCOME				449.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	75.000	18.00	_____
P2O5	lb.	0.25	60.000	15.00	_____
K2O	lb.	0.14	100.000	14.00	_____
HERBICIDES					
Gramoxone Super	gal.	35.00	0.375	13.13	_____
Lorox 4L	gal.	54.00	0.190	10.26	_____
OTHER					
Soil test results	acre	0.75	1.000	0.75	_____
SEED					
Soybean seed	bu.	16.00	1.500	24.00	_____
Wheat seed	bu.	7.75	2.000	15.50	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.140	10.70	_____
Self-propelled eq.	hour	5.00	0.800	4.00	_____
Additional labor	hour	5.00	0.039	0.20	_____
HAND LABOR					
Additional labor	hour	5.00	0.750	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	7.908	6.87	_____
Self-propelled eq.	gal.	0.87	3.280	2.85	_____
REPAIR & MAINTENANCE					
Tractors	acre	8.35	1.000	8.35	_____
Self-propelled eq.	acre	12.15	1.000	12.15	_____
Implements	acre	4.69	1.000	4.69	_____
UNALLOCATED LABOR	hour	5.00	2.979	14.89	_____
INT. ON OPERATING CAP.	acre	2.51	1.000	<u>2.51</u>	_____
TOTAL DIRECT EXPENSES				192.60	_____
RETURNS ABOVE DIRECT EXPENSES				255.40	_____
FIXED EXPENSES					
Tractors	acre	14.36	1.000	14.36	_____
Self-propelled eq.	acre	20.45	1.000	20.45	_____
Implements	acre	10.57	1.000	<u>10.57</u>	_____
TOTAL FIXED EXPENSES				45.38	_____
TOTAL SPECIFIED EXPENSES				237.97	_____
RETURNS ABOVE SPECIFIED EXPENSES				210.03	_____
RESIDUALS					
MANAGEMENT CHARGE				22.40	_____
RESIDUAL RETURNS				183.13	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				123.13	_____

TABLE 114. ALFALFA ESTABLISHMENT BUDGET
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Alfalfa	ton	90.00	3.00	270.00	_____
TOTAL INCOME				270.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	1.50	33.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	20.00	4.80	_____
P2O5	lb.	0.25	70.00	17.50	_____
K2O	lb.	0.14	230.00	32.20	_____
HERBICIDES					
Butyrac 200 (2,4-DB)	gal.	21.84	0.50	10.92	_____
Eptam 7E	gal.	20.50	0.50	10.25	_____
INSECTICIDES					
Cygon 400	gal.	25.07	0.07	1.63	_____
Malathion 5E	gal.	16.23	0.25	4.06	_____
OTHER					
Soil test results	acre	0.75	1.00	0.75	_____
SEED					
Alfalfa seed	lb.	3.00	18.00	54.00	_____
OPERATOR LABOR					
Tractors	hour	5.00	4.10	20.50	_____
Additional labor	hour	5.00	0.18	0.58	_____
HAND LABOR					
Additional labor	hour	5.00	1.50	7.50	_____
DIESEL FUEL					
Tractors	gal.	0.87	13.26	11.52	_____
REPAIR & MAINTENANCE					
Tractors	acre	13.93	1.00	13.93	_____
Implements	acre	7.91	1.00	7.91	_____
UNALLOCATED LABOR	hour	5.00	4.28	21.08	_____
INT. ON OPERATING CAP.	acre	10.62	1.00	10.62	_____
TOTAL DIRECT EXPENSES				262.76	_____
RETURNS ABOVE DIRECT EXPENSES				7.24	_____
FIXED EXPENSES					
Tractors	acre	23.97	1.00	23.97	_____
Implements	acre	15.87	1.00	15.87	_____
TOTAL FIXED EXPENSES				39.83	_____
TOTAL SPECIFIED EXPENSES				302.60	_____
RETURNS ABOVE SPECIFIED EXPENSES				-32.60	_____
RESIDUALS					
MANAGEMENT CHARGE				13.50	_____
RESIDUAL RETURNS				-46.10	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				-106.10	_____

TABLE 115. ALFALFA ESTABLISHMENT BUDGET
 Summary of estimated costs and returns per acre,
 (Minimum tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Alfalfa	ton	90.00	3.00	270.00	_____
TOTAL INCOME				270.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.50	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	20.00	4.80	_____
P2O5	lb.	0.25	70.00	17.50	_____
K2O	lb.	0.14	230.00	32.20	_____
HERBICIDES					
Butyrac 200 (2,4-DB)	gal.	21.84	0.50	10.92	_____
Eptam 7E	gal.	20.50	0.50	10.25	_____
INSECTICIDES					
Cygon 400	gal.	25.07	0.07	1.63	_____
Malathion 5E	gal.	16.23	0.25	4.06	_____
OTHER					
Soil test results	acre	0.75	1.00	0.75	_____
SEED					
Alfalfa seed	lb.	3.00	18.00	54.00	_____
OPERATOR LABOR					
Tractors	hour	5.00	4.40	22.00	_____
Additional labor	hour	5.00	0.18	0.58	_____
HAND LABOR					
Additional labor	hour	5.00	2.25	11.25	_____
DIESEL FUEL					
Tractors	gal.	0.87	13.99	12.15	_____
REPAIR & MAINTENANCE					
Tractors	acre	14.68	1.00	14.68	_____
Implements	acre	7.43	1.00	7.43	_____
UNALLOCATED LABOR	hour	5.00	4.52	22.59	_____
INT. ON OPERATING CAP.	acre	12.92	1.00	12.92	_____
TOTAL DIRECT EXPENSES				250.72	_____
RETURNS ABOVE DIRECT EXPENSES				19.28	_____
FIXED EXPENSES					
Tractors	acre	25.26	1.00	25.26	_____
Implements	acre	15.00	1.00	15.00	_____
TOTAL FIXED EXPENSES				40.26	_____
TOTAL SPECIFIED EXPENSES				290.97	_____
RETURNS ABOVE SPECIFIED EXPENSES				-20.97	_____
RESIDUALS					
MANAGEMENT CHARGE				13.50	_____
RESIDUAL RETURNS				-34.47	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				-94.47	_____

TABLE 116. ALFALFA ESTABLISHMENT BUDGET
 Summary of estimated costs and returns per acre,
 (No-till tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Alfalfa	ton	90.00	3.00	270.00	_____
TOTAL INCOME				270.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	0.50	11.00	_____
FERTILIZER					
P2O5	lb.	0.25	70.00	17.50	_____
K2O	lb.	0.14	230.00	32.20	_____
HERBICIDES					
Butyrac 200 (2,4-DB)	gal.	21.84	0.50	10.92	_____
Gramoxone Super	gal.	35.00	0.50	17.50	_____
INSECTICIDES					
Cygon 400	gal.	25.07	0.07	1.63	_____
Malathion 5E	gal.	16.23	0.25	4.06	_____
OTHER					
Soil test results	acre	0.75	1.00	0.75	_____
SEED					
Alfalfa seed	lb.	3.00	16.00	48.00	_____
OPERATOR LABOR					
Tractors	hour	5.00	3.59	17.95	_____
Additional labor	hour	5.00	0.12	0.58	_____
HAND LABOR					
Additional labor	hour	5.00	2.25	11.25	_____
DIESEL FUEL					
Tractors	gal.	0.87	10.77	9.36	_____
REPAIR & MAINTENANCE					
Tractors	acre	11.34	1.00	11.34	_____
Implements	acre	6.61	1.00	6.61	_____
UNALLOCATED LABOR	hour	5.00	3.71	18.54	_____
INT. ON OPERATING CAP.	acre	11.53	1.00	11.53	_____
TOTAL DIRECT EXPENSES				230.71	_____
RETURNS ABOVE DIRECT EXPENSES				39.29	_____
FIXED EXPENSES					
Tractors	acre	19.50	1.00	19.50	_____
Implements	acre	13.22	1.00	13.22	_____
TOTAL FIXED EXPENSES				32.72	_____
TOTAL SPECIFIED EXPENSES				263.43	_____
RETURNS ABOVE SPECIFIED EXPENSES				6.57	_____
RESIDUALS					
MANAGEMENT CHARGE				13.50	_____
RESIDUAL RETURNS				-6.93	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				-66.93	_____

TABLE 117. ESTABLISHED ALFALFA STAND
 Summary of estimated costs and returns per acre,
 6 Tons per acre Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Haylage	ton	40.00	3.50	140.00	_____
Alfalfa	ton	90.00	4.25	382.50	_____
TOTAL INCOME				522.50	_____
DIRECT EXPENSES					
FERTILIZER					
P2O5	lb.	0.25	85.00	21.25	_____
K2O	lb.	0.14	290.00	40.60	_____
HERBICIDES					
Butyrac 200 (2,4-DB)	gal.	21.84	0.50	10.92	_____
INSECTICIDES					
Cygon 400	gal.	25.07	0.07	1.63	_____
Malathion 5E	gal.	16.23	0.25	4.06	_____
OPERATOR LABOR					
Tractors	hour	5.00	6.18	30.92	_____
Additional labor	hour	5.00	0.08	0.39	_____
HAND LABOR					
Additional labor	hour	5.00	3.00	15.00	_____
DIESEL FUEL					
Tractors	gal.	0.87	17.97	15.62	_____
REPAIR & MAINTENANCE					
Tractors	acre	18.93	1.00	18.93	_____
Implements	acre	12.73	1.00	12.73	_____
UNALLOCATED LABOR	hour	5.00	6.26	31.31	_____
INT. ON OPERATING CAP.	acre	1.36	1.00	1.36	_____
TOTAL DIRECT EXPENSES				204.70	_____
RETURNS ABOVE DIRECT EXPENSES				317.80	_____
FIXED EXPENSES					
Tractors	acre	32.56	1.000	32.56	_____
Implements	acre	23.45	1.000	23.45	_____
TOTAL FIXED EXPENSES				56.01	_____
TOTAL SPECIFIED EXPENSES				260.72	_____
RETURNS ABOVE SPECIFIED EXPENSES				261.78	_____
RESIDUALS					
MANAGEMENT CHARGE				26.13	_____
RESIDUAL RETURNS				235.66	_____
CASH RENT				60.00	_____
RESIDUAL RETURNS				175.66	_____

TABLE 118. TIMOTHY ESTABLISHMENT BUDGET
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Timothy	ton	80.00	1.50	120.00	_____
TOTAL INCOME				120.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	1.50	33.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	40.00	9.60	_____
P2O5	lb.	0.25	85.00	21.25	_____
K2O	lb.	0.14	175.00	24.50	_____
OTHER					
Soil test results	acre	0.75	1.00	0.75	_____
SEED					
Timothy seed	lb.	1.22	8.00	9.76	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.31	11.55	_____
HAND LABOR					
Additional labor	hour	5.00	0.75	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	7.78	6.76	_____
REPAIR & MAINTENANCE					
Tractors	acre	8.19	1.00	8.19	_____
Implements	acre	4.81	1.00	4.81	_____
UNALLOCATED LABOR	hour	5.00	2.31	11.55	_____
INT. ON OPERATING CAP.	acre	7.11	1.00	7.11	_____
TOTAL DIRECT EXPENSES				152.58	_____
RETURNS ABOVE DIRECT EXPENSES				-32.58	_____
FIXED EXPENSES					
Tractors	acre	14.08	1.00	14.08	_____
Implements	acre	9.80	1.00	9.80	_____
TOTAL FIXED EXPENSES				23.88	_____
TOTAL SPECIFIED EXPENSES				176.45	_____
RETURNS ABOVE SPECIFIED EXPENSES				-56.45	_____
RESIDUALS					
MANAGEMENT CHARGE				6.00	_____
RESIDUAL RETURNS				-62.45	_____
RENT GRASS HAY LAND				35.00	_____
RESIDUAL RETURNS				-97.45	_____

TABLE 119. ORCHARD GRASS ESTABLISHMENT
 Summary of estimated costs and returns per acre,
 (Conventional tillage practices) Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Orchard Grass	ton	65.00	1.50	97.50	_____
TOTAL INCOME				97.50	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	22.00	1.50	33.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	40.00	9.60	_____
P2O5	lb.	0.25	85.00	21.25	_____
K2O	lb.	0.14	175.00	24.50	_____
OTHER					
Soil test results	acre	0.75	1.00	0.75	_____
SEED					
Orchard Grass seed	lb.	1.32	10.00	13.20	_____
OPERATOR LABOR					
Tractors	hour	5.00	2.31	11.55	_____
HAND LABOR					
Additional labor	hour	5.00	0.75	3.75	_____
DIESEL FUEL					
Tractors	gal.	0.87	7.78	6.76	_____
REPAIR & MAINTENANCE					
Tractors	acre	8.19	1.00	8.19	_____
Implements	acre	4.81	1.00	4.81	_____
UNALLOCATED LABOR	hour	5.00	2.31	11.55	_____
INT. ON OPERATING CAP.	acre	8.16	1.00	8.16	_____
TOTAL DIRECT EXPENSES				157.07	_____
RETURNS ABOVE DIRECT EXPENSES				-59.57	_____
FIXED EXPENSES					
Tractors	acre	14.08	1.00	14.08	_____
Implements	acre	9.80	1.00	9.80	_____
TOTAL FIXED EXPENSES				23.88	_____
TOTAL SPECIFIED EXPENSES				180.95	_____
RETURNS ABOVE SPECIFIED EXPENSES				-83.45	_____
RESIDUALS					
MANAGEMENT CHARGE				4.88	_____
RESIDUAL RETURNS				-88.32	_____
RENT GRASS HAY LAND				35.00	_____
RESIDUAL RETURNS				-123.32	_____

TABLE 120. ESTABLISH TIMOTHY STAND
 Summary of estimated costs and returns per acre,
 3.5 Tons per acre Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
				DOLLARS	DOLLARS
INCOME					
Timothy	ton	80.00	3.50	280.00	_____
TOTAL INCOME				280.00	_____
DIRECT EXPENSES					
FERTILIZER					
Nitrogen	lb.	0.24	150.00	36.00	_____
P2O5	lb.	0.25	60.00	15.00	_____
K2O	lb.	0.14	180.00	25.20	_____
OPERATOR LABOR					
Tractors	hour	5.00	4.91	24.55	_____
HAND LABOR					
Additional labor	hour	5.00	3.00	15.00	_____
DIESEL FUEL					
Tractors	gal.	0.87	13.61	11.83	_____
REPAIR & MAINTENANCE					
Tractors	acre	14.34	1.00	14.34	_____
Implements	acre	9.26	1.00	9.26	_____
UNALLOCATED LABOR	hour	5.00	4.91	24.55	_____
INT. ON OPERATING CAP.	acre	6.93	1.00	6.93	_____
TOTAL DIRECT EXPENSES				182.64	_____
RETURNS ABOVE DIRECT EXPENSES				97.36	_____
FIXED EXPENSES					
Tractors	acre	24.67	1.00	24.67	_____
Implements	acre	17.65	1.00	17.65	_____
TOTAL FIXED EXPENSES				42.32	_____
TOTAL SPECIFIED EXPENSES				224.96	_____
RETURNS ABOVE SPECIFIED EXPENSES				55.04	_____
RESIDUALS					
MANAGEMENT CHARGE				14.00	_____
RESIDUAL RETURNS				41.04	_____
RENT GRASS HAY LAND				35.00	_____
RESIDUAL RETURNS				6.04	_____

TABLE 121. ESTABLISHED ORCHARD GRASS STAND
 Summary of estimated costs and returns per acre,
 4.5 Tons per acre Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Orchard Grass	ton	64.00	4.50	292.00	
TOTAL INCOME				292.50	
DIRECT EXPENSES					
FERTILIZER					
Nitrogen	lb.	0.24	150.00	36.00	
P2O5	lb.	0.25	60.00	15.00	
K2O	lb.	0.14	180.00	25.20	
OPERATOR LABOR					
Tractors	hour	5.00	4.91	24.55	
HAND LABOR					
Additional labor	hour	5.00	3.00	15.00	
DIESEL FUEL					
Tractors	gal.	0.87	13.61	11.83	
REPAIR & MAINTENANCE					
Tractors	acre	14.34	1.00	14.34	
Implements	acre	9.26	1.00	9.26	
UNALLOCATED LABOR	hour	5.00	4.91	24.55	
INT. ON OPERATING CAP.	acre	6.93	1.00	6.93	
TOTAL DIRECT EXPENSES				182.64	
RETURNS ABOVE DIRECT EXPENSES				109.86	
FIXED EXPENSES					
Tractors	acre	24.67	1.00	24.67	
Implements	acre	17.65	1.00	17.65	
TOTAL FIXED EXPENSES				42.32	
TOTAL SPECIFIED EXPENSES				224.96	
RETURNS ABOVE SPECIFIED EXPENSES				67.54	
RESIDUALS					
MANAGEMENT CHARGE				14.63	
RESIDUAL RETURNS				52.91	
RENT GRASS HAY LAND				35.00	
RESIDUAL RETURNS				17.91	

TABLE 122. FRESH SWEET CORN BUDGET
 Summary of estimated costs and returns per acre,
 Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Sweet Corn	doz.	0.00	1250.00	0.00	_____
TOTAL INCOME				0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	1.50	30.00	_____
Apply fert & cult	acre	9.00	1.00	9.00	_____
Cultivating	acre	7.60	2.00	15.20	_____
Spread side-dress	acre	5.40	1.00	5.40	_____
FERTILIZER					
K2O	lb.	0.14	60.00	8.40	_____
Nitrogen	lb.	0.23	30.00	6.90	_____
P2O5	lb.	0.22	60.00	13.20	_____
HERBICIDES					
Atrazine 80W	lb.	1.93	2.00	3.86	_____
Dual 8E	gal.	49.20	0.37	18.20	_____
INSECTICIDES					
Furadan 15-G	lb.	1.37	1.00	1.37	_____
Lannate L 90%SP	lb.	16.28	3.00	48.84	_____
Sevin 50W	lb.	2.07	12.00	24.84	_____
SEED					
Sweet corn seed	lb.	5.00	1.00	5.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	1.34	9.38	_____
Additional labor	hour	7.00	0.14	0.97	_____
DIESEL FUEL					
Tractors	gal.	0.78	5.16	4.02	_____
REPAIR & MAINTENANCE					
Tractors	acre	4.60	1.00	4.60	_____
Implements	acre	4.54	1.00	4.54	_____
UNALLOCATED LABOR	hour	7.00	1.92	13.45	_____
INT. ON OPERATING CAP.	acre	12.26	1.00	12.26	_____
TOTAL DIRECT EXPENSES				239.42	_____
RETURNS ABOVE DIRECT EXPENSES				-239.42	_____
FIXED EXPENSES					
Tractors	acre	10.30	1.00	10.30	_____
Implements	acre	13.99	1.00	13.99	_____
TOTAL FIXED EXPENSES				24.29	_____
TOTAL SPECIFIED EXPENSES				263.71	_____
RETURNS ABOVE SPECIFIED EXPENSES				-263.71	_____

TABLE 123. FRESH MARKET BELL PEPPERS (YELLOW OR RED)
Irrigation and plastic mulch utilized Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Bell Peppers	ctn.	0.00	1500.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	2.00	40.00	_____
Lay plastic mulch	acre	30.00	1.00	30.00	_____
Planting	acre	9.60	1.00	9.60	_____
Spread side-dress	acre	5.40	1.00	5.40	_____
Transplant labor	hour	5.00	9.00	45.00	_____
FERTILIZER					
K2O	lb.	0.14	150.00	21.00	_____
Nitrogen	lb.	0.23	75.00	17.25	_____
P2O5	lb.	0.22	150.00	33.00	_____
Starter 12-48-8	lb.	0.92	18.00	16.56	_____
FUNGICIDES					
Agri-strep Type D	lb.	7.80	1.00	7.80	_____
Kocide 606	gal.	11.52	4.00	46.08	_____
Manzate 200	lb.	1.76	10.00	17.60	_____
HERBICIDES					
Devrinol 50WP	lb.	6.88	3.00	20.64	_____
INSECTICIDES					
Asana	gal.	262.65	0.07	18.12	_____
Diazinon AG-500	gal.	24.90	0.75	18.67	_____
Kelthane 35	lb.	5.06	2.00	10.12	_____
Orthene 75S	lb.	7.10	5.00	35.50	_____
OTHER					
Black smooth mulch	each	50.00	5.81	290.50	_____
Pepper transplants	thsd.	60.00	18.00	1080.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.56	17.89	_____
Additional labor	hour	7.00	0.56	3.93	_____
IRRIGATION LABOR					
Trickle irrigation	hour	5.00	15.00	75.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	6.46	5.01	_____
ELECTRICITY					
Trickle irrigation	kwh	0.07	90.00	6.30	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.08	1.00	6.08	_____
Implements	acre	7.08	1.00	7.08	_____
Trickle irrigation	acre	425.00	1.00	425.00	_____
UNALLOCATED LABOR	hour	7.00	4.053	28.37	_____
INT. ON OPERATING CAP.	acre	122.63	1.00	122.63	_____
TOTAL DIRECT EXPENSES				2460.14	_____
RETURNS ABOVE DIRECT EXPENSES				-2460.14	_____
FIXED EXPENSES					
Tractors	acre	15.19	1.00	15.19	_____
Implements	acre	24.14	1.00	24.14	_____
Trickle irrigation	acre	68.00	1.00	68.00	_____
TOTAL FIXED EXPENSES				107.33	_____
TOTAL SPECIFIED EXPENSES				2567.47	_____
RETURNS ABOVE SPECIFIED EXPENSES				-2567.47	_____

TABLE 124. FRESH MARKET BELL Starter (YELLOW OR RED)
Without the utilization of irrigation or plastic mulch Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FAR
INCOME		DOLLARS		DOLLARS	
Bell Peppers	ctn.	0.00	650.00	0.00	
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	2.00	40.00	
Planting	acre	9.60	1.00	9.60	
Spread side-dress	acre	5.40	1.00	5.40	
Transplant labor	hour	5.00	9.00	45.00	
FERTILIZER					
K2O	lb.	0.14	150.00	21.00	
Nitrogen	lb.	0.23	75.00	17.25	
P2O5	lb.	0.22	150.00	33.00	
Starter 12-48-8	lb.	0.92	18.00	16.56	
FUNGICIDES					
Agri-strep type D	lb.	7.80	1.00	7.80	
Kocide 606	gal.	11.52	4.00	46.08	
Manzate 200	lb.	1.76	10.00	17.60	
HERBICIDES					
Devrinol 50WP	lb.	6.88	3.00	20.64	
INSECTICIDES					
Asana	gal.	262.65	0.07	18.12	
Diazinon AG-500	gal.	24.90	0.75	18.67	
Kelthane 35	lb.	5.06	2.00	10.12	
Orthene 75S	lb.	7.10	5.00	35.50	
OTHER					
Pepper transplants	thsd	60.00	18.00	1080.00	
OPERATOR LABOR					
Tractors	hour	7.00	2.56	17.89	
Additional labor	hour	7.00	0.56	3.93	
DIESEL FUEL					
Tractors	gal.	0.78	6.44	5.01	
REPAIR & MAINTENANCE					
Tractors	acre	6.08	1.00	6.08	
Implements	acre	7.08	1.00	7.08	
UNALLOCATED LABOR	hour	7.00	4.05	28.37	
INT. ON OPERATING CAP.	acre	76.22	1.00	76.22	
TOTAL DIRECT EXPENSES				1586.93	
RETURNS ABOVE DIRECT EXPENSES				-1586.93	
FIXED EXPENSES					
Tractors	acre	15.19	1.00	15.19	
Implements	acre	24.14	1.00	24.14	
TOTAL FIXED EXPENSES				39.33	
TOTAL SPECIFIED EXPENSES				1626.27	
RETURNS ABOVE SPECIFIED EXPENSES				-1626.27	

TABLE 125. POTATO BUDGET (TABLESTOCK & CHIPPING)
 Summary of estimated costs and returns per acre,
 PENNSYLVANIA 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
POTATOES	cwt.	5.75	250.000	1437.50	_____
TOTAL INCOME				1437.50	_____
DIRECT EXPENSES					
CUSTOM					
Apply calcium lime	ton	22.00	0.500	11.00	_____
FERTILIZER					
Nitrogen	lb.	0.24	170.000	40.80	_____
P205	lb.	0.25	100.000	25.00	_____
K20	lb.	0.14	250.000	35.00	_____
FUNGICIDES					
Manzate 200	lb.	2.26	10.002	22.60	_____
Ridomil 2E	gallon	129.68	0.240	31.12	_____
HERBICIDES					
Dual 8E	gallon	50.61	0.167	8.45	_____
Roundup	gallon	77.92	0.375	29.22	_____
Sencor 4F	gallon	107.50	0.090	9.68	_____
Diquat	gallon	60.98	0.250	15.24	_____
INSECTICIDES					
Dyfonate 4E	gallon	1.32	24.000	31.68	_____
Thiodan 50W	lb.	4.68	2.500	11.70	_____
Vydate 2L	gallon	46.04	0.400	18.42	_____
Monitor 4E	gallon	54.07	0.252	13.63	_____
SEED					
Potato seed	cwt.	14.00	20.000	280.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	5.254	36.78	_____
Additional labor	hour	7.00	12.559	87.91	_____
DIESEL FUEL					
Tractors	gallon	0.87	24.956	21.69	_____
REPAIR & MAINTENANCE					
Tractors	acre	21.47	1.000	21.47	_____
Implements	acre	36.60	1.000	36.60	_____
UNALLOCATED LABOR	hour	7.00	17.813	124.69	_____
INTEREST ON OP. CAP.	acre	47.91	1.000	47.91	_____
TOTAL DIRECT EXPENSES				1034.31	_____
RETURNS ABOVE DIRECT EXPENSES				403.19	_____
FIXED EXPENSES					
Tractors	acre	39.50	1.000	39.50	_____
Implements	acre	72.10	1.000	72.10	_____
TOTAL FIXED EXPENSES				111.60	_____
TOTAL SPECIFIED EXPENSES				1145.91	_____
RETURNS ABOVE SPECIFIED EXPENSES				291.59	_____

RESIDUALS		
OVERHEAD	0.00	_____
RESIDUAL RETURNS	291.59	_____
MANAGEMENT CHARGE	71.88	_____
RESIDUAL RETURNS	219.71	_____
CASH RENT	60.88	_____
RESIDUAL RETURNS	159.71	_____

TABLE 126. FRESH MARKET CANTALOUPE BUDGET
Irrigation and plastic mulch utilized Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Cantaloupe	fruit	0.00	18150.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	2.00	40.00	_____
Labor	hr	4.25	5.00	21.25	_____
LAY PLASTIC mulch	acre	30.00	1.00	30.00	_____
Plant & fertilize	acre	11.70	1.00	11.70	_____
Transplant labor	hour	5.00	10.00	50.00	_____
FERTILIZER					
K2O	lb.	0.14	100.00	14.00	_____
Nitrogen	lb.	0.23	75.00	17.25	_____
P2O5	lb.	0.22	200.00	44.00	_____
Starter 12-48-8	lb.	0.92	18.00	16.56	_____
FUNGICIDES					
Bayleton	lb.	34.00	0.25	8.50	_____
Benlate 50WP	lb.	12.50	1.00	12.50	_____
Bravo 720	gal.	35.60	2.00	71.20	_____
Ridomil MZ58	lb.	7.55	4.00	30.20	_____
HERBICIDES					
Alanap 3 22%	gal.	12.71	1.50	19.07	_____
Prefar 4E	gal.	28.22	1.00	28.22	_____
INSECTICIDES					
Furadan 4F	gal.	47.93	5.44	260.74	_____
Kelthane 35	lb.	5.06	1.30	6.58	_____
Methoxychlor 50W	lb.	3.41	3.50	11.94	_____
Sevin 50W	lb.	2.07	8.00	16.56	_____
Thiodan 50W	lb.	4.68	4.00	18.72	_____
OTHER					
Black smooth mulch	each	50.00	4.00	200.00	_____
Jiffy 7'S	case	46.05	4.00	184.20	_____
SEED					
Cantaloupe seed	lb.	115.00	0.50	57.50	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.81	19.65	_____
Additional labor	hour	7.00	0.70	4.91	_____
IRRIGATION LABOR					
Trickle irrigation	hour	5.00	15.00	75.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	6.78	5.28	_____
ELECTRICITY					
Trickle irrigation	kwh	0.07	90.00	6.30	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.52	1.00	6.52	_____
Implements	acre	7.86	1.00	7.86	_____
Trickle irrigation	acre	425.00	1.00	425.00	_____
UNALLOCATED LABOR	hour	7.00	4.56	31.93	_____
INT. ON OPERATING CAP.	acre	89.68	1.00	89.68	_____

TOTAL DIRECT EXPENSES				1842.82	_____
RETURNS ABOVE DIRECT EXPENSES				-1842.82	_____
FIXED EXPENSES					
Tractors	acre	16.30	1.00	16.30	_____
Implements	acre	26.44	1.00	26.44	_____
Trickle irrigation	acre	68.00	1.00	68.00	_____

TOTAL FIXED EXPENSES				110.75	_____
TOTAL SPECIFIED EXPENSES				1953.57	_____
RETURNS ABOVE SPECIFIED EXPENSES				-1953.57	_____

TABLE 127. FRESH MARKET CANTALOUPE BUDGET
 Without the utilization of irrigation or plastic mulch Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Cantaloupe	fruit	0.00	6000.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	2.00	40.00	_____
Labor	hour	4.25	5.00	21.25	_____
Plant & fertilize	acre	11.70	1.00	11.70	_____
Transplant labor	hour	5.00	10.00	50.00	_____
FERTILIZER					
K2O	lb.	0.14	100.00	14.00	_____
Nitrogen	lb.	0.23	75.00	17.25	_____
P2O5	lb.	0.22	200.00	44.00	_____
Starter 12-48-8	lb.	0.92	18.00	16.56	_____
FUNGICIDES					
Bayleton	lb.	34.00	0.25	8.50	_____
Benlate 50WP	lb.	12.50	1.00	12.50	_____
Bravo 720	gal.	35.60	2.00	71.20	_____
Ridomil MZ58	lb.	7.55	4.00	30.20	_____
HERBICIDES					
Alanap 3 22%	gal.	12.71	1.50	19.07	_____
Prefar 4E	gal.	28.22	1.00	28.22	_____
INSECTICIDES					
Furadan 4F	gal.	47.93	5.44	260.74	_____
Kelthane 35	lb.	5.06	1.30	6.58	_____
Methoxychlor 50W	lb.	3.41	3.50	11.94	_____
Sevin 50W	lb.	2.07	8.00	16.56	_____
Thiodan 50W	lb.	4.68	4.00	18.72	_____
OTHER					
Jiffy 7's	case	46.05	4.00	184.20	_____
SEED					
Cantaloupe seed	lb.	115.00	0.50	57.50	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.81	19.65	_____
Additional labor	hour	7.00	0.70	4.91	_____
DIESEL FUEL					
Tractors	gal.	0.78	6.783	5.28	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.52	1.00	6.52	_____
Implements	acre	7.86	1.00	7.86	_____
UNALLOCATED LABOR					
hour	hour	7.00	4.56	31.93	_____
INT. ON OPERATING CAP.					
acre	acre	52.87	1.00	52.87	_____
TOTAL DIRECT EXPENSES				1069.70	_____
RETURNS ABOVE DIRECT EXPENSES				-1069.70	_____
FIXED EXPENSES					
Tractors	acre	16.30	1.00	16.30	_____
Implements	acre	26.44	1.00	26.44	_____
TOTAL FIXED EXPENSES				42.75	_____
TOTAL SPECIFIED EXPENSES				1112.45	_____
RETURNS ABOVE SPECIFIED EXPENSES				-1112.45	_____

TABLE 128. FRESH MARKET PINK RIPE TOMATO BUDGET
Field Grown Pennsylvania 199

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Pink Ripe Tomato	lb.	0.00	36000.00	0.00	_____
TOTAL INCOME				0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	2.00	40.00	_____
Plant & fertilize	acre	11.70	1.00	11.70	_____
Tandem disking	acre	8.50	1.00	8.50	_____
Transplant labor	hour	5.00	9.00	45.00	_____
FERTILIZER					
K20	lb.	0.14	50.00	7.00	_____
Nitrogen	lb.	0.23	60.00	13.80	_____
P205	lb.	0.22	120.00	26.40	_____
Starter 12-48-8	lb.	0.92	12.00	11.04	_____
FUNGICIDES					
Bravo 720	gal.	35.60	6.00	213.60	_____
Kocide 101	lb.	1.80	8.00	14.40	_____
Manzate 200	lb.	1.76	48.00	84.48	_____
HERBICIDES					
Devrinol 50WP	lb.	6.88	3.00	20.64	_____
Sencor 75DF	lb.	19.56	0.66	12.91	_____
INSECTICIDES					
Pydrin 2.4EC	gal.	105.37	0.24	25.29	_____
Vydate 2L	gal.	46.04	0.50	23.02	_____
OTHER					
Tomato transplants	thsd	40.00	6.00	240.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.183	15.28	_____
Additional labor	hour	7.00	0.515	3.60	_____
DIESEL FUEL					
Tractors	gal.	0.78	5.379	4.19	_____
REPAIR & MAINTENANCE					
Tractors	acre	5.13	1.00	5.13	_____
Implements	acre	5.45	1.00	5.45	_____
UNALLOCATED LABOR					
INT. ON OPERATING CAP.	acre	50.35	1.00	50.35	_____
TOTAL DIRECT EXPENSES				906.33	_____
RETURNS ABOVE DIRECT EXPENSES				-906.33	_____
FIXED EXPENSES					
Tractors	acre	12.82	1.00	12.82	_____
Implements	acre	17.15	1.00	17.15	_____
TOTAL FIXED EXPENSES				29.97	_____
TOTAL SPECIFIED EXPENSES				936.29	_____
RETURNS ABOVE SPECIFIED EXPENSES				-936.29	_____

TABLE 129. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
Year of soil preparation Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		DOLLARS		DOLLARS	
INCOME					
Delicious Apples	bu.	0.00	0.00	0.00	_____
TOTAL INCOME				0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	1.50	30.00	_____
Grain drilling	acre	8.40	1.00	8.40	_____
Labor	hour	4.25	8.50	36.13	_____
Subsoiling	acre	20.00	1.00	20.00	_____
Fumigation	acre	1200.00	1.00	1200.00	_____
FERTILIZER					
Ammonium nitrate	lb.	0.09	45.00	4.05	_____
SEED					
Grass seed	lb.	0.50	30.00	15.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	0.68	4.79	_____
HAND LABOR					
Additional labor	hour	7.00	2.00	14.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	2.22	1.73	_____
REPAIR & MAINTENANCE					
Tractors	acre	1.89	1.00	1.89	_____
Implements	acre	4.28	1.00	4.28	_____
UNALLOCATED LABOR					
	hour	7.00	0.89	6.22	_____
INT. ON OPERATING CAP.					
	acre	41.28	1.00	41.28	_____
TOTAL DIRECT EXPENSES				1387.78	_____
RETURNS ABOVE DIRECT EXPENSES				-1387.78	_____
FIXED EXPENSES					
Tractors	acre	4.74	1.00	4.74	_____
Implements	acre	17.58	1.00	17.58	_____
TOTAL FIXED EXPENSES				22.31	_____
TOTAL SPECIFIED EXPENSES				1410.09	_____
RETURNS ABOVE SPECIFIED EXPENSES				-1410.09	_____

TABLE 130. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
Year of planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Delicious Apples	bu.	0.00	0.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	1.00	4.70	_____
Labor	hour	4.25	221.00	939.25	_____
FUNGICIDES					
Cyprex 65W	lb.	5.12	0.74	3.79	_____
HERBICIDES					
Gramoxone Super	gal.	35.50	0.38	13.31	_____
Surflan green	gal.	56.80	0.50	28.40	_____
INSECTICIDES					
Thiodan 50W	lb.	4.68	3.00	14.04	_____
Carzol SP	lb.	25.58	0.50	12.79	_____
OTHER					
Ivory soap	acre	50.00	1.00	50.00	_____
Pruning shears	each	10.45	2.00	20.90	_____
Tree guards	tree	0.15	267.00	40.05	_____
Trellis wire	ft.	0.02	14112.00	282.24	_____
Trellis posts	post	3.57	112.00	399.84	_____
Trellis anchors	acre	14.00	2.00	28.00	_____
Auger	day	30.00	1.00	30.00	_____
Tree planter	day	40.00	5.80	232.00	_____
Mouse bait	acre	3.30	1.00	3.30	_____
SEED					
Apple trees	each	4.00	267.00	1068.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.05	14.34	_____
Additional labor	hour	7.00	0.27	1.92	_____
IRRIGATION LABOR					
Trickle irrigation	hour	5.00	15.00	75.00	_____
Orchard irrigation	hour	5.00	25.00	125.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	5.18	4.03	_____
ELECTRICITY					
Trickle irrigation	kwh	0.07	90.00	6.30	_____
REPAIR & MAINTENANCE					
Tractors	acre	4.54	1.00	4.54	_____
Implements	acre	9.57	1.00	9.57	_____
Trickle irrigation	acre	425.00	1.00	425.00	_____
Orchard irrigation	acre	13.80	1.00	13.80	_____
UNALLOCATED LABOR	hour	7.00	3.02	21.14	_____
INT. ON OPERATING CAP.	acre	237.03	1.00	237.03	_____
TOTAL DIRECT EXPENSES				4108.28	_____
RETURNS ABOVE DIRECT EXPENSES				-4108.28	_____
FIXED EXPENSES					
Tractors	acre	10.30	1.00	10.30	_____
Implements	acre	28.43	1.00	28.43	_____
Trickle irrigation	acre	68.00	1.00	68.00	_____
TOTAL FIXED EXPENSES				106.73	_____
TOTAL SPECIFIED EXPENSES				4215.01	_____
RETURNS ABOVE SPECIFIED EXPENSES				-4215.01	_____

TABLE 131. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 First year after planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	1.00	4.70	_____
Labor	hour	4.25	16.16	68.53	_____
FERTILIZER					
Ammonium nitrate	lb.	0.09	45.40	4.09	_____
FUNGICIDES					
Cyprex 65W	lb.	5.12	4.00	20.48	_____
HERBICIDES					
Gramoxone Super	gal.	35.50	0.38	13.31	_____
INSECTICIDES					
Thiodan 50W	lb.	4.68	6.00	28.08	_____
Carzol SP	lb.	25.58	0.50	12.79	_____
OTHER					
Ivory soap	acre	50.00	0.30	15.00	_____
Pruning shears	each	10.45	1.00	10.45	_____
Mouse bait	acre	3.30	1.00	3.30	_____
SEED					
Apple trees	each	4.00	4.00	16.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.58	18.06	_____
Additional labor	hour	7.00	0.32	2.23	_____
IRRIGATION LABOR					
Orchard irrigation	hour	5.00	25.00	125.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	6.56	5.11	_____
REPAIR & MAINTENANCE					
Tractors	acre	5.71	1.00	5.71	_____
Implements	acre	11.67	1.00	11.67	_____
Orchard irrigation	acre	13.80	1.00	13.80	_____
UNALLOCATED LABOR	hour	7.00	3.77	26.38	_____
INT. ON OPERATING CAP.	acre	20.98	1.00	20.98	_____
TOTAL DIRECT EXPENSES				425.68	_____
RETURNS ABOVE DIRECT EXPENSES				-425.68	_____
FIXED EXPENSES					
Tractors	acre	12.88	1.00	12.88	_____
Implements	acre	33.91	1.00	33.91	_____
TOTAL FIXED EXPENSES				46.79	_____
TOTAL SPECIFIED EXPENSES				472.47	_____
RETURNS ABOVE SPECIFIED EXPENSES				-472.47	_____

TABLE 132. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
Two years after planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Delicious Apples	bu.	0.00	0.00	0.00	_____
TOTAL INCOME				0.00	_____
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	2.00	9.40	_____
Labor	hour	4.25	24.75	105.19	_____
FERTILIZER					
Ammonium nitrate	lb.	0.09	121.00	10.89	_____
FUNGICIDES					
Cyprex 65W	lb.	5.12	1.25	6.40	_____
HERBICIDES					
Gramoxone Super	gal.	35.50	0.75	26.63	_____
Princep 80W	lb.	2.08	6.00	12.48	_____
Solicam DF	lb.	13.42	4.00	53.68	_____
INSECTICIDES					
Thiodan 50W	lb.	4.68	6.00	28.08	_____
Carzol SP	lb.	25.58	1.00	25.58	_____
OTHER					
Ivory soap	acre	50.00	1.00	50.00	_____
Pruning shears	each	10.45	1.00	10.45	_____
Mouse bait	acre	3.30	1.00	3.30	_____
OPERATOR LABOR					
Tractors	hour	7.00	3.11	21.78	_____
Additional labor	hour	7.00	0.32	2.23	_____
IRRIGATION LABOR					
Orchard irrigation	hour	5.00	25.00	125.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	7.950	6.19	_____
REPAIR & MAINTENANCE					
Tractors	acre	6.83	1.00	6.83	_____
Implements	acre	12.94	1.00	12.94	_____
Orchard irrigation	acre	13.80	1.00	13.80	_____
UNALLOCATED LABOR	hour	7.00	4.46	31.22	_____
INT. ON OPERATING CAP.	acre	29.66	1.00	29.66	_____
TOTAL DIRECT EXPENSES				591.74	_____
RETURNS ABOVE DIRECT EXPENSES				-591.74	_____
FIXED EXPENSES					
Tractors	acre	15.23	1.00	15.23	_____
Implements	acre	36.00	1.00	36.00	_____
TOTAL FIXED EXPENSES				51.22	_____
TOTAL SPECIFIED EXPENSES				642.96	_____
RETURNS ABOVE SPECIFIED EXPENSES				-642.96	_____

TABLE 133. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 First year of harvest Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Delicious Apples	bu.	0.00	9.00	0.00	
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	1.50	30.00	
Apply herbicide	acre	4.70	2.00	9.40	
Labor	hour	4.25	34.16	145.03	
FERTILIZER					
Ammonium nitrate	lb.	0.09	151.25	13.61	
FUNGICIDES					
Benlate 50WP	lb.	12.50	3.25	40.63	
Captan 50W	lb.	1.32	4.00	5.28	
Karathane	lb.	4.21	4.50	18.94	
Manzate 200	lb.	1.76	12.00	21.12	
Zineb	lb.	2.38	5.00	11.90	
HERBICIDES					
Gramoxone Super	gal.	35.50	0.75	26.63	
Princep 80W	lb.	2.08	6.00	12.48	
Sollicam DF	lb.	13.42	4.00	53.68	
INSECTICIDES					
Guthion 35W	lb.	3.74	1.50	5.61	
Lorsban 4E	gal.	33.94	0.25	8.48	
Lorsban 50WP	lb.	4.57	6.00	27.42	
Penncap M	gal.	18.32	0.50	9.16	
Pounce	gal.	141.27	0.04	5.65	
Carzol SP	lb.	25.58	1.50	38.37	
Polyram 8W	lb.	1.70	14.00	23.80	
Methomyl	gal.	39.90	0.86	34.91	
OTHER					
Ivory soap	acre	50.00	1.00	50.00	
Pruning shears	each	10.45	1.00	10.45	
Mouse bait	acre	3.30	1.00	3.30	
Superior oil	gal.	5.54	3.00	16.62	
OPERATOR LABOR					
Tractors	hour	7.00	3.42	23.91	
Additional labor	hour	7.00	0.41	2.87	
IRRIGATION LABOR					
Orchard irrigation	hour	5.00	25.00	125.00	
DIESEL FUEL					
Tractors	gal.	0.78	8.63	6.73	
REPAIR & MAINTENANCE					
Tractors	acre	7.51	1.00	7.51	
Implements	acre	15.12	1.00	15.12	
Orchard irrigation	acre	13.80	1.00	13.80	
UNALLOCATED LABOR	hour	7.00	4.97	34.82	
INT. ON OPERATING CAP.	acre	43.50	1.00	43.50	
TOTAL DIRECT EXPENSES				895.74	
RETURNS ABOVE DIRECT EXPENSES				-895.74	
FIXED EXPENSES					
Tractors	acre	16.93	1.00	16.93	
Implements	acre	44.00	1.00	44.00	
TOTAL FIXED EXPENSES				60.92	
TOTAL SPECIFIED EXPENSES				956.66	
RETURNS ABOVE SPECIFIED EXPENSES				-956.66	

TABLE 134. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
Second year of harvest Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	2.00	9.40	_____
Labor	hour	4.25	46.25	196.56	_____
FERTILIZER					
Ammonium nitrate	lb.	0.09	242.00	21.78	_____
FUNGICIDES					
Benlate 50WP	lb.	12.50	4.16	52.00	_____
Captan 50W	lb.	1.32	5.00	6.60	_____
Karathane	lb.	4.21	6.40	26.94	_____
Manzate 200	lb.	1.76	15.00	26.40	_____
Zineb	lb.	2.38	6.25	14.88	_____
HERBICIDES					
Gramoxone Super	gal.	35.50	0.75	26.63	_____
Princep 80W	lb.	2.08	6.00	12.48	_____
Solicam DF	lb.	13.42	4.00	53.68	_____
INSECTICIDES					
Guthion 35W	lb.	3.74	2.03	7.57	_____
Lorsban 4E	gal.	33.94	0.31	10.61	_____
Lorsban 50WP	lb.	4.57	9.45	43.19	_____
Penncap M	gal.	18.32	0.62	11.43	_____
Pounce	gal.	141.27	0.04	6.89	_____
Sevin 50W	lb.	2.07	1.50	3.11	_____
Carzol SP	lb.	25.58	2.06	51.80	_____
Polyram 8W	lb.	1.70	22.50	38.25	_____
Methomyl	gal.	39.90	1.25	49.80	_____
OTHER					
Ivory soap	acre	50.00	1.00	50.00	_____
Lopping shears (19)	each	27.85	1.00	27.85	_____
Pruning shears	each	10.45	1.00	10.45	_____
Solubor	lb.	0.61	4.00	2.44	_____
Mouse bait	acre	3.30	1.00	3.30	_____
Superior oil	gal.	5.54	4.00	22.16	_____
Calcium chloride	lb.	0.21	20.00	4.20	_____
OPERATOR LABOR					
Tractors	hour	7.00	4.18	29.25	_____
Additional labor	hour	7.00	0.55	3.83	_____
IRRIGATION LABOR					
Orchard irrigation	hour	5.00	25.00	125.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	10.35	8.06	_____
REPAIR & MAINTENANCE					
Tractors	acre	9.12	1.00	9.12	_____
Implements	acre	18.91	1.00	18.91	_____
Orchard irrigation	acre	13.80	1.00	13.80	_____
UNALLOCATED LABOR	hour	7.00	6.14	43.00	_____
INT. ON OPERATING CAP.	acre	49.18	1.00	49.18	_____
TOTAL DIRECT EXPENSES				1090.53	_____
RETURNS ABOVE DIRECT EXPENSES				-1090.53	_____
FIXED EXPENSES					
Tractors	acre	20.69	1.00	20.69	_____
Implements	acre	57.21	1.00	57.21	_____
TOTAL FIXED EXPENSES				77.91	_____
TOTAL SPECIFIED EXPENSES				1168.44	_____
RETURNS ABOVE SPECIFIED EXPENSES				-1168.44	_____

TABLE 135. SUMMER BEARING RED RASPBERRY BUDGET ON Trellis, PYO
Year of soil preparation Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
				DOLLARS	DOLLARS
INCOME					
Raspberry	lb.	0.00	0.00	0.00	_____
TOTAL INCOME				0.00	_____
DIRECT EXPENSES					
CUSTOM					
Appl calcium lime	ton	20.00	4.00	80.00	_____
Disk & harrow	acre	9.80	1.00	9.80	_____
Labor	hour	4.25	1.50	6.38	_____
Tandem disking	acre	8.50	1.00	8.50	_____
Fumigation	acre	1200.00	1.00	1200.00	_____
Apply fertilizer	acre	5.00	1.00	5.00	_____
FERTILIZER					
Sulpomag	ton	200.00	0.10	20.00	_____
Superphosphate	ton	215.00	0.13	26.88	_____
HERBICIDES					
Roundup	gal.	61.88	0.50	30.94	_____
OTHER					
Auger	day	30.00	1.00	30.00	_____
SEED					
Grass seed	lb.	0.50	25.00	12.50	_____
OPERATOR LABOR					
Tractors	hour	7.00	0.91	6.34	_____
Additional labor	hour	7.00	0.05	0.33	_____
DIESEL FUEL					
Tractors	gal.	0.78	1.54	1.20	_____
REPAIR & MAINTENANCE					
Tractors	acre	1.63	1.00	1.63	_____
Implements	acre	2.27	1.00	2.27	_____
UNALLOCATED LABOR	hour	7.00	1.24	8.67	_____
INT. ON OPERATING CAP.	acre	47.90	1.00	47.90	_____
TOTAL DIRECT EXPENSES				1498.33	_____
RETURNS ABOVE DIRECT EXPENSES				-1498.33	_____
FIXED EXPENSES					
Tractors	acre	3.69	1.00	3.69	_____
Implements	acre	5.50	1.00	5.50	_____
TOTAL FIXED EXPENSES				9.19	_____
TOTAL SPECIFIED EXPENSES				1507.52	_____
RETURNS ABOVE SPECIFIED EXPENSES				-1507.52	_____

TABLE 136. SUMMER BEARING RED RASPBERRIES ON TRELIS, PYO
Year of planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Raspberry	lb.	0.00	0.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	2.00	9.40	_____
Labor	hour	4.25	16.00	68.00	_____
Planting	acre	9.60	1.00	9.60	_____
Spread dry fert	acre	4.70	1.00	4.70	_____
Tandem disking	acre	8.50	1.00	8.50	_____
Transplant labor	hour	5.00	20.00	100.00	_____
FERTILIZER					
Nitrogen	lb.	0.23	30.00	6.90	_____
FUNGICIDES					
Ridomil 2E	gal.	129.68	0.50	64.84	_____
HERBICIDES					
Devrinol 50WP	lb.	6.88	5.00	34.40	_____
Princep 80W	lb.	2.08	2.00	4.16	_____
Surflan green	gal.	56.80	4.00	227.20	_____
INSECTICIDES					
Sevin 50W	lb.	2.07	4.00	8.28	_____
OTHER					
Raspberry plants	thsd.	580.00	3.00	1740.00	_____
Raspberry stakes	each	0.15	2500.00	375.00	_____
Raspberry wire	acre	125.00	1.00	125.00	_____
Hoe	each	12.00	2.00	24.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	1.75	12.23	_____
Additional labor	hour	7.00	0.14	0.96	_____
IRRIGATION LABOR					
Trickle irrigation	hour	5.00	15.00	75.00	_____
DIESEL FUEL					
Tractors	gal.	0.78	2.640	2.06	_____
ELECTRICITY					
Trickle irrigation	kwh	0.07	90.00	6.30	_____
REPAIR & MAINTENANCE					
Tractors	acre	3.05	1.00	3.05	_____
Implements	acre	6.84	1.00	6.84	_____
Trickle irrigation	acre	425.00	1.00	425.00	_____
UNALLOCATED LABOR	hour	7.00	2.45	17.14	_____
INT. ON OPERATING CAP.	acre	176.00	1.00	176.00	_____
TOTAL DIRECT EXPENSES				3534.55	_____
RETURNS ABOVE DIRECT EXPENSES				-3534.55	_____
FIXED EXPENSES					
Tractors	acre	7.06	1.00	7.06	_____
Implements	acre	19.23	1.00	19.23	_____
Trickle irrigation	acre	68.00	1.00	68.00	_____
TOTAL FIXED EXPENSES				94.29	_____
TOTAL SPECIFIED EXPENSES				3628.85	_____
RETURNS ABOVE SPECIFIED EXPENSES				-3628.85	_____

TABLE 137. SUMMER BEARING RED RASPBERRIES ON TRELIS, PYO
Year after planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Raspberry	lb.	0.00	500.00	0.00	
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	1.00	4.70	
Labor	hour	4.25	39.50	167.88	
Spread dry fert	acre	4.70	1.00	4.70	
Transplant labor	hour	5.00	2.00	10.00	
Apply fertilizer	acre	5.00	1.00	5.00	
FERTILIZER					
Nitrogen	lb.	0.23	30.00	6.90	
FUNGICIDES					
Benlate 50WP	lb.	12.50	3.00	37.50	
Captan 50W	lb.	1.32	16.00	21.12	
Ridomil 2E	gal.	129.68	1.00	129.68	
HERBICIDES					
Princep 80W	lb.	2.08	2.00	4.16	
Surflan green	gal.	56.80	5.00	284.00	
INSECTICIDES					
Malathion 25W	lb.	0.96	32.00	30.72	
OTHER					
Gypsum	gal.	8.80	10.00	88.00	
Pruning shears	each	10.45	2.00	20.90	
Raspberry plants	thsd	580.00	0.20	116.00	
Rasp. harvest exp.	acre	75.00	1.00	75.00	
Hoe	each	12.00	2.00	24.00	
Rasp. leaf test	acre	20.00	1.00	20.00	
OPERATOR LABOR					
Tractors	hour	7.00	2.41	16.86	
Additional labor	hour	7.00	0.41	2.87	
IRRIGATION LABOR					
Irrigation operation	hour	5.00	3.00	15.00	
DIESEL FUEL					
Tractors	gal.	0.78	3.88	3.02	
Irrigation operation	gal.	0.78	16.62	12.95	
REPAIR & MAINTENANCE					
Tractors	acre	4.39	1.00	4.39	
Implements	acre	12.76	1.00	12.76	
Irrigation operation	in/A	10.76	6.00	64.56	
UNALLOCATED LABOR	hour	7.00	3.67	25.66	
INT. ON OPERATING CAP.	acre	62.81	1.00	62.81	
TOTAL DIRECT EXPENSES				1271.14	
RETURNS ABOVE DIRECT EXPENSES				-1271.14	
FIXED EXPENSES					
Tractors	acre	10.42	1.00	10.42	
Implements	acre	41.39	1.00	41.39	
Irrigation operation	acre	66.00	1.00	66.00	
TOTAL FIXED EXPENSES				117.82	
TOTAL SPECIFIED EXPENSES				1388.96	
RETURNS ABOVE SPECIFIED EXPENSES				-1388.96	

TABLE 138. SUMMER BEARING RED RASPBERRIES ON TRELLIS, PYO
Two years after planting Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Raspberry	lb.	0.00	2000.00	0.00	_____
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	2.00	9.40	_____
Labor	hour	4.25	102.50	435.63	_____
Spread dry fert	acre	4.70	1.00	4.70	_____
Apply fertilizer	acre	5.00	1.00	5.00	_____
FERTILIZER					
Nitrogen	lb.	0.23	30.00	6.90	_____
FUNGICIDES					
Benlate 50WP	lb.	12.50	3.00	37.50	_____
Captan 50W	lb.	1.32	16.00	21.12	_____
Ridomil 2E	gal.	129.68	1.00	129.68	_____
HERBICIDES					
Gramoxone Super	gal.	35.50	0.25	8.88	_____
Princep 80W	lb.	2.08	2.00	4.16	_____
Surflan green	gal.	56.80	5.00	284.00	_____
INSECTICIDES					
Malathion 25W	lb.	0.96	32.00	30.72	_____
OTHER					
Gypsum	gal.	8.80	20.00	176.00	_____
Pruning shears	each	10.45	2.00	20.90	_____
Rasp. harvest exp.	acre	75.00	6.00	450.00	_____
HOE	each	12.00	2.00	24.00	_____
Rasp. leaf test	acre	20.00	1.00	20.00	_____
OPERATOR LABOR					
Tractors	hour	7.00	2.76	19.29	_____
Additional labor	hour	7.00	0.41	2.87	_____
HAND LABOR					
Additional labor	hour	7.00	2.00	14.00	_____
IRRIGATION LABOR					
Irrigation operation	hour	5.00	2.500	12.50	_____
DIESEL FUEL					
Tractors	gal.	0.78	4.15	3.23	_____
Irrigation operation	gal.	0.78	13.85	10.79	_____
REPAIR & MAINTENANCE					
Tractors	acre	4.84	1.00	4.84	_____
Implements	acre	15.75	1.00	15.75	_____
Irrigation operation	in/A	10.76	5.00	53.80	_____
UNALLOCATED LABOR	hour	7.00	4.17	28.81	_____
INT. ON OPERATING CAP.	acre	78.40	1.00	78.40	_____
TOTAL DIRECT EXPENSES				1912.87	_____
RETURNS ABOVE DIRECT EXPENSES				-1912.87	_____
FIXED EXPENSES					
Tractors	acre	11.35	1.00	11.35	_____
Implements	acre	51.73	1.00	51.73	_____
Irrigation operation	acre	66.00	1.00	66.00	_____
TOTAL FIXED EXPENSES				129.08	_____
TOTAL SPECIFIED EXPENSES				2041.95	_____
RETURNS ABOVE SPECIFIED EXPENSES				-2041.95	_____

TABLE 139. SUMMER BEARING RED RASPBERRIES ON TRELLIS, PYO
Established patch Pennsylvania 1990

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
INCOME		DOLLARS		DOLLARS	
Raspberry	lb.	0.00	3000.00	0.00	
DIRECT EXPENSES					
CUSTOM					
Apply herbicide	acre	4.70	2.00	9.40	
Labor	hr	4.25	87.50	371.88	
Spread dry fert	acre	4.70	1.00	4.70	
Apply fertilizer	acre	5.00	1.00	5.00	
FERTILIZER					
Nitrogen	lb.	0.23	30.00	6.90	
FUNGICIDES					
Benlate 50WP	lb.	12.50	3.00	37.50	
Captan 50W	lb.	1.32	16.00	21.12	
Ridomil 2E	gal.	129.68	1.00	129.68	
HERBICIDES					
Gramoxone Super	gal.	35.50	0.25	8.88	
Princep 80W	lb.	2.08	2.00	4.16	
Surflan green	gal.	56.80	5.00	284.00	
INSECTICIDES					
Malathion 25W	lb.	0.96	32.00	30.72	
OTHER					
Gypsum	gal.	8.80	20.00	176.00	
Pruning shears	each	10.45	2.00	20.90	
Rasp harvest exe	acre	75.00	6.00	450.00	
HOE	each	12.00	2.00	24.00	
RASP LEAF TEST	acre	20.00	1.00	20.00	
OPERATOR LABOR					
Tractors	hour	7.00	3.10	21.72	
Additional labor	hour	7.00	0.41	2.87	
HAND LABOR					
Additional labor	hour	7.00	2.00	14.00	
IRRIGATION LABOR					
Irrigation operation	hour	5.00	3.00	15.00	
DIESEL FUEL					
Tractors	gal.	0.78	4.41	3.44	
Irrigation operation	gal.	0.78	16.62	12.95	
REPAIR & MAINTENANCE					
Tractors	acre	5.28	1.00	5.28	
Implements	acre	16.73	1.00	16.73	
Irrigation operation	in/A	10.76	6.00	64.56	
UNALLOCATED LABOR	hour	7.00	4.57	31.97	
INT. ON OPERATING CAP.	acre	79.75	1.00	79.75	
TOTAL DIRECT EXPENSES				1873.11	
RETURNS ABOVE DIRECT EXPENSES				-1873.11	
FIXED EXPENSES					
Tractors	acre	12.28	1.00	12.28	
Implements	acre	53.53	1.00	53.53	
Irrigation operation	acre	66.00	1.00	66.00	
TOTAL FIXED EXPENSES				131.81	
TOTAL SPECIFIED EXPENSES				2004.91	
RETURNS ABOVE SPECIFIED EXPENSES				-2004.91	

TABLE 140. CORN PRODUCTION BUDGET

Estimated operation and input item costs per acre,
(Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Feb	1.00											1.000	0.75	0.75
Apply calcium lime	ton														0.500	22.00	11.00
PLOW			Mar	1.00													0.00
5-Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25						8.59
FIELD CULTIVATION			Mar	2.00													0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60						12.94
APPL HERBICIDE			May	1.00													0.00
Boom sprayer	30' 150g	2			0.130	0.70	0.67	0.10	0.33	0.169	0.84						2.65
Atrazine 4L	gallon														0.250	9.26	2.32
Lasso	gallon														0.375	20.24	7.59
PLANT & FERTILIZES			May	1.00													0.00
Plant + pre.	6-Row	4			0.180	1.67	1.58	1.40	3.44	0.180	0.90						9.00
Nitrogen	lb.														35.000	0.24	8.40
P205	lb.														50.000	0.25	12.50
K20	lb.														35.000	0.14	4.90
Corn seed	kernal														25.000	0.97	24.25
FERTILIZE			Jun	1.00													0.00
Boom sprayer	30' 150g	2			0.130	0.70	0.67	0.10	0.33	0.169	0.84						2.65
Nitrogen	lb.														100.000	0.24	24.00
HARVEST			Oct	1.00													0.00
Combine corn	4-Row				0.330			6.49	9.45	0.330	1.65						17.59
HAULING			Oct	1.00													0.00
Grain cart	250 bu.	3			0.120	0.94	0.88	0.17	0.37	0.120	0.60						2.96
DRYING			Oct	1.00													0.00
Dry	bu.							17.38							125.000		17.38
TOTALS						10.42	9.83	27.26	17.53		8.69					95.71	169.45
INTEREST ON OP. CAP.																	6.92
UNALLOCATED LABOR																	8.69
TOTAL SPECIFIED COSTS																	185.05

TABLE 141. CORN SILAGE PRODUCTION
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					DIRECT	FIXED	EQUIP. COST	HOURS	COST	QUANT.	PRICE	COST		
					---DOLLARS---			DOLLARS			---DOLLARS---			
SOIL TEST			Nov	1.00										0.00
Soil test results	acre													0.75
LIME FIELDS			Mar	1.00							1.000	0.75	0.75	0.00
Apply calcium lime	ton										0.500	22.00	11.00	11.00
FLOW			Mar	1.00										0.00
5 Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25			8.59
FIELD CULTIVATION			Mar	2.00										0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60			12.94
APPL HERBICIDE			May	1.00										0.00
Boom sprayer	30' 150g	2			0.130	0.70	0.67	0.10	0.33	0.169	0.84			2.65
Atrazine 4L	gallon													2.32
Lasso	gallon													7.59
PLANT & FERTILIZES			May	1.00										0.00
Plant + pre.	6-Row	4			0.180	1.67	1.58	1.40	3.44	0.180	0.90			9.00
Nitrogen	lb.													8.40
P205	lb.										35.000	0.24	8.40	20.00
K2O	lb.										80.000	0.25	20.00	21.00
Corn seed	kernal										150.000	0.14	21.00	29.10
FERTILIZE			Jun	1.00										0.00
Boom sprayer	30' 150g	2			0.130	0.70	0.67	0.10	0.33	0.169	0.84			2.65
Nitrogen	lb.													27.60
HARVEST			Sep	1.00							115.000	0.24	27.60	0.00
Silage harvester	2-Row	3			0.940	7.38	6.93	12.34	18.26	0.940	4.70			49.60
HAULING			Sep	0.50										0.00
Silage wagon	10-Ton	2			0.470	2.54	2.41	1.68	2.66	0.470	2.35			11.64
TOTALS					19.40	18.29	17.25	28.63		13.49				224.81
INTEREST ON OP. CAP.														6.34
UNALLOCATED LABOR														13.49
TOTAL SPECIFIED COSTS														244.64

TABLE 142. SOYBEAN PRODUCTION BUDGETS

Estimated operation and input item costs per acre,
(Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	MACH. HOURS	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						DIRECT	FIXED	DOLLARS	DIRECT	FIXED	DOLLARS	HOURS	COST	DOLLARS	QUANT.	PRICE	COST	
SOIL TEST			Nov	1.00														0.00
Soil test results	acre																	0.75
LIME FIELDS			Feb	1.00														0.00
Apply calcium lime	ton																	11.00
PLOW			Apr	1.00														0.00
5 Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25							8.59
FIELD CULTIVATION			Apr	2.00														0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60							12.94
APPL HERBICIDE			May	1.00														0.00
Boom sprayer	30' 150g	2			0.130	0.70	0.67	0.10	0.33	0.169	0.84							2.65
Lasso	gallon																	7.59
Lorox 4L	gallon																	6.75
PLANT & FERTILIZES			May	1.00														0.00
Grain drill	12'	3			0.140	1.10	1.03	0.40	1.09	0.140	0.70							4.32
P205	lb.																	11.25
K20	lb.																	11.20
Soybean seed	bu.																	18.72
HARVEST			Oct	1.00														0.00
Combine soybeans	13'				0.440			8.25	12.36	0.440	2.20							22.81
HAULING			Oct	0.33														0.00
Grain cart	250 bu.	3			0.040	0.31	0.29	0.06	0.12	0.040	0.20							0.98
TOTALS						8.52	8.02	10.43	17.51		7.79							119.53
INTEREST ON OP. CAP.																		4.89
UNALLOCATED LABOR																		7.79
TOTAL SPECIFIED COSTS																		132.21

TABLE 143. WHEAT PRODUCTION BUDGET (Grain Only)
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					---DOLLARS---			---DOLLARS---			---DOLLARS---			---DOLLARS---			
SOIL TEST			Sep	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Sep	1.00													0.00
Apply calcium lime	ton																11.00
PLOW			Sep	1.00													0.00
5 Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25						8.59
FIELD CULTIVATION			Sep	2.00													0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60						12.94
PLANT & FERTILIZES			Sep	1.00													0.00
Grain drill	12'	3			0.140	1.10	1.03	0.40	1.09	0.140	0.70						4.32
P205	lb.																10.00
K20	lb.																5.60
Wheat seed	bu.																15.50
FERTILIZE			Mar	1.00													0.00
Spin spreader	300 bu.	3			0.100	0.78	0.74	0.42	0.78	0.100	0.50						3.22
Nitrogen	lb.																18.00
HARVEST			Jul	1.00													0.00
Combine SB/WH	13'				0.360			6.75	8.09	0.360	1.80						16.64
HAULING			Jul	0.50													0.00
Grain cart	250 bu.	3			0.060	0.47	0.44	0.09	0.18	0.060	0.30						1.48
TOTALS						8.76	8.25	9.27	13.76		7.15					60.85	108.03
INTEREST ON OP. CAP.																	6.96
UNALLOCATED LABOR																	7.15
TOTAL SPECIFIED COSTS																	122.14

TABLE 144. WHEAT PRODUCTION BUDGET (Grain & Straw)
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					DIRECT	FIXED	DIRECT	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST			
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Sep	1.00													0.00
Soil test results	acre		Sep	1.00									1.000	0.75	0.75		0.75
LIME FIELDS			Sep	1.00													0.00
Apply calcium lime	ton		Sep	1.00									0.500	22.00	11.00		11.00
PLOW			Sep	1.00													0.00
5 Btm. mb. plow	16" btm.	4	Sep	1.00	0.250	2.32	2.20	0.81	2.00	0.250	1.25						8.59
FIELD CULTIVATION			Sep	2.00													0.00
Disk harrow	12'	3	Sep	2.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60						12.94
PLANT & FERTILIZES			Sep	1.00													0.00
Grain drill	12'	3	Sep	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70						4.32
P205	lb.												40.000	0.25	10.00		10.00
K20	lb.												80.000	0.14	11.20		11.20
Wheat seed	bu.												2.000	7.75	15.50		15.50
FERTILIZE			Mar	1.00													0.00
Spin spreader	300 bu.	3	Mar	1.00	0.100	0.78	0.74	0.42	0.78	0.100	0.50						3.22
Nitrogen	lb.												75.000	0.24	18.00		18.00
HARVEST			Jul	1.00													0.00
Combine SB/WH	13'		Jul	1.00	0.360			6.75	8.09	0.360	1.80						16.64
HAULING			Jul	0.50													0.00
Grain cart	250 bu.	3	Jul	0.50	0.060	0.47	0.44	0.09	0.18	0.060	0.30						1.48
HARVEST	conv.	2	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50						0.00
Hay baler			Jul	1.00													11.45
HAULING			Jul	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00						0.00
Wagon	10'x 20'	2	Jul	1.00													8.28
TOTALS					12.82	12.09	10.67	16.70		14.65							133.37
INTEREST ON OP. CAP.																	2.87
UNALLOCATED LABOR																	10.90
TOTAL SPECIFIED COSTS																	147.15

TABLE 145. BARLEY PRODUCTION BUDGET (Grain & Straw)
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS						
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST								
															DOLLARS			DOLLARS			DOLLARS		
SOIL TEST			Sep	1.00													0.00						
Soil test results	acre		Sep	1.00													0.75						
LIME FIELDS																	0.00						
Apply calcium lime	ton		Sep	1.00													11.00						
PLOW																	0.00						
5 Btm. mb. plow	16" btm.	4	Sep	2.00	0.250	2.32	2.20	0.81	2.00	0.250	1.25						8.59						
FIELD CULTIVATION																	0.00						
Disk harrow	12'	3	Sep	1.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60						12.94						
PLANT & FERTILIZES																	0.00						
Grain drill	12'	3	Sep	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70						4.32						
P205	lb.																11.25						
K20	lb.																11.20						
Barley seed	bu.																15.00						
FERTILIZE																	0.00						
Spin spreader	300 bu.	3	Mar	1.00	0.100	0.78	0.74	0.42	0.78	0.100	0.50						3.22						
Nitrogen	lb.																7.20						
HARVEST																	0.00						
Combine SB/WH	13'		Jul	1.00	0.360			6.75	8.09	0.360	1.80						16.64						
HAULING																	0.00						
Grain cart	250 bu.	3	Jul	0.60	0.072	0.57	0.53	0.10	0.22	0.072	0.36						1.78						
HARVEST																	0.00						
Hay baler	conv.	2	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50						11.45						
HAULING																	0.00						
Wagon	10' x 20'	2	Jul	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00						8.28						
TOTALS					12.91	12.17	10.68	16.74	14.71	56.40	123.62						2.71						
INTEREST ON OP. CAP.																							
UNALLOCATED LABOR																							
TOTAL SPECIFIED COSTS															10.96								
															137.29								

TABLE 146. OATS PRODUCTION BUDGET (Grain & Straw)
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	MACH. HOURS	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						DIRECT	FIXED	DOLLARS	DIRECT	FIXED	DOLLARS	HOURS	COST	DOLLARS	QUANT.	PRICE	COST	
SOIL TEST			Nov	1.00														0.00
Soil test results	acre																	0.75
LIME FIELDS			Feb	1.00														0.00
Apply calcium lime	ton																	11.00
PLOW			Mar	1.00														0.00
5 Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25							8.59
FIELD CULTIVATION			Mar	2.00														0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60							12.94
PLANT & FERTILIZES			Apr	1.00														0.00
Grain drill	12'	3			0.140	1.10	1.03	0.40	1.09	0.140	0.70							4.32
Nitrogen	lb.																	18.00
P205	lb.																	15.00
K2O	lb.																	11.20
Oats seed	bu.																	16.50
HARVEST			Jul	1.00														0.00
Combine SB/WH	13'				0.360			6.75	8.09	0.360	1.80							16.64
HAULING			Jul	0.50														0.00
Grain cart	250 bu.	2			0.060	0.32	0.31	0.09	0.18	0.060	0.30							1.20
HARVEST			Aug	1.00														0.00
Hay baler	conv.	2			0.500	2.70	2.56	1.29	2.40	0.500	2.50							11.45
HAULING			Aug	1.00														0.00
Wagon	10'x 20'	2			0.250	1.35	1.28	0.10	0.55	1.000	5.00							8.28
TOTALS						11.88	11.21	10.25	15.93		14.15							135.87
INTEREST ON OP. CAP.																		3.44
UNALLOCATED LABOR																		10.40
TOTAL SPECIFIED COSTS																		149.71

TABLE 147. CORN PROD. BUDGET (Conventional tillage practices)
 Estimated operation and input item costs per acre,
 Government Programs Expect Yield=120, ASCS Yield=100 Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	QUANT.	PRICE	COST	
														DOLLARS	DOLLARS	DOLLARS	
SOIL TEST			Nov	1.00												0.00	
Soil test results	acre		Feb	0.90									1.000	0.75	0.75	0.75	
LIME FIELDS			Mar	0.90									0.450	22.00	9.90	0.00	
Apply calcium lime	ton		Mar	0.10	0.225	2.09	1.98	0.73	1.80	0.225	1.13					0.00	
5 Btm. mb. plow	16" btm.	4			0.010	0.08	0.07	0.04	0.08	0.010	0.05		0.200	4.00	0.80	0.32	
SPRING GRASS			Mar	1.80												0.80	
Spin spreader	300 bu.	3			0.468	3.67	3.45	0.73	1.45	0.468	2.34					0.00	
Cover seed	bu.		May	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76					11.65	
FIELD CULTIVATION																0.00	
Disk harrow	12'	3														2.38	
APPL HERBICIDE																2.08	
Boom sprayer	30' 150g	2											0.225	9.26	2.08	2.38	
Atrazine 4L	gallon												0.337	20.24	6.83	6.83	
Lasso	gallon		May	0.90	0.162	1.51	1.43	1.26	3.10	0.162	0.81					0.00	
PLANT & FERTILIZES																8.10	
Plant + pre.	6-Row	4														8.10	
Nitrogen	lb.												31.500	0.24	7.56	7.56	
P205	lb.												45.000	0.25	11.25	11.25	
K2O	lb.												31.500	0.14	4.41	4.41	
Corn seed	kernal												22.500	0.97	21.83	21.83	
FERTILIZE			Jun	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76					0.00	
Boom sprayer	30' 150g	2											90.000	0.24	21.60	21.60	
Nitrogen	lb.		Oct	0.90												0.00	
HARVEST																0.00	
Combine corn	4-Row				0.297		5.84	8.51	0.297	1.48						15.83	
HAULING			Oct	0.90	0.108	0.85	0.80	0.15	0.33	0.108	0.54					0.00	
Grain cart	250 bu.	3														2.67	
DRYING			Oct	0.90												0.00	
Dry	bu.						14.08						101.250			14.08	
TOTALS					9.46	8.92	23.02	15.85		7.87				87.01		152.14	
INTEREST ON OP. CAP.																3.62	
UNALLOCATED LABOR																7.16	
TOTAL SPECIFIED COSTS																162.91	

TABLE 148. CORN SILAGE (Conventional tillage practices)

Estimated operation and input item costs per acre,
Government Programs ASCS Yield=100 Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					---DOLLARS---			---DOLLARS---			---DOLLARS---			---DOLLARS---			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Mar	0.90													0.00
Apply calcium lime	ton		Mar	0.90													9.90
Apply calcium lime	ton		Mar	0.90													0.00
5 Btm. mb. plow	16" btm.	4	Mar	0.10	0.225	2.09	1.98	0.73	1.80	0.225	1.13						7.73
SPRING GRASS																	0.00
Spin spreader	300 bu.	3			0.010	0.08	0.07	0.04	0.08	0.010	0.05						0.00
Cover seed	bu.																0.00
FIELD CULTIVATION																	0.00
Disk harrow	12'	3	Mar	1.80	0.468	3.67	3.45	0.73	1.45	0.468	2.34						11.65
APPL HERBICIDE																	0.00
Boom sprayer	30' 150g	2	May	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76						2.38
Atrazine 4L	gallon																2.08
Lasso	gallon																6.83
PLANT & FERTILIZES																	0.00
Plant + pre.	6-Row	4	May	0.90	0.162	1.51	1.43	1.26	3.10	0.162	0.81						8.10
Nitrogen	lb.																7.56
P205	lb.																18.00
K20	lb.																18.90
Corn seed	kernal																26.19
FERTILIZE																	0.00
Boom sprayer	30' 150g	2	Jun	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76						2.38
Nitrogen	lb.																24.84
HARVEST																	0.00
Silage harvester	2-Row	3	Sep	0.90	0.846	6.64	6.24	11.10	16.43	0.846	4.23						44.64
HAULING																	0.00
Silage wagon	10-Ton	2	Sep	0.45	0.423	2.29	2.17	1.51	2.39	0.423	2.11						10.48
TOTALS																	203.53
INTEREST ON OP. CAP.																	3.70
UNALLOCATED LABOR																	12.19
TOTAL SPECIFIED COSTS																	219.42

TABLE 149. CORN PRODUCTION BUDGET

Estimated operation and input item costs per acre,
(No-till tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Feb	1.00													0.00
Apply calcium lime	ton																11.00
APPL HERBICIDE			May	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84						0.00
Boom sprayer	30' 150g	2															2.65
Atrazine 4L	gallon																2.32
Lasso	gallon																15.18
Gramoxone super	gallon																13.13
PLANT & FERTILIZES			May	1.00	0.170	1.58	1.50	0.65	1.60	0.170	0.85						0.00
Plant-NT+Pre	6-Row	4															6.18
Nitrogen	lb.																8.40
P2O5	lb.																12.50
K2O	lb.																4.90
Corn seed	kernal																24.25
FERTILIZE			Jun	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84						0.00
Boom sprayer	30' 150g	2															2.65
Nitrogen	lb.																24.00
HARVEST			Oct	1.00	0.330		6.49	9.45	0.330	1.65							0.00
Combine corn	4-Row																17.59
HAULING			Oct	1.00	0.120	0.94	0.88	0.17	0.37	0.120	0.60						0.00
Grain cart	250 bu.	3															2.96
DRYING			Oct	1.00				17.38									0.00
Dry	bu.																17.38
TOTALS					3.93	3.71	24.90	12.07		4.79							165.82
INTEREST ON OP. CAP.																	6.85
UNALLOCATED LABOR																	4.79
TOTAL SPECIFIED COSTS																	177.46

TABLE 150. CORN SILAGE PRODUCTION
 Estimated operation and input item costs per acre,
 (No-till tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					---DOLLARS---			---DOLLARS---			---DOLLARS---			---DOLLARS---			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Mar	1.00													0.00
Apply calcium lime	ton																11.00
APPL HERBICIDE			May	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84						0.00
Boom sprayer	30' 150g	2															2.65
Atrazine 4L	gallon																2.32
Lasso	gallon																15.18
Gramoxone super	gallon																13.13
PLANT & FERTILIZES			May	1.00	0.180	1.67	1.58	1.40	3.44	0.180	0.90						0.00
Plant + pre.	6-Row	4															9.00
Nitrogen	lb.																8.40
P205	lb.																20.00
K2O	lb.																21.00
Corn seed	kernal																29.10
FERTILIZE			Jun	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84						0.00
Boom sprayer	30' 150g	2															2.65
Nitrogen	lb.																27.60
HARVEST			Sep	1.00	0.940	7.38	6.93	12.34	18.26	0.940	4.70						0.00
Silage harvester	2-Row	3															49.60
HAULING			Sep	0.50	0.470	2.54	2.41	1.68	2.66	0.470	2.35						0.00
Silage wagon	10-Ton	2															11.64
TOTALS					13.00	12.25	15.63	25.02		9.64							224.00
INTEREST ON OP. CAP.																	6.22
UNALLOCATED LABOR																	9.64
TOTAL SPECIFIED COSTS																	239.86

TABLE 151. CORN PROD. BUDGETS (No-till tillage practices)
 Estimated operation and input item costs per acre,
 Government Programs Expect Yield=120, ASCS Yield=100 Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST		
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Feb	0.90													0.00
Apply calcium lime	ton																9.90
SPRING GRASS			Mar	0.10													0.00
Spin spreader	300 bu.	3			0.010	0.08	0.07	0.04	0.08	0.010	0.05						0.32
Cover seed	bu.																0.80
APPL HERBICIDE			May	0.90													0.00
Boom sprayer	30' 150g	2			0.117	0.63	0.60	0.09	0.29	0.152	0.76						2.38
Atrazine 4L	gallon																2.08
Lasso	gallon																13.66
Gramoxone super	gallon																11.81
PLANT & FERTILIZES			May	0.90													0.00
Plant + pre.	6-Row	4			0.162	1.51	1.43	1.26	3.10	0.162	0.81						8.10
Nitrogen	lb.																7.56
P205	lb.																11.25
K20	lb.																4.41
Corn seed	kernal																21.83
FERTILIZE			Jun	0.90													0.00
Boom sprayer	30' 150g	2			0.117	0.63	0.60	0.09	0.29	0.152	0.76						2.38
Nitrogen	lb.																21.60
HARVEST			Oct	0.90													0.00
Combine corn	4-Row				0.297			5.84	8.51	0.297	1.48						15.83
HAULING			Oct	0.90													0.00
Grain cart	250 bu.	3			0.108	0.85	0.80	0.15	0.33	0.108	0.54						2.67
DRYING			Oct	0.90													0.00
Dry	bu.							14.08									14.08
TOTALS																	
INTEREST ON OP. CAP.						3.70	3.49	21.56	12.60		4.41						151.41
UNALLOCATED LABOR																	3.90
TOTAL SPECIFIED COSTS																	159.32

TABLE 152. CORN SILAGE (No-till tillage practices)
 Estimated operation and input item costs per acre,
 Government Programs ASCS Yield=100 Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST	QUANT.	PRICE	
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Mar	0.90													0.00
Apply calcium lime	ton																9.90
SPRING GRASS			Mar	0.10	0.010	0.08	0.07	0.04	0.08	0.010	0.05						0.00
Spin spreader	300 bu.	3															0.32
Cover seed	bu.																0.80
APPL HERBICIDE			May	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76						0.00
Boom sprayer	30' 150g	2															2.38
Atrazine 4L	gallon																2.08
Lasso	gallon																13.66
Gramoxone super	gallon																11.81
PLANT & FERTILIZES			May	0.90	0.162	1.51	1.43	1.26	3.10	0.162	0.81						0.00
Plant + pre.	6-Row	4															8.10
Nitrogen	lb.																7.56
P205	lb.																18.00
K2O	lb.																18.90
Corn seed	kernal																26.19
FERTILIZE			Jun	0.90	0.117	0.63	0.60	0.09	0.29	0.152	0.76						0.00
Boom sprayer	30' 150g	2															2.38
Nitrogen	lb.																24.84
HARVEST			Sep	0.90	0.846	6.64	6.24	11.10	16.43	0.846	4.23						0.00
Silage harvester	2-Row	3															44.64
HAULING			Sep	0.45	0.423	2.29	2.17	1.51	2.39	0.423	2.11						0.00
Silage wagon	10-Ton	2															10.48
TOTALS					11.78	11.10	14.11	22.59			8.73						202.80
INTEREST ON OP. CAP.																	3.88
UNALLOCATED LABOR																	8.73
TOTAL SPECIFIED COSTS																	215.41

TABLE 153. DOUBLE CROP BARLEY & SOYBEANS
 Estimated operation and input item costs per acre,
 (Conv. on Barley No-Till on Soybeans) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST	DOLLARS	DOLLARS	
SOIL TEST			Sep	1.00												0.00	
Soil test results	acre		Sep	1.00									1.000	0.75	0.75	0.75	
LIME FIELDS																0.00	
Apply calcium lime	ton		Sep	1.00									0.500	22.00	11.00	11.00	
PLOW																0.00	
5 Btm. mb. plow	16" btm.	4	Sep	2.00	0.250	2.32	2.20	0.81	2.00	0.250	1.25					8.59	
FIELD CULTIVATION																0.00	
Disk harrow	12'	3	Sep	2.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60					0.00	
PLANT & FERTILIZES																12.94	
Grain drill	12'	3	Sep	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70					0.00	
P205	lb.															4.32	
K20	lb.															15.00	
Barley seed	bu.															14.00	
FERTILIZE																15.00	
Spin spreader	300 bu.	3	Mar	1.00	0.100	0.78	0.74	0.42	0.78	0.100	0.50					0.00	
Nitrogen	lb.															3.22	
HARVEST																7.20	
Combine SB/WH	13'		Jun	1.00	0.360			6.75	8.09	0.360	1.80					0.00	
HAULING																16.64	
Grain cart	250 bu.	3	Jun	0.60	0.072	0.57	0.53	0.10	0.22	0.072	0.36					0.00	
HARVEST																1.78	
Hay baler	conv.	2	Jun	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50					0.00	
HAULING																11.45	
Wagon	10'x 20'	2	Jun	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00					0.00	
APPL HERBICIDE																8.28	
Boom sprayer	30' 150g	2	Jun	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84					0.00	
Gramoxone super	gallon															2.65	
Lorox 4L	gallon															13.13	
PLANT																10.26	
Drill nt.	10'	4	Jun	1.00	0.150	1.39	1.32	0.61	1.51	0.150	0.75					0.00	
Soybean seed	bu.															5.58	
HARVEST																24.00	
Combine soybeans	13'		Oct	1.00	0.440			8.25	12.36	0.440	2.20					0.00	
HAULING																22.81	
Grain cart	250 bu.	3	Oct	0.33	0.040	0.31	0.29	0.06	0.12	0.040	0.20					0.00	
TOTALS						15.32	14.45	19.70	31.05		18.70					0.98	
INTEREST ON OP. CAP.																209.56	
UNALLOCATED LABOR																2.50	
TOTAL SPECIFIED COSTS																14.95	
																227.02	

TABLE 154. DOUBLE CROP WHEAT & SOYBEANS
 Estimated operation and input item costs per acre,
 (Conv. on Wheat No-Till on Soybeans) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS						
					HOURS	DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST								
															DOLLARS			DOLLARS			DOLLARS		
SOIL TEST			Sep	1.00													0.00		0.00				
Soil test results	acre		Sep	1.00												1.000	0.75	0.75	0.75				
LIME FIELDS			Sep	1.00															0.00				
Apply calcium lime	ton		Sep	1.00												0.500	22.00	11.00	11.00				
PLOW			Sep	1.00															0.00				
5 Btm. mb. plow	16" btm.	4	Sep	2.00	0.250	2.32	2.20	0.81	2.00	2.00	0.250	1.25							8.59				
FIELD CULTIVATION			Sep	2.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60								0.00				
Disk harrow	12'	3	Sep	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70								12.94				
PLANT & FERTILIZES			Sep	1.00															0.00				
Grain drill	12'	3	Mar	1.00	0.100	0.78	0.74	0.42	0.78	0.100	0.50								4.32				
P205	lb.															60.000	0.25	15.00	15.00				
K20	lb.															100.000	0.14	14.00	14.00				
Wheat seed	bu.															2.000	7.75	15.50	15.50				
FERTILIZE			Mar	1.00															0.00				
Spin spreader	300 bu.	3	Jun	1.00	0.360	0.47	0.44	0.09	0.18	0.060	0.30								3.22				
Nitrogen	lb.		Jun	0.50	0.060	0.47	0.44	0.09	0.18	0.060	0.30								18.00				
HARVEST			Jun	1.00															0.00				
Combine SB/WH	13'		Jun	1.00	0.360	0.47	0.44	0.09	0.18	0.060	0.30								16.64				
HAULING			Jul	1.00															0.00				
Grain cart	250 bu.	3	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50								1.48				
HARVEST			Jul	1.00															0.00				
Hay baler	conv.	2	Jul	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00								11.45				
HAULING			Jul	1.00															0.00				
Wagon	10' x 20'	2	Jul	1.00	0.130	0.70	0.67	0.10	0.33	0.169	0.84								8.28				
APPL HERBICIDE			Jul	1.00															0.00				
Boom sprayer	30' 150g	2	Jul	1.00	0.150	1.39	1.32	0.61	1.51	0.150	0.75								2.65				
Gramoxone super	gallon																		13.13				
Lorox 4L	gallon																		10.26				
PLANT			Jul	1.00															0.00				
Drill nt.	10'	4	Oct	1.00	0.040	0.31	0.29	0.06	0.12	0.040	0.20								5.58				
Soybean seed	bu.		Oct	0.33	0.040	0.31	0.29	0.06	0.12	0.040	0.20								24.00				
HARVEST			Oct	1.00															0.00				
Combine soybeans	13'		Oct	1.00	0.440	8.25	12.36	0.440	2.20										22.81				
HAULING			Oct	0.33	0.040	0.31	0.29	0.06	0.12	0.040	0.20								0.00				
Grain cart	250 bu.	3	Oct	0.33	0.040	0.31	0.29	0.06	0.12	0.040	0.20								0.98				
TOTALS					15.22	14.36	19.69	31.02		18.64									220.57				
INTEREST ON OP. CAP.																			2.51				
UNALLOCATED LABOR																			14.89				
TOTAL SPECIFIED COSTS																			237.97				

TABLE 155. ALFALFA ESTABLISHMENT BUDGET

Estimated operation and input item costs per acre,
(Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST			
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov	1.00													0.00
Soil test results	acre																0.75
LIME FIELDS			Feb	1.00													0.00
Apply calcium lime	ton																33.00
FLOW			Mar	1.00													0.00
5 Btm. mb. plow	16" btm.	4			0.250	2.32	2.20	0.81	2.00	0.250	1.25						8.59
APPL HERBICIDE			Mar	1.00													0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84						3.26
Eptam 7E	gallon																10.25
FIELD CULTIVATION			Mar	2.00													0.00
Disk harrow	12'	3			0.520	4.08	3.83	0.81	1.62	0.520	2.60						12.94
PLANT & FERTILIZES			Apr	1.00													0.00
Grain drill	12'	3			0.140	1.10	1.03	0.40	1.09	0.140	0.70						4.32
Nitrogen	lb.																4.80
P205	lb.																17.50
K2O	lb.																32.20
Alfalfa seed	lb.																54.00
APPL HERBICIDE			Jun	1.00													0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84						3.26
Butyrac 200 (2,4-DB)	gallon																10.92
BALE HAY			Jul	1.00													0.00
Hay cut cond.	7'	2			0.500	2.70	2.56	1.19	1.76	0.500	2.50						10.72
BALE HAY			Jul	1.00													0.00
Hay rake	8.5'	1			0.150	0.68	0.61	0.21	0.38	0.150	0.75						2.63
BALE HAY			Jul	1.00													0.00
Hay baler	conv.	2			0.500	2.70	2.56	1.29	2.40	0.500	2.50						11.45
HAULING			Jul	1.00													0.00
Wagon	10' x 20'	2			0.250	1.35	1.28	0.10	0.55	1.000	5.00						8.28
APPL INSECTICIDE			Jul	1.00													0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84						3.26
Cygon 400	gallon																1.63
Malathion 5E	gallon																4.06
BALE HAY			Sep	1.00													0.00
Hay cut cond.	7'	2			0.500	2.70	2.56	1.19	1.76	0.500	2.50						10.72
BALE HAY			Sep	1.00													0.00
Hay rake	8.5'	1			0.150	0.68	0.61	0.21	0.38	0.150	0.75						2.63
BALE HAY			Sep	1.00													0.00
Hay baler	conv.	2			0.500	2.70	2.56	1.29	2.40	0.500	2.50						11.45
HAULING			Sep	1.00													0.00
Wagon	10' x 20'	2			0.250	1.35	1.28	0.10	0.55	1.000	5.00						8.28
TOTALS					25.45	23.97	7.91	15.87		28.58							270.89
INTEREST ON OP. CAP.																	10.62
UNALLOCATED LABOR																	21.08
TOTAL SPECIFIED COSTS																	302.60

TABLE 156. ALFALFA ESTABLISHMENT BUDGET
 Estimated operation and input item costs per acre,
 (Minimum tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	PERF. OVER	TIMES MACH.	TRACTOR COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						HOURS	DIRECT	FIXED	EQUIP. COST	DIRECT	FIXED	HOURS	COST	QUANT.	
						DOLLARS			DOLLARS			DOLLARS			
SOIL TEST			Nov		1.00										0.00
Soil test results	acre											1.000	0.75	0.75	0.75
LIME FIELDS			Feb		1.00										0.00
Apply calcium lime	ton										0.500	22.00	11.00	11.00	
PLOW			Mar		1.00										0.00
Chisel plow	12'	3				0.300	2.35	2.21	0.24	0.58	0.300	1.50			6.88
APPL HERBICIDE			Mar		1.00										0.00
Boom sprayer	30' 150g	3				0.130	1.02	0.96	0.10	0.33	0.169	0.84			3.26
Eptam 7E	gallon												0.500	20.50	10.25
FIELD CULTIVATION			Mar		2.00										0.00
Disk harrow	12'	3				0.520	4.08	3.83	0.81	1.62	0.520	2.60			12.94
PLANT & FERTILIZES			Apr		1.00										0.00
Grain drill	12'	3				0.140	1.10	1.03	0.40	1.09	0.140	0.70			4.32
Nitrogen	lb.												20.000	0.24	4.80
P205	lb.												70.000	0.25	17.50
K20	lb.												230.000	0.14	32.20
Alfalfa seed	lb.												18.000	3.00	54.00
APPL HERBICIDE			Jun		1.00										0.00
Boom sprayer	30' 150g	3				0.130	1.02	0.96	0.10	0.33	0.169	0.84	0.500	21.84	10.92
Butyrac 200 (2,4-DB)	gallon														3.26
BALE HAY			Jul		1.00										0.00
Hay cut cond.	7'	2				0.500	2.70	2.56	1.19	1.76	0.500	2.50			10.72
BALE HAY			Jul		1.00										0.00
Hay rake	8.5'	1				0.150	0.68	0.61	0.21	0.38	0.150	0.75			2.63
BALE HAY			Jul		1.00										0.00
Hay baler	conv.	2				0.500	2.70	2.56	1.29	2.40	0.500	2.50			11.45
APPL INSECTICIDE			Jul		1.00										0.00
Boom sprayer	30' 150g	3				0.130	1.02	0.96	0.10	0.33	0.169	0.84	0.065	25.07	3.26
Cygon 400	gallon												0.250	16.23	1.63
Malathion 5E	gallon														4.06
HAULING			Aug		1.50										0.00
Wagon	10'x 20'	2				0.375	2.03	1.92	0.15	0.83	1.500	7.50			12.43
BALE HAY			Sep		1.00										0.00
Hay cut cond.	7'	2				0.500	2.70	2.56	1.19	1.76	0.500	2.50			10.72
BALE HAY			Sep		1.00										0.00
Hay rake	8.5'	1				0.150	0.68	0.61	0.21	0.38	0.150	0.75			2.63
BALE HAY			Sep		1.00										0.00
Hay baler	conv.	2				0.500	2.70	2.56	1.29	2.40	0.500	2.50			11.45
HAULING			Sep		1.50										0.00
Wagon	10'x 20'	2				0.375	2.03	1.92	0.15	0.83	1.500	7.50			12.43
TOTALS							26.84	25.26	7.43	15.00		33.83		147.11	255.47
INTEREST ON OP. CAP.															12.92
UNALLOCATED LABOR															22.59
TOTAL SPECIFIED COSTS															290.97

TABLE 157. ALFALFA ESTABLISHMENT BUDGET
 Estimated operation and input item costs per acre,
 (No-till tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERFORMED	TIMES OVER	MACH.	TRACTOR COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						DIRECT	FIXED	EQUIP. COST	HOURS	COST	QUANT.	PRICE	COST		
						---DOLLARS---			---DOLLARS---			---DOLLARS---			
SOIL TEST			Nov	1.00											0.00
Soil test results	acre														0.75
LIME FIELDS			Feb	1.00											0.00
Apply calcium lime	ton														11.00
APPL HERBICIDE			Mar	1.00											0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84				3.26
Gramoxone super	gallon														17.50
PLANT & FERTILIZES			Apr	1.00											0.00
Drill nt.	10'	4			0.150	1.39	1.32	0.61	1.51	0.150	0.75				5.58
P205	lb.														17.50
K20	lb.														32.20
Alfalfa seed	lb.														48.00
APPL HERBICIDE			Jun	1.00											0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84				3.26
Butyrac 200 (2,4-DB)	gallon														10.92
BALE HAY			Jul	1.00											0.00
Hay cut cond.	7'	2			0.500	2.70	2.56	1.19	1.76	0.500	2.50				10.72
BALE HAY			Jul	1.00											0.00
Hay rake	8.5'	1			0.150	0.68	0.61	0.21	0.38	0.150	0.75				2.63
BALE HAY			Jul	1.00											0.00
Hay baler	conv.	2			0.500	2.70	2.56	1.29	2.40	0.500	2.50				11.45
APPL INSECTICIDE			Jul	1.00											0.00
Boom sprayer	30' 150g	3			0.130	1.02	0.96	0.10	0.33	0.169	0.84				3.26
Cygon 400	gallon														1.63
Malathion 5E	gallon														4.06
HAULING			Aug	1.50											0.00
Wagon	10' x 20'	2			0.375	2.03	1.92	0.15	0.83	1.500	7.50				12.43
BALE HAY			Sep	1.00											0.00
Hay cut cond.	7'	2			0.500	2.70	2.56	1.19	1.76	0.500	2.50				10.72
BALE HAY			Sep	1.00											0.00
Hay rake	8.5'	1			0.150	0.68	0.61	0.21	0.38	0.150	0.75				2.63
BALE HAY			Sep	1.00											0.00
Hay baler	conv.	2			0.500	2.70	2.56	1.29	2.40	0.500	2.50				11.45
HAULING			Sep	1.50											0.00
Wagon	10' x 20'	2			0.375	2.03	1.92	0.15	0.83	1.500	7.50				12.43
TOTALS						20.70	19.50	6.61	13.22		29.78				233.36
INTEREST ON OP. CAP.															11.53
UNALLOCATED LABOR															18.54
TOTAL SPECIFIED COSTS															263.43

TABLE 158. ESTABLISHED ALFALFA STAND
6 Tons per acre Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST		EQUIP. COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	
					DOLLARS		DOLLARS		DOLLARS		DOLLARS		
HARVEST													0.00
Hay cut cond.	7'	2	May	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50		10.72
HARVEST													0.00
FORAGE HARVESTER	5'	3	Jun	1.00	0.350	2.75	2.58	0.92	1.94	0.350	1.75		9.94
HAULING													0.00
Silage wagon	10-Ton	2	Jun	0.50	0.470	2.54	2.41	1.68	2.66	0.470	2.35		11.64
APPL HERBICIDE													0.00
Boom sprayer	30' 150g	3	Jun	1.00	0.130	1.02	0.96	0.10	0.33	0.169	0.84		3.26
Butyrac 200 (2,4-DB)	gallon											0.500	21.84
APPL INSECTICIDE													10.92
Boom sprayer	30' 150g	3	Jun	1.00	0.130	1.02	0.96	0.10	0.33	0.169	0.84		3.26
Cygon 400	gallon											0.065	25.07
Malathion 5E	gallon											0.250	16.23
BALE HAY													4.06
Hay cut cond.	7'	2	Jul	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50		10.72
BALE HAY													0.00
Hay rake	8.5'	1	Jul	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75		2.63
BALE HAY													0.00
Hay baler	conv.	2	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50		11.45
HAULING													0.00
Wagon	10'x 20'	2	Jul	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50		12.43
BALE HAY													0.00
Hay cut cond.	7'	2	Aug	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50		10.72
BALE HAY													0.00
Hay rake	8.5'	1	Aug	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75		2.63
BALE HAY													0.00
Hay baler	conv.	2	Aug	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50		11.45
HAULING													0.00
Wagon	10'x 20'	2	Aug	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00		8.28
BALE HAY													0.00
Hay cut cond.	7'	2	Sep	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50		10.72
BALE HAY													0.00
Hay rake	8.5'	1	Sep	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75		2.63
BALE HAY													0.00
Hay baler	conv.	2	Sep	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50		11.45
HAULING													0.00
Wagon	10'x 20'	2	Sep	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50		12.43
FERTILIZE													0.00
Spin spreader	300 bu.	2	Sep	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76		3.25
P205	lb.											85.000	21.25
K20	lb.											290.000	40.60
TOTALS						34.55	32.56	12.73	23.45	46.31	78.46		228.06
INTEREST ON OP. CAP.													1.36
UNALLOCATED LABOR													31.31
TOTAL SPECIFIED COSTS													260.72

TABLE 159. TIMOTHY ESTABLISHMENT BUDGET

Estimated operation and input item costs per acre,
(Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST		EQUIP. COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS	
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.		PRICE
					DOLLARS		DOLLARS		DOLLARS		DOLLARS			
SOIL TEST			Nov	1.00									0.00	
Soil test results	acre												0.75	
LIME FIELDS			Feb	1.00							1.000	0.75	0.00	
Apply calcium lime	ton										1.500	22.00	33.00	
PLOW			Mar	1.00	0.250	2.32	2.20	0.81	2.00	0.250	1.25		0.00	
5 Btm. mb. plow	16" btm.	4											8.59	
FIELD CULTIVATION			Mar	2.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60		0.00	
Disk harrow	12'	3											12.94	
PLANT & FERTILIZES			Apr	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70		0.00	
Grain drill	12'	3											4.32	
Nitrogen	lb.										40.000	0.24	9.60	
P205	lb.										85.000	0.25	21.25	
K20	lb.										175.000	0.14	24.50	
Timothy seed	lb.										8.000	1.22	9.76	
BALE HAY			Aug	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50		0.00	
Hay cut cond.	7'	2											10.72	
BALE HAY			Aug	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75		0.00	
Hay rake	8.5'	1											2.63	
BALE HAY			Aug	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50		0.00	
Hay baler	conv.	2											11.45	
HAULING			Aug	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00		0.00	
Wagon	10'x 20'	2											8.28	
TOTALS						14.95	14.08	4.81	9.80		15.30		98.86	157.79
INTEREST ON OP. CAP.														7.11
UNALLOCATED LABOR														11.55
TOTAL SPECIFIED COSTS														176.45

TABLE 160. ORCHARD GRASS ESTABLISHMENT
 Estimated operation and input item costs per acre,
 (Conventional tillage practices) Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TRACTOR COST		EQUIP. COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS
				HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	
				---DOLLARS---		---DOLLARS---		---DOLLARS---		---DOLLARS---		
SOIL TEST			Nov	1.00								0.00
Soil test results	acre									1.000	0.75	0.75
LIME FIELDS			Feb	1.00								0.00
Apply calcium lime	ton									1.500	22.00	33.00
PLOW			Mar	1.00	0.250	2.32	2.20	0.81	2.00	0.250	1.25	0.00
5 Btm. mb. plow	16" btm.	4										8.59
FIELD CULTIVATION			Mar	2.00	0.520	4.08	3.83	0.81	1.62	0.520	2.60	0.00
Disk harrow	12'	3										12.94
PLANT & FERTILIZES			Apr	1.00	0.140	1.10	1.03	0.40	1.09	0.140	0.70	0.00
Grain drill	12'	3										4.32
Nitrogen	lb.									40.000	0.24	9.60
P205	lb.									85.000	0.25	21.25
K2O	lb.									175.000	0.14	24.50
Orchard grass seed	lb.									10.000	1.32	13.20
BALE HAY			Aug	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50	0.00
Hay cut cond.	7'	2										10.72
BALE HAY			Aug	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75	0.00
Hay rake	8.5'	1										2.63
BALE HAY			Aug	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50	0.00
Hay baler	conv.	2										11.45
HAULING			Aug	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00	0.00
Wagon	10'x 20	2										8.28
					14.95	14.08	4.81	9.80	15.30			102.30
TOTALS												161.23
INTEREST ON OP. CAP.												8.16
UNALLOCATED LABOR												11.55
TOTAL SPECIFIED COSTS												180.95

TABLE 161. ESTABLISH TIMOTHY STAND
 Estimated operation and input item costs per acre,
 3.5 Tons per acre Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERFORMED	TIMES OVER	MACH.	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						DIRECT	FIXED	FIXED	DIRECT	FIXED	FIXED	HOURS	COST	COST	QUANT.	PRICE	COST	
						---DOLLARS---			DOLLARS			---DOLLARS---						
BALE HAY	7'	2	Jun	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50							0.00
Hay cut cond.																		10.72
BALE HAY	8.5'	1	Jun	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75							0.00
Hay rake																		2.63
BALE HAY	conv.	2	Jun	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50							0.00
Hay baler																		11.45
HAULING																		0.00
Wagon	10'x 20	2	Jun	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00							8.28
FERTILIZE																		0.00
Spin spreader	300 bu'	2	Jun	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76							3.25
Nitrogen	lb.																	12.00
P205	lb.																	15.00
K2O	lb.																	25.20
BALE HAY	7'	2	Jul	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50							0.00
Hay cut cond.																		10.72
BALE HAY	8.5'	1	Jul	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75							0.00
Hay rake																		2.63
BALE HAY	conv.	2	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50							0.00
Hay baler																		11.45
HAULING																		0.00
Wagon	10'x 20	2	Jul	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50							12.43
FERTILIZE																		0.00
Spin spreader	300 bu.	2	Jul	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76							3.25
Nitrogen	lb.																	12.00
BALE HAY	7'	2	Sep	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50							0.00
Hay cut cond.																		10.72
BALE HAY	8.5'	1	Sep	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75							0.00
Hay rake																		2.63
BALE HAY	conv.	2	Sep	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50							0.00
Hay baler																		11.45
HAULING																		0.00
Wagon	10'x 20	2	Sep	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50							12.43
FERTILIZE																		0.00
Spin spreader	300 bu.	2	Sep	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76							3.25
Nitrogen	lb.																	12.00
TOTALS						26.17	24.67	9.26	17.65		39.54							193.49
INTEREST ON OP. CAP.																		6.93
UNALLOCATED LABOR																		24.55
TOTAL SPECIFIED COSTS																		224.96

TABLE 162. ESTABLISHED ORCHARD GRASS STAND
 Estimated operation and input item costs per acre,
 4.5 Tons per acre Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS			
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST						
															DOLLARS			DOLLARS		
BALE HAY	7'	2	Jun	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50					0.00				
Hay cut cond.																10.72				
BALE HAY	8.5'	1	Jun	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75					0.00				
Hay rake																2.63				
BALE HAY	conv.	2	Jun	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50					0.00				
Hay baler																11.45				
HAULING	10'x 20'	2	Jun	1.00	0.250	1.35	1.28	0.10	0.55	1.000	5.00					0.00				
Wagon																8.28				
FERTILIZE	300 bu.	2	Jun	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76					0.00				
Spin spreader																3.25				
Nitrogen	lb.															12.00				
P205	lb.															15.00				
K2O	lb.															25.20				
BALE HAY	7'	2	Jul	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50					0.00				
Hay cut cond.																10.72				
BALE HAY	8.5'	1	Jul	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75					0.00				
Hay rake																2.63				
BALE HAY	conv.	2	Jul	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50					0.00				
Hay baler																11.45				
HAULING	10'x 20'	2	Jul	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50					0.00				
Wagon																12.43				
FERTILIZE	300 bu.	2	Jul	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76					0.00				
Spin spreader																3.25				
Nitrogen	lb.															12.00				
BALE HAY	7'	2	Sep	1.00	0.500	2.70	2.56	1.19	1.76	0.500	2.50					0.00				
Hay cut cond.																10.72				
BALE HAY	8.5'	1	Sep	1.00	0.150	0.68	0.61	0.21	0.38	0.150	0.75					0.00				
Hay rake																2.63				
BALE HAY	conv.	2	Sep	1.00	0.500	2.70	2.56	1.29	2.40	0.500	2.50					0.00				
Hay baler																11.45				
HAULING	10'x 20'	2	Sep	1.50	0.375	2.03	1.92	0.15	0.83	1.500	7.50					0.00				
Wagon																12.43				
FERTILIZE	300 bu.	2	Sep	1.00	0.153	0.83	0.78	0.26	0.61	0.153	0.76					0.00				
Spin spreader																3.25				
Nitrogen	lb.															12.00				
TOTALS						26.17	24.67	9.26	17.65		39.54					193.49				
INTEREST ON OP. CAP.																6.93				
UNALLOCATED LABOR																24.55				
TOTAL SPECIFIED COSTS																224.96				

TABLE 163. POTATO BUDGET (TABLESTOCK & CHIPPING)
Summary of estimated costs and returns per acre, Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	MACH.		TRACTOR COST		EQUIP. COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS
				HOURS	OVER	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	
				DOLLARS				DOLLARS				DOLLARS		
APPL HERBICIDE	30' 150g	2	Oct	1.00		0.130	0.70	0.67	0.10	0.33	0.169	0.84		0.00
Boom sprayer	gallon												0.375	77.92
Roundup														29.22
LIME FIELDS														0.00
Apply calcium lime	ton		Mar	1.00									0.500	22.00
PLOW														11.00
5 Btm. mb. plow	16" btm.	4	Mar	1.00		0.250	2.32	2.20	0.81	2.00	0.250	1.25		0.00
APPL INSECTICIDE														8.59
Boom sprayer	30' 150g	2	Apr	1.00		0.130	0.70	0.67	0.10	0.33	0.169	0.84		0.00
Dyfonate 4E	gallon												1.000	37.46
DISK FIELDS														0.00
Chisel plow	16'	4	Apr	1.00		0.220	2.04	1.94	0.27	0.67	0.220	1.10		6.02
PLANT FERT INSECT														0.00
Potato planter	4 row	16	Apr	1.00		0.500	2.46	1.73	4.00	9.50	0.500	2.50		20.18
Temik 15G	lb.												14.000	2.59
Nitrogen	lb.												170.000	0.24
P205	lb.												100.000	0.25
K20	lb.												250.000	0.14
Potato seed	cwt.												20.000	14.00
CULT HILL HERB														280.00
Cultivate early	6-Row	4	May	1.00		0.210	1.95	1.85	0.29	0.62	0.210	1.05		0.00
Sencor 4F	gallon												0.090	107.50
Dual 8E	gallon												0.167	50.61
CULTIVATE HILLING														8.45
Cultivate early	6-Row	4	Jun	1.00		0.210	1.95	1.85	0.29	0.62	0.210	1.05		0.00
APPL INSECTICIDE														5.76
Boom sprayer	30' 150g	3	Jul	4.00		0.520	4.08	3.83	0.42	1.31	0.676	3.38		0.00
Kryocide	lb.												24.000	1.32
Thiodan 50W	lb.												2.500	4.68
Vydate 2L	gallon												0.400	46.04
MONITOR 4E	gallon												0.252	54.07
APPL FUNGICIDE														13.63
Boom sprayer	30' 150g	3	Aug	6.00		0.780	6.12	5.75	0.63	1.97	1.014	5.07		0.00
Manzate 200	lb.												10.002	2.26
Ridomil 2E	gallon												0.240	129.68
Defoliate														31.12
Air blast sprayer	300 gallon	2	Sep	2.00		0.304	1.64	1.56	2.18	8.00	0.395	1.98		0.00
Diquat	gallon												0.250	60.98
HARVEST														15.36
Potato windrower	2 Row	5	Sep	1.00		1.000	11.03	10.16	5.00	10.75	1.000	5.00		15.24
HARVEST														0.00
Potato harvester	2 row	26	Sep	1.00		1.000	8.14	7.31	22.50	36.00	13.000	65.00		41.94
TOTALS							43.15	39.50	36.60	72.10	89.07			0.00
INTEREST ON OP. CAP.														657.26
UNALLOCATED LABOR														937.68
TOTAL SPECIFIED COSTS														46.10
														89.07
														1072.85

TABLE 164. FRESH SWEET CORN BUDGET
 Estimated operation and input item costs per acre,
 Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS	
					HOURS	DIRECT	EQUIP. COST	HOURS	DIRECT	FIXED	QUANT.	PRICE	COST		
					DOLLARS			DOLLARS			DOLLARS				
LIME FIELDS															
Apply calcium lime	ton		Mar	1.00								1.500	20.00	30.00	0.00
PLOW															30.00
5 Btm. mb. plow	16" btm	15	Apr	1.00	0.250	1.33	1.73	0.63	1.83	0.250	1.75				0.00
DISK AND HARROW															7.26
Plant-NT	8-Row	23	Apr	1.00	0.520	4.50	4.95	0.81	1.62	0.520	3.64				0.00
Sweet corn seed	lb.				0.110	0.95	1.05	0.52	1.29	0.110	0.77				0.00
Nitrogen	lb.											1.000	5.00	5.00	4.58
P205	lb.											10.000	0.23	2.30	5.00
K2O	lb.											60.000	0.22	13.20	2.30
APPL INSECTICIDE												60.000	0.14	8.40	13.20
Spread side dress	acre		Apr	1.00								1.000	5.40	5.40	8.40
Furadan 15-G	lb.											1.000	1.37	1.37	0.00
APPL HERBICIDE															0.00
Boom sprayer	21' 100G	9	May	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42				4.57
Atrazine 80W	lb.											2.000	1.93	3.86	4.57
Dual 8E	gallon											0.370	49.20	18.20	3.86
APPL INSECTICIDE															18.20
Air blast sprayer	300 gal.	9	May	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77				0.00
Sevin 50W	lb.											12.000	2.07	24.84	15.86
Lannate L 90%SP	lb.											3.000	16.28	48.84	24.84
FIELD CULTIVATION															48.84
Cultivating	acre		Jun	2.00								2.000	7.60	15.20	0.00
SIDE-DRESS & CULT															15.20
Apply fert. & cult.	acre		Jun	1.00								1.000	9.00	9.00	0.00
Nitrogen	lb.											20.000	0.23	4.60	9.00
TOTALS						8.62	10.30	4.54	13.99		10.35		190.21		238.00
INTEREST ON OP. CAP.															12.26
UNALLOCATED LABOR															13.45
TOTAL SPECIFIED COSTS															263.71

TABLE 165. FRESH MARKET BELL PEPPERS (YELLOW OR RED)

Estimated operation and input item costs per acre.

Irrigation and plastic mulch utilized Pennsylvania 1990

OPERATION OR ITEM	SIZE UNIT	TRAC. NUM.	MONTH PERFORM.	TIMES OVER	MACH. HOURS	TRACTOR DIRECT HOURS	EQUIP. COST	LABOR COST	DIRECT FIXED COST	FIXED COST	MATERIAL QUANT.	(OR SERVICE) PRICE COST	TOTAL COSTS
LIME FIELDS	ton		Mar	1.00							2.000	20.00	40.00
PLOW	16" btm	15	Mar	1.00	0.250	1.33	1.73	0.63	1.83	0.250	1.75		7.26
FERTILIZE			Apr	1.00									0.00
Spread side dress	acre										1.000	5.40	5.40
Nitrogen	lb.										75.000	0.23	17.25
P205	lb.										150.000	0.22	33.00
K2O	lb.										150.000	0.14	21.00
DISK HARROW	12'	15	Apr	1.00	0.217	1.15	1.50	1.23	5.74	0.217	1.52		11.14
APPL HERBICIDE			Apr	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42		0.00
Boom sprayer	21' 100G lb.	9									3.000	6.88	20.64
Devrinol 50WP	lb.												0.00
SURFACE BLEND HERB			Apr	1.00									6.07
Springtooth harrow	12'	15			0.217	1.15	1.50	0.42	1.47	0.217	1.52		0.00
APPL INSECTICIDE			Apr	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42		4.57
Boom sprayer	21' 100G gallon	9					431.30				0.750	24.90	18.67
Diazinon AG-500	gallon										1.000		574.30
TRICKLE IRRIGATION	acre		Apr	1.00							1.000	30.00	30.00
LAY PLASTIC MULCH	acre		May	1.00							5.810	50.00	290.50
Black smooth mulch	each										1.000	9.60	9.60
PLANTING	acre		May	1.00							18.000	0.92	16.56
Starter 12-48-8	lb.										18.000	60.00	1080.00
Pepper transplants	thsd										9.000	5.00	45.00
Transplant labor	hour												0.00
APPL FUNGICIDE			May	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84		9.14
Boom sprayer	21' 100G lb.	9									4.000	1.76	7.04
Manzate 200	lb.												0.00
APPL INSECTICIDE			May	3.00	0.468	1.87	2.61	1.20	3.78	0.608	4.26		13.71
Boom sprayer	21' 100G lb.	9									3.000	7.10	21.30
Orthene 75S	lb.										0.069	262.65	18.12
Asana	gallon												0.00
APPL FUNGICIDE			Jun	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84		9.14
Boom sprayer	21' 100G lb.	9									4.000	1.76	7.04
Manzate 200	lb.										4.000	11.52	46.08
Kocide 606	gallon												0.00
APPL INSECTICIDE			Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42		4.57
Boom sprayer	21' 100G lb.	9									1.000	7.10	7.10
Orthene 75S	lb.										2.000	5.06	10.12
Kelthane 35	lb.												0.00
APPL FUNGICIDE			Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42		4.57
Boom sprayer	21' 100G lb.	9									2.000	1.76	3.52
Manzate 200	lb.										1.000	7.80	7.80
Agri-strep type D	lb.												0.00
APPL INSECTICIDE			Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42		4.57
Boom sprayer	21' 100G lb.	9									1.000	7.10	7.10
Orthene 75S	lb.												0.00
TOTALS					11.09	15.19	438.38	92.14	96.82		1.000	7.10	7.10
INTEREST ON OP. CAP.												1762.85	2416.47
UNALLOCATED LABOR													122.63
TOTAL SPECIFIED COSTS													28.37
													2567.47

TABLE 166. FRESH MARKET CANTALOUPE BUDGET

Estimated operation and input item costs per acre,
Irrigation and plastic mulch utilized Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES OVER	MACH. HOURS	TRACTOR COST		EQUIP. COST		LABOR HOURS	MATERIAL (OR SERVICE) QUANT.	PRICE	COST	TOTAL COSTS
						DOLLARS	DOLLARS	DOLLARS	DOLLARS					
LIME FIELDS	ton		Mar	1.00								2.000	20.00	40.00
START SEED			Apr	1.00										0.00
Cantaloupe seed	lb.										0.500	115.00	57.50	57.50
Jiffy 7'S	case										4.000	46.05	184.20	184.20
Labor	hour										5.000	4.25	21.25	21.25
PLOW	16" btm	15	Apr	1.00	0.250	1.33	1.73	0.63	1.83	0.250				7.26
DISK HARROW	12'	15	Apr	1.00	0.217	1.15	1.50	1.23	5.74	0.217				11.14
APPL HERBICIDE			Apr	1.00										0.00
Boom sprayer	21' 100G	9			0.156	0.62	0.87	0.40	1.26	0.203				4.57
Prefar 4E	gallon										1.000	28.22	28.22	28.22
Alanap 3 22%	gallon										1.500	12.71	19.07	19.07
APPL INSECTICIDE			Apr	1.00										0.00
Boom sprayer	21' 100G	9			0.156	0.62	0.87	0.40	1.26	0.203				4.57
Methoxychlor 50W	lb.										3.500	3.41	11.94	11.94
TRICKLE IRRIGATION	acre		May	1.00				431.30	68.00	15.000				574.30
LAY PLASTIC MULCH			May	1.00							1.000			0.00
Lay plastic mulch	acre										1.000	30.00	30.00	30.00
Black smooth mulch	each										4.000	50.00	200.00	200.00
PLANT & BAND FERT			May	1.00										0.00
Plant & fertilize	acre										1.000	11.70	11.70	11.70
Nitrogen	lb.										75.000	0.23	17.25	17.25
P205	lb.										200.000	0.22	44.00	44.00
K20	lb.										100.000	0.14	14.00	14.00
Starter 12-48-8	lb.										18.000	0.92	16.56	16.56
PLANT & BAND FERT			May	1.00										0.00
Furadan 4F	gallon										5.440	47.93	260.74	260.74
Transplant labor	hour										10.000	5.00	50.00	50.00
APPLY PESTICIDES			Jun	1.00										0.00
Boom sprayer	21' 100G	9			0.156	0.62	0.87	0.40	1.26	0.203				4.57
Bayleton	lb.										0.250	34.00	8.50	8.50
Kelthane 35	lb.										1.300	5.06	6.58	6.58
APPLY PESTICIDES			Jun	2.00										0.00
Boom sprayer	21' 100G	9			0.312	1.24	1.74	0.80	2.52	0.406				9.14
Thiodan 50W	lb.										4.000	4.68	18.72	18.72
Benlate 50WP	lb.										1.000	12.50	12.50	12.50
APPLY PESTICIDES			Jun	2.00										0.00
Boom sprayer	21' 100G	9			0.312	1.24	1.74	0.80	2.52	0.406				9.14
Sevin 50W	lb.										8.000	2.07	16.56	16.56
Ridomil MZ58	lb.										4.000	7.55	30.20	30.20
APPL FUNGICIDE			Jun	8.00										0.00
Boom sprayer	21' 100G	9			1.248	4.98	6.97	3.20	10.07	1.622				36.57
Bravo 720	gallon										2.000	35.60	71.20	71.20
TOTALS						11.80	16.30	439.16	94.44	99.56		1170.68	1831.95	1831.95
INTEREST ON OP. CAP.														89.68
UNALLOCATED LABOR														31.93
TOTAL SPECIFIED COSTS														1953.57

TABLE 167. FRESH MARKET PINK RIPE TOMATO BUDGET
 Estimated operation and input item costs per acre,
 Field Grown Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	MACH.		EQUIP. COST		LABOR HOURS	LABOR COST	MATERIAL (OR SERVICE)		TOTAL COSTS
					DIRECT	FIXED	DIRECT	FIXED			QUANT.	PRICE	
					DOLLARS		DOLLARS		DOLLARS		DOLLARS		
LIME FIELDS													
Apply calcium lime	ton		Mar	1.00									0.00
FLOW													
5 Btm. mb. plow	16" btm	15	Mar	1.00	0.250	1.33	1.73	0.63	1.83	0.250	1.75	2.000	40.00
DISK FIELDS													
Tandem disk	acre		Apr	1.00								1.000	8.50
APPL HERBICIDE													
Boom sprayer	21' 100G	9	Apr	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42	3.000	20.64
Devrinol 50WP	lb.												0.00
SURFACE BLEND HERB													
Springtooth harrow	12'	15	Apr	1.00	0.217	1.15	1.50	0.42	1.47	0.217	1.52		0.00
PLANT & BAND FERT													
Plant & fertilize	acre		Apr	1.00									6.07
Tomato transplants	thsd											1.000	11.70
Starter 12-48-8	lb.											6.000	240.00
Nitrogen	lb.											12.000	11.04
P205	lb.											60.000	13.80
PLANT & BAND FERT												120.000	26.40
K2O	lb.		Apr	1.00								50.000	7.00
Transplant labor	hour											9.000	45.00
Vydate 2L	gallon											0.500	23.02
APPLY PESTICIDES													
Boom sprayer	21' 100G	9	May	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84	24.000	42.24
Manzate 200	lb.											0.160	16.86
Pydrin 2.4EC	gallon												0.00
APPL HERBICIDE													
Boom sprayer	21' 100G	9	May	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84	0.660	12.91
Sencor 75DF	lb.												0.00
APPL FUNGICIDE													
Boom sprayer	21' 100G	9	Jun	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84	24.000	42.24
Manzate 200	lb.											8.000	14.40
Kocide 101	lb.												0.00
APPL FUNGICIDE													
Boom sprayer	21' 100G	9	Jul	3.00	0.468	1.87	2.61	1.20	3.78	0.608	4.26	4.500	160.20
Bravo 720	gallon												0.00
APPLY PESTICIDES													
Boom sprayer	21' 100G	9	Aug	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42	0.080	8.43
Pydrin 2.4EC	gallon											1.500	53.40
Bravo 720	gallon												0.00
TOTALS					9.32	12.82	5.45	17.15	18.88			797.78	861.40
INTEREST ON OP. CAP.													50.35
UNALLOCATED LABOR													24.55
TOTAL SPECIFIED COSTS													936.29

TABLE 168. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 Estimated operation and input item costs per acre,
 Year of soil preparation Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TIMES OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST			
					DOLLARS			DOLLARS			DOLLARS			DOLLARS			
PLOW			May	1.00													0.00
5 Btm. mb. plow	16" btm	15			0.250	1.33	1.73	0.63	1.83	0.250	1.75						7.26
DISK AND HARROW			May	1.00													0.00
Disk harrow	12'	15			0.217	1.15	1.50	1.23	5.74	0.217	1.52						11.14
STONE/ROOT REMOVAL			Jun	1.00													0.00
Wagon	10'x 20'	15						2.01	8.53	2.000	14.00			6.000	4.25	25.50	24.54
Labor	hour																25.50
HARROW			Jun	1.00													0.00
Springtooth harrow	12'	15			0.217	1.15	1.50	0.42	1.47	0.217	1.52						6.07
SUBSOILING			Jun	1.00													0.00
Subsoiling	acre													1.000	20.00	20.00	20.00
LIME FIELDS			Jun	1.00													0.00
Apply calcium lime	ton													1.500	20.00	30.00	30.00
CUSTOM FUMIGATION			Jul	1.00													0.00
Fumigation	acre													1.000	1200.00	1200.00	1200.00
Labor	hour													1.500	4.25	6.38	6.38
FERTILIZE			Aug	1.00													0.00
Ammonium nitrate	lb.													45.000	0.09	4.05	4.05
Labor	hour													1.000	4.25	4.25	4.25
PLANT COVER CROP			Aug	1.00													0.00
Grain drilling	acre													1.000	8.40	8.40	8.40
Grass seed	lb.													30.000	0.50	15.00	15.00
TOTALS					3.63	4.74	4.28	17.58		18.79			1313.58				1362.58
INTEREST ON OP. CAP.																	41.28
UNALLOCATED LABOR																	6.22
TOTAL SPECIFIED COSTS																	1410.09

TABLE 169. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS),
Year of planting, Estimated operation and input item costs per acre, Pennsylvania 1990

OPERATION OR ITEM	SIZE UNIT	TRAC. NUM.	MONTH PERFF.	TIMES OVER	MACH. HOURS	TRACTOR DIRECT HOURS	EQUIP. COST FIXED	LABOR COST HOURS	MATERIAL QUANT.	(OR SERVICE) PRICE	TOTAL COSTS
TREE PLANTER	day		Apr	1.00					5.800	40.00	232.00
Apple trees	each								267.000	4.00	1068.00
Labor	hour								175.000	4.25	743.75
PRUNING SHEARS	each		May	1.00					1.000	10.45	10.45
Labor	hour								1.200	4.25	5.10
INSTALL TREE GUARDS	hour		May	1.00					5.800	4.25	24.65
Labor	tree								267.000	0.15	40.05
IRRIGATE	acre		May	1.00			431.30	68.00	1.000	4.25	574.30
Trickle irrigation	hour								3.000		12.75
Labor	ft		Jun	1.00					4112.000		0.00
INSTALL TRELLIS	post								112.000	3.57	399.84
Trellis wire	acre								2.000	14.00	28.00
Trellis posts	day								1.000	30.00	30.00
Trellis anchors	hour								26.000	4.25	110.50
Auger	6ft	10	Jun	3.00	1.137	4.93	3.02	4.43	3.000	4.25	25.56
Labor	hour										12.75
BUSH HOG	hour		Jun	1.00					3.000	4.25	12.75
Labor	each								3.000	4.25	12.75
PRUNE & TRAIN	each		Jun	1.00					1.000	10.45	10.45
Pruning shears	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	0.370	5.12	1.89
APPL FUNGICIDE	lb.										7.93
Air blast sprayer	300 gallons		Jul	1.00	0.152	0.61	0.85	1.09	0.370	5.12	1.89
Cyprex 65W	lb.								1.000	4.68	4.68
APPLY PESTICIDES	lb.		Jul	2.00	0.304	1.21	1.70	2.18	0.500	25.58	12.79
Air blast sprayer	300 gallons										15.86
Cyprex 65W	lb.		Jul	1.00					1.000		12.79
Thiodan 50W	acre										0.00
APPL INSECTICIDE	hour		Jul	1.00					1.000	50.00	50.00
Air blast sprayer	acre								2.000	4.25	8.50
Carzol SP	acre								1.000		138.80
DEER CONTROL	gallon		Jul	1.00							0.00
Ivory soap	gallon										0.00
Labor	gallon										0.00
ORCHARD IRRIGATION	gallon		Jul	1.00							0.00
APPL HERBICIDE	gallon		Jul	1.00							0.00
Apply herbicide	gallon										0.00
Gramoxone super	gallon										0.00
Surflan green	gallon										0.00
MOUSE CONTROL	acre		Aug	1.00							0.00
Mouse bait	hour										0.00
Labor	hour										0.00
APPL INSECTICIDE	300 gallons		Aug	2.00	0.304	1.21	1.70	2.18	2.000	4.25	15.86
Air blast sprayer	lb.										0.00
Thiodan 50W	lb.										0.00
TOTALS					8.57	10.30	454.67	96.43	2.000	4.68	3170.61
INTEREST ON OP. CAP.											237.03
TOTALS											21.14

TABLE 170. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 Estimated operation and input item costs per acre,
 First year after planting Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	PERF. OVER	TIMES MACH.	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS			
						HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST						
						DOLLARS			DOLLARS			DOLLARS			DOLLARS						
REPLANT			Apr	1.00																	
Labor	hour																				0.00
Apple trees	each																				4.25
FERTILIZE			May	1.00																	16.00
Ammonium nitrate	lb.																				0.00
Labor	hour																				4.09
APPL FUNGICIDE			May	1.00																	4.25
Air blast sprayer	300 gallons					0.152	0.61	0.85	1.09	4.00	0.198	1.38									0.00
Cyprex 65W	lb.																				7.93
APPLY PESTICIDES			May	1.00																	10.24
Air blast sprayer	300 gallons					0.152	0.61	0.85	1.09	4.00	0.198	1.38									0.00
Cyprex 65W	lb.																				7.93
Thiodan 50W	lb.																				10.24
PRUNE & TRAIN			May	1.00																	0.00
Pruning shears	each																				0.00
Labor	hour																				10.45
IRRIGATE			Jun	1.00																	51.00
Orchard irrigation	acre								13.80	25.000	125.00										0.00
MOW			Jun	4.00																	138.80
Bush hog	6ft	10																			0.00
Labor	hour					1.516	6.58	6.94	4.03	5.91	1.516	10.61									34.08
APPL INSECTICIDE			Jun	2.00																	4.25
Air blast sprayer	300 gallons					0.304	1.21	1.70	2.18	8.00	0.395	2.77									0.00
Carzol SP	lb.																				15.86
DEER CONTROL			Jun	1.00																	12.79
Air blast sprayer	300 gallons					0.152	0.61	0.85	1.09	4.00	0.198	1.38									0.00
Ivory soap	acre																				7.93
Labor	hour																				15.00
MOUSE CONTROL			Jun	1.00																	2.66
Mouse bait	acre																				0.00
Labor	hour																				3.30
APPL HERBICIDE			Jul	1.00																	2.13
Apply herbicide	acre																				0.00
Gramoxone super	gallon																				4.70
APPL INSECTICIDE			Aug	2.00																	13.31
Air blast sprayer	300 gallons					0.304	1.21	1.70	2.18	8.00	0.395	2.77									0.00
Thiodan 50W	lb.																				15.86
TOTALS							10.82	12.88	25.47	33.91	145.29										425.10
INTEREST ON OP. CAP.																					20.98
UNALLOCATED LABOR																					26.38
TOTAL SPECIFIED COSTS																					472.47

TABLE 171. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 Estimated operation and input item costs per acre,
 Two years after planting Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES PERF.	MACH. HOURS	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
						DIRECT	FIXED	COST	DIRECT	FIXED	COST	HOURS	COST	QUANT.	PRICE	COST		
						DOLLARS			DOLLARS			DOLLARS			DOLLARS			
FERILIZE																		
Spin spreader	300bu	8	May	1.00	0.153	0.56	0.61	0.26	0.61	0.153	1.07							0.00
Ammonium nitrate	lb.											121.000	0.09	10.89				3.11
Labor	hour											1.500	4.25	6.38				10.89
APPL HERBICIDE																		
Apply herbicide	acre		May	2.00								2.000	4.70	9.40				0.00
Gramoxone super	gallon											0.750	35.50	26.63				9.40
Princep 80W	lb.											6.000	2.08	12.48				26.63
Sollicam DF	lb.											4.000	13.42	53.68				12.48
PRUNE & TRAIN																		
Pruning shears	each		May	1.00								1.000	10.45	10.45				0.00
Labor	hour											12.000	4.25	51.00				10.45
APPL FUNGICIDE																		
Air blast sprayer	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							0.00
Cyprex 65W	lb.											0.625	5.12	3.20				7.93
IRRIGATE																		
Orchard irrigation	acre		Jun	1.00				13.80		25.000	125.00	1.000						0.00
MOW																		
Bush hog	6ft	10	Jun	5.00	1.895	8.22	8.68	5.04	7.39	1.895	13.26							138.80
APPLY PESTICIDES																		
Air blast sprayer	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							0.00
Cyprex 65W	lb.											0.625	5.12	3.20				7.93
Thiodan 50W	lb.											2.000	4.68	9.36				3.20
MOUSE CONTROL																		
Mouse bait	acre		Jun	1.00								1.000	3.30	3.30				0.00
Labor	hour											5.000	4.25	21.25				3.30
DEER CONTROL																		
Air blast sprayer	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							0.00
Ivory soap	acre											1.000	50.00	50.00				21.25
Labor	hour											6.250	4.25	26.56				0.00
APPL INSECTICIDE																		
Air blast sprayer	300 gallons		Jun	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77							0.00
Carzol SP	lb.											1.000	25.58	25.58				15.86
APPL INSECTICIDE																		
Air blast sprayer	300 gallons		Jul	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77							0.00
Thiodan 50W	lb.											4.000	4.68	18.72				15.86
TOTALS																		
INTEREST ON OP. CAP.						13.03	15.23	26.74	36.00		149.02							582.08
UNALLOCATED LABOR																		29.66
TOTAL SPECIFIED COSTS																		31.22
																		642.96

TABLE 172. FRESH MARKET APPLES (RED OR GOLDEN DELICIOUS)
 Estimated operation and input item costs per acre,
 First year of harvest Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES	MACH.	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS	
						DIRECT	FIXED	HOURS	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST				
						DOLLARS			DOLLARS			DOLLARS			DOLLARS				
LIME FIELDS			May	1.00															0.00
Apply calcium lime	ton												1.500	20.00	30.00				30.00
FERTILIZE			May	1.00															0.00
Spin spreader	300bu	8			0.153	0.56	0.61	0.26	0.61	0.153	1.07								3.11
Ammonium nitrate	lb.											151.250	0.09	13.61					13.61
Labor	hour											1.500	4.25	6.38					6.38
MOW			May	5.00															0.00
Bush hog	6ft	10			1.895	8.22	8.68	5.04	7.39	1.895	13.26								42.60
APPLY PESTICIDES			May	1.00															0.00
Lorsban 4E	gallon											0.250	33.94	8.48					8.48
Superior oil	gallon											3.000	5.54	16.62					16.62
APPLY PESTICIDES			May	8.00															0.00
Air blast sprayer	300 gallons				1.216	4.85	6.79	8.73	31.99	1.581	11.07								63.42
Labor	hour											10.000	4.25	42.50					42.50
APPLY PESTICIDES			May	2.00															0.00
Benlate 50WP	lb.											1.000	12.50	12.50					12.50
Manzate 200	lb.											6.000	1.76	10.56					10.56
PRUNE & TRAIN			May	1.00															0.00
Pruning shears	each											1.000	10.45	10.45					10.45
Labor	hour											12.000	4.25	51.00					51.00
IRRIGATE			May	1.00															0.00
Orchard irrigation	acre							13.80		25.000	125.00	1.000							138.80
APPL HERBICIDE			Jun	2.00															0.00
Apply herbicide	acre											2.000	4.70	9.40					9.40
Princep 80W	lb.											6.000	2.08	12.48					12.48
Sollicam DF	lb.											4.000	13.42	53.68					53.68
Gramoxone super	gallon											0.750	35.50	26.63					26.63
Labor	hour											5.000	4.25	21.25					21.25
MOUSE CONTROL			Jun	1.00															0.00
Mouse bait	acre											1.000	3.30	3.30					3.30
Labor	hour											5.000	4.25	21.25					21.25
DEER CONTROL			Jun	1.00															0.00
Air blast sprayer	300 gallons				0.152	0.61	0.85	1.09	4.00	0.198	1.38								7.93
Ivory soap	acre											1.000	50.00	50.00					50.00
Labor	hour											0.625	4.25	2.66					2.66
APPLY PESTICIDES			Jun	1.00															0.00
POUNCE	gallon											0.040	141.27	5.65					5.65
Benlate 50WP	lb.											0.500	12.50	6.25					6.25
Manzate 200	lb.											3.000	1.76	5.28					5.28
Lorsban 50WP	lb.											3.000	4.57	13.71					13.71
APPLY PESTICIDES			Jul	1.00															0.00
Benlate 50WP	lb.											0.500	12.50	6.25					6.25
Manzate 200	lb.											3.000	1.76	5.28					5.28
Guthion 35W	lb.											0.500	3.74	1.87					1.87
Pennpac M	gallon											0.125	18.32	2.29					2.29

TABLE 173. FRESH MARKET APPLIES (RED OR GOLDEN DELICIOUS),
 Estimated operation and input item costs per acre,
 Second year of harvest Pennsylvania 1990

OPERATION OR ITEM	SIZE UNIT	TRAC. NUM.	MONTH	PERF. OVER	DOLLARS			DOLLARS			MATERIAL (OR SERVICE) QUANT.	PRICE	COST	TOTAL COSTS
					HOURS	DIRECT	FIXED	HOURS	COST	EQUIP. COST				
FERTILIZE			May	1.00										0.00
Spin spreader	300bu	8			0.153	0.56	0.61	0.26	0.61	0.153	1.07	242.000	0.09	21.78
Ammonium nitrate	lb.											1.000	4.25	4.25
Labor	hour													0.00
FERTILIZE			May	1.00								20.000	0.21	4.20
Spin spreader	300bu	8			0.153	0.56	0.61	0.26	0.61	0.153	1.07			3.11
Calcium chloride	lb.													4.20
MOW			May	5.00										0.00
Bush hog	6ft	10			1.895	8.22	8.68	5.04	7.39	1.895	13.26			42.60
APPLY PESTICIDES			May	10.00										0.00
Air blast sprayer	300 gallons				1.520	6.06	8.49	10.91	39.99	1.976	13.83	12.500	4.25	53.13
Labor	hour													0.00
APPLY PESTICIDES			May	1.00				13.80		25.00	125	1.000		138.80
Superior oil	gallon											4.000	5.54	22.16
Lorsban 4E	gallon											0.313	33.94	10.61
APPLY PESTICIDES			May	2.00										0.00
Benlate 50WP	lb.											1.250	12.50	15.63
Manzate 200	lb.											7.500	1.76	13.20
IRRIGATE			May	1.00										0.00
Orchard irrigation	acre											1.000		138.80
PRUNE & TRAIN			May	1.00										0.00
Pruning shears	each											1.000	10.45	10.45
Labor	hour											13.000	4.25	55.25
APPL HERBICIDE			Jun	2.00										0.00
Apply herbicide	acre											2.000	4.70	9.40
Princep 80W	lb.											6.000	2.08	12.48
Sollicam DF	lb.											4.000	13.42	53.68
Gramoxone super	gallon											0.750	35.50	26.63
Labor	hour											5.000	4.25	21.25
MOUSE CONTROL			Jun	1.00										0.00
Mouse bait	acre											1.000	3.30	3.30
Labor	hour											5.000	4.25	21.25
DEER CONTROL			Jun	1.00										0.00
Air blast sprayer	300 gallons				0.152	0.61	0.85	1.09	4.00	0.198	1.38	1.000	50.00	50.00
Ivory soap	acre											1.250	4.25	5.31
Labor	hour													0.00
APPLY PESTICIDES			Jun	1.00								0.049	141.27	6.89
FOUNCE	gallon											0.675	12.50	8.44
Benlate 50WP	lb.											3.750	1.76	6.60
Manzate 200	lb.											3.750	4.57	17.14
Lorsban 50WP	lb.													0.00
APPLY PESTICIDES			Jul	1.00								0.675	12.50	8.44
Benlate 50WP	lb.											3.750	1.76	6.60
Manzate 200	lb.											0.675	3.74	2.52
Guthion 35W	lb.											0.156	18.32	2.86
Pennncap M	gallon													0.00

TABLE 174. FRESH MARKET BELL PEPPERS (YELLOW OR RED)

Estimated operation and input item costs per acre,
Without the utilization of irrigation or plastic mulch Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	TRAC. MONTH	TRACTOR COST		EQUIP. COST		LABOR		MATERIAL QUANT.	PRICE COST		TOTAL COSTS	
				DIRECT	FIXED	DIRECT	FIXED	HOURS	COST		QUANT.	PRICE		COST
APPLY CALCIUM LIME	ton	15	Mar	1.00	0.250	1.33	1.73	0.63	1.83	0.250	1.75	2.000	20.00	40.00
PLOW	16" btm	15	Apr	1.00										7.26
FERTILIZE														
Spread side dress	acre									1.000	5.40		5.40	0.00
Nitrogen	lb.									75.000	0.23		17.25	5.40
P205	lb.									150.000	0.22		33.00	17.25
K2O	lb.									150.000	0.14		21.00	33.00
DISK HARROW	12'	15	Apr	1.00	0.217	1.15	1.50	1.23	5.74	0.217	1.52			21.00
APPL HERBICIDE														11.14
Boom sprayer	21' 100G	9	Apr	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42			0.00
Devrinol 50WP	lb.									3.000	6.88		20.64	4.57
SURFACE BLEND HERB														0.00
Springtooth harrow	12'	15	Apr	1.00	0.217	1.15	1.50	0.42	1.47	0.217	1.52			6.07
APPL INSECTICIDE														0.00
Boom sprayer	21' 100G	9	Apr	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42			4.57
Diazinon AG-500	gallon									0.750	24.90		18.67	18.67
PLANT														0.00
Planting	acre													0.00
Starter 12-48-8	lb.									1.000	9.60		9.60	0.00
Pepper transplants	thsd									18.000	0.92		16.56	9.60
Transplant labor	hour									18.000	60.00		1080.00	16.56
APPL FUNGICIDE										9.000	5.00		45.00	1080.00
Boom sprayer	21' 100G	9	May	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84			45.00
Manzate 200	lb.									4.000	1.76		7.04	0.00
APPL INSECTICIDE														0.00
Boom sprayer	21' 100G	9	May	3.00	0.468	1.87	2.61	1.20	3.78	0.608	4.26			13.71
Orthene 75S	lb.									3.000	7.10		21.30	21.30
Asana	gallon									0.069	262.65		18.12	18.12
APPL FUNGICIDE														0.00
Boom sprayer	21' 100G	9	Jun	2.00	0.312	1.24	1.74	0.80	2.52	0.406	2.84			0.00
Manzate 200	lb.									4.000	1.76		7.04	9.14
Kocide 606	gallon									4.000	11.52		46.08	7.04
APPL INSECTICIDE														0.00
Boom sprayer	21' 100G	9	Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42			4.57
Orthene 75S	lb.									1.000	7.10		7.10	4.57
Kelthane 35	lb.									2.000	5.06		10.12	7.10
APPL FUNGICIDE														0.00
Boom sprayer	21' 100G	9	Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42			0.00
Manzate 200	lb.									2.000	1.76		3.52	4.57
Agri-strep type D	lb.									1.000	7.80		7.80	3.52
APPL INSECTICIDE														0.00
Boom sprayer	21' 100G	9	Jul	1.00	0.156	0.62	0.87	0.40	1.26	0.203	1.42			4.57
Orthene 75S	lb.									1.000	7.10		7.10	4.57
TOTALS					11.09	15.19	7.08	24.14	21.82	1.000	7.10		7.10	7.10
INTEREST ON OP. CAP.													1442.35	1521.67
UNALLOCATED LABOR														76.22
TOTAL SPECIFIED COSTS														28.37
														1626.27

TABLE 175. FRESH MARKET CANTALOUPE BUDGET
 Estimated operation and input item costs per acre,
 Without the utilization of irrigation or plastic mulch Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TRACTOR COST		EQUIP. COST		LABOR HOURS	MATERIAL (OR SERVICE) COST	TOTAL COSTS
				DIRECT	FIXED	DIRECT	FIXED			
LIME FIELDS			Mar	1.00						0.00
Apply calcium lime	ton								20.00	40.00
START SEED			Apr	1.00						0.00
Cantaloupe seed	lb.								115.00	57.50
Jiffy 7'S	case								46.05	184.20
Labor	hour								4.25	21.25
PLOW			Apr	1.00						0.00
5 Btm. mb. plow	16" btm	15		0.250	1.33	1.73	0.63	1.83	0.250	1.75
DISK AND HARROW			Apr	1.00						0.00
Disk harrow	12'	15		0.217	1.15	1.50	1.23	5.74	0.217	1.52
APPL HERBICIDE			Apr	1.00						0.00
Boom sprayer	21' 100G	9		0.156	0.62	0.87	0.40	1.26	0.203	1.42
Prefar 4E	gallon									28.22
Alanap 3 22%	gallon								12.71	19.07
APPL INSECTICIDE			Apr	1.00						0.00
Boom sprayer	21' 100G	9		0.156	0.62	0.87	0.40	1.26	0.203	1.42
Methoxychlor 50W	lb.									4.57
PLANT & BAND FERT			May	1.00						0.00
Plant & fertilize	acre								3.41	11.94
Nitrogen	lb.								11.70	11.70
P2O5	lb.								0.23	17.25
K2O	lb.								0.22	44.00
Starter 12-48-8	lb.								0.14	14.00
PLANT & BAND FERT			May	1.00						16.56
Furadan 4F	gallon									0.00
Transplant labor	hour								47.93	260.74
APPLY PESTICIDES			Jun	1.00						50.00
Boom sprayer	21' 100G	9		0.156	0.62	0.87	0.40	1.26	0.203	1.42
Bayleton	lb.									4.57
Kelthane 35	lb.								34.00	8.50
APPLY PESTICIDES			Jun	2.00						6.58
Boom sprayer	21' 100G	9		0.312	1.24	1.74	0.80	2.52	0.406	2.84
Thiodan 50W	lb.									9.14
Benlate 50WP	lb.								4.68	18.72
APPLY PESTICIDES			Jun	2.00						0.00
Boom sprayer	21' 100G	9		0.312	1.24	1.74	0.80	2.52	0.406	2.84
Sevin 50W	lb.									9.14
Ridomil MZ58	lb.								2.07	16.56
APPL FUNGICIDE			Jun	8.00						30.20
Boom sprayer	21' 100G	9		1.248	4.98	6.97	3.20	10.07	1.622	11.36
Bravo 720	gallon									0.00
TOTALS					11.80	16.30	7.86	26.44	24.56	71.20
INTEREST ON OP. CAP.									940.68	1027.65
UNALLOCATED LABOR										52.87
TOTAL SPECIFIED COSTS										31.93
										1112.45

TABLE 177. SUMMER BEARING RED RASPBERRIES ON TRELLIS, PYO
 Estimated operation and input item costs per acre,
 Year of planting Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH PERF.	TRACTOR COST		EQUIP. COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS	
				HOURS	DIRECT	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE		COST
				DOLLARS		DOLLARS		DOLLARS		DOLLARS			
PLOW COVER CROP	16" btm	15	Mar	1.00								0.00	
5 Btm. mb. plow			Apr	1.00	0.250	1.33	1.73	0.63	1.83	0.250	1.75	7.26	
DISK FIELDS	acre		May	1.00						1.000	8.50	0.00	
Tandem disking	acre											8.50	
PLANT	acre											0.00	
Planting	hour									1.000	9.60	9.60	
Transplant labor	thsd									20.000	5.00	100.00	
Raspberry plants										3.000	580.00	1740.00	
FERTILIZE	acre		May	1.00								0.00	
Spread dry fert	lb.									1.000	4.70	4.70	
Nitrogen	hour									30.000	0.23	6.90	
HAND HOE	each		Jun	2.00								0.00	
Labor										12.000	4.25	51.00	
Hoe										2.000	12.00	24.00	
MOW	6ft	27	Jun	3.00	1.041	1.96	2.78	2.95	5.40	1.041	7.29	0.00	
Sickle bar mower	acre		Jun	1.00								20.38	
IRRIGATE	acre											0.00	
Trickle irrigation										431.30	68.00	15.000	75.00
INSTALL TRELLIS	hour		Jul	1.00						1.000		574.30	
Labor	each									4.000	4.25	17.00	
Raspberry stakes										\$2500.000		0.00	
Raspberry wire	acre										0.15	375.00	
APPL HERBICIDE	acre		Jul	2.00						1.000	125.00	125.00	
Apply herbicide	lb.											0.00	
Devrinol 50WP	lb.									2.000	4.70	9.40	
Princep 80W	gallon									5.000	6.88	34.40	
Surflan green										2.000	2.08	4.16	
APPL INSECTICIDE	300 gallons		Jul	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77	0.00	
Air blast sprayer	lb.									4.000	2.07	8.28	
Sevin 50W												0.00	
APPLY ROOT ROT SPRAY	300 gallons		Oct	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38	7.93	
Air blast sprayer	gallon											0.00	
Ridomil 2E										0.500	129.68	64.84	
TOTALS					5.10	7.06	438.14	87.23	88.19	2809.98	3435.71	176.00	
INTEREST ON OP. CAP.												17.14	
UNALLOCATED LABOR												3628.85	
TOTAL SPECIFIED COSTS													

TABLE 178. SUMMER BEARING RED RASPBERRIES ON TRELLIS, PYO
 Estimated operation and input item costs per acre,
 Year after planting Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES PER. OVER	MACH.	TRACTOR COST		LABOR		MATERIAL (OR SERVICE)		TOTAL COSTS
						DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	
FERTILIZE			Mar	1.00								0.00
Spread dry fert	acre									1.000	4.70	4.70
Nitrogen	lb.									30.000	0.23	6.90
PRUNE & REMOVE CANES			Mar	1.00								0.00
Labor	hour									5.000	4.25	21.25
Pruning shears	each									1.000	10.45	10.45
LIME FIELDS			Mar	1.00								0.00
Gypsum	gallon									10.000	8.80	88.00
Apply fertilizer	acre									1.000	5.00	5.00
APPLY ROOT ROT SPRAY			Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38	7.93
Air blast sprayer	300 gallons											64.84
Ridomil 2E	gallon		Apr	1.00						0.500	129.68	64.84
REPLANT			Apr	1.00								0.00
Transplant labor	hour									2.000	5.00	10.00
Raspberry plants	thsd									0.200	580.00	116.00
APPLY PESTICIDES			Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38	7.93
Air blast sprayer	300 gallons											0.00
Captan 50W	lb.		May	1.00						4.000	1.32	5.28
MAINTAIN TRELLIS			May	1.00						1.000	4.25	4.25
Labor	hour											0.00
APPL INSECTICIDE			May	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77	15.86
Air blast sprayer	300 gallons											15.36
Malathion 25W	lb.		Jun	1.00						16.000	0.96	15.36
HAND HOE			Jun	1.00								0.00
Labor	hour									6.000	4.25	25.50
Hoe	each									1.000	12.00	12.00
MOW			Jun	3.00	1.041	1.96	2.78	2.95	5.40	1.041	7.29	20.38
Sickle bar mower	6ft	27										0.00
APPL FUNGICIDE			Jun	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77	15.86
Air blast sprayer	300 gallons											18.75
Benlate 50WP	lb.		Jun	6.00						6.000	1.32	7.92
Captan 50W	lb.											0.00
IRRIGATE			Jun	6.00								0.00
Irrigation operating in/A	in/A									6.000		158.51
HARVEST SUPERVISION			Jul	1.00								0.00
Labor	hour									4.000	4.25	17.00
Rasp harvest exp	acre									1.000	75.00	75.00
HAND HOE			Jul	1.00								0.00
Labor	hour									6.000	4.25	25.50
Hoe	each									1.000	12.00	12.00
PRUNE & REMOVE CANES			Jul	1.00								0.00
Labor	hour									15.000	4.25	63.75
Pruning shears	each									1.000	10.45	10.45
HARVEST CLEAN-UP			Aug	1.00								0.00
Labor	hour									1.500	4.25	6.38
TAKE LEAF SAMPLES			Aug	1.00								0.00
Labor	hour									1.000	4.25	4.25
Rasp leaf test	acre									1.000	20.00	20.00

APPLY PESTICIDES											
Air blast sprayer	300 gallons	Aug	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77	0.00
Malathion 25W	lb.										15.86
Benlate 50WP	lb.										15.36
Captan 50W	lb.										18.75
APPLY ROOT ROT SPRAY											
Air blast sprayer	300 gallons	Oct	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38	0.00
Ridomil 2E	gallon										7.93
APPL HERBICIDE											
Apply herbicide	acre										64.84
Princep 80W	lb.										0.00
Surflan green	gallon										4.70
											4.16
											284.00
TOTALS											
INTEREST ON OP. CAP.				7.41	10.42	90.27	107.39			34.74	1300.49
UNALLOCATED LABOR											62.81
TOTAL SPECIFIED COSTS											25.66
											1388.96

TABLE 179. SUMMER BEARING RED RASPBERRIES ON TRELIS, PYO
 Estimated operation and input item costs per acre,
 Two years after planting Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES OVER	TRACTOR COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS
					HOURS	DIRECT	FIXED	EQUIP. COST	DIRECT	FIXED	HOURS	COST	QUANT.	
					---DOLLARS---			---			---DOLLARS---			
PRUNE & TRAIN			Mar	1.00										0.00
Labor	hour													170.00
Pruning shears	each		Mar	1.00										10.45
FERTILIZE														0.00
Nitrogen	lb.													6.90
Spread dry fert	acre		Apr	1.00										4.70
LIME FIELDS														0.00
Gypsum	gallon													176.00
Apply fertilizer	acre													5.00
APPLY ROOT ROT SPRAY														0.00
Air blast sprayer	300 gallons		Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38			7.93
Ridomil 2E	gallon													64.84
APPLY PESTICIDES														0.00
Air blast sprayer	300 gallons		Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38			7.93
Captan 50W	lb.													5.28
APPL HERBICIDE														0.00
Apply herbicide	acre		Apr	1.00										4.70
Gramoxone super	gallon													8.88
APPL INSECTICIDE														0.00
Air blast sprayer	300 gallons		May	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38			7.93
Malathion 25W	lb.													7.68
MAINTAIN TRELIS														0.00
Labor	hour		May	1.00										4.25
HAND HOE														0.00
Labor	hour		Jun	2.00										51.00
Hoe	each													24.00
MOW														0.00
Sickle bar mower	6ft	27	Jun	4.00										27.17
IRRIGATE														0.00
Irrigation operating in/A			Jun	5.00	1.388	2.61	3.71	3.93	7.20	1.388	9.72			143.09
APPL INSECTICIDE														0.00
Air blast sprayer	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38			7.93
Malathion 25W	lb.													7.68
APPL FUNGICIDE														0.00
Air blast sprayer	300 gallons		Jun	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77			15.86
Benlate 50WP	lb.													18.75
Captan 50W	lb.													7.92
HARVEST SUPERVISION														0.00
Wagon	10'x 20'	27	Jul	1.00										24.54
Labor	hour													27.63
Rasp harvest exp	acre													450.00
PRUNE & REMOVE CANES														0.00
Labor	hour		Aug	1.00										170.00
Pruning shears	each													10.45

TABLE 180. SUMMER BEARING RED RASPBERRIES ON TRELIS, PYO
 Estimated operation and input item costs per acre,
 Established patch Pennsylvania 1990

OPERATION OR ITEM	SIZE OR UNIT	TRAC. NUM.	MONTH	TIMES PERF. OVER	TRACTOR COST			EQUIP. COST			LABOR			MATERIAL (OR SERVICE)			TOTAL COSTS	
					HOURS	DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	QUANT.	PRICE	COST				
					DOLLARS			DOLLARS			DOLLARS			DOLLARS				
PRUNE & TRAIN			Mar	1.00														0.00
Labor	hour																	212.50
Pruning shears	each		Mar	1.00														10.45
FERTILIZE																		0.00
Spread dry fert	acre																	4.70
Nitrogen	lb.		Apr	1.00														6.90
LIME FIELDS																		0.00
Gypsum	gallon																	176.00
Apply fertilizer	acre																	5.00
APPLY ROOT ROT SPRAY																		0.00
Air blast sprayer	300 gallons		Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							7.93
Ridomil 2E	gallon		Apr	1.00														64.84
APPLY PESTICIDES																		0.00
Air blast sprayer	300 gallons		Apr	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							7.93
Captan 50W	lb.		Apr	1.00														5.28
APPL HERBICIDE																		0.00
Apply herbicide	acre		Apr	1.00														4.70
Gramoxone super	gallon																	8.88
MAINTAIN TRELIS																		0.00
Labor	hour		May	1.00														4.25
APPL INSECTICIDE																		0.00
Air blast sprayer	300 gallons		May	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							7.93
Malathion 25W	lb.		Jun	2.00														7.68
HAND HOE																		0.00
Labor	hour		Jun	2.00														51.00
Hoe	each																	24.00
MOW																		0.00
Sickle bar mower	6ft	27	Jun	5.00	1.735	3.27	4.64	4.91	9.00	1.735	12.15							33.96
APPL INSECTICIDE																		0.00
Air blast sprayer	300 gallons		Jun	1.00	0.152	0.61	0.85	1.09	4.00	0.198	1.38							7.93
Malathion 25W	lb.		Jun	2.00														7.68
APPL FUNGICIDE																		0.00
Air blast sprayer	300 gallons		Jun	2.00	0.304	1.21	1.70	2.18	8.00	0.395	2.77							15.86
Captan 50W	lb.																	7.92
Benlate 50WP	lb.		Jun	6.00														18.75
IRRIGATE																		0.00
Irrigation operating	in/A		Jun	6.00														158.51
HARVEST SUPERVISION																		0.00
Wagon	10' x 20'	27	Jul	1.00														24.54
Labor	hour																	27.63
Rasp harvest exp	acre																	450.00
PRUNE & REMOVE CANES																		0.00
Labor	hour		Aug	1.00														63.75
Pruning shears	each																	10.45

APPENDIX A

BASIC ECONOMIC PRINCIPLES AND RELATIONSHIPS

Understanding the basic economic principles and relationship helps to reinforce our effectiveness in predicting the outcome of many farm management decisions. A brief summary of these principles and relationships follows.

Principle of Diminishing Returns

This principle states that when successive units of one resource are added while all other resources are held constant, the total output or production tends to: (1) increase at an increasing rate, (2) increase at a decreasing rate, (3) reach a maximum, and (4) decrease if further amounts are applied.

Maximum Profit Point

To maximize profits, continue to add successive units of a resource (such as fertilizer, labor, land, water, etc.) to the point where the added cost of the last unit of the resource is equal to the added returns.

$$\begin{array}{l} \text{Added Cost} \\ \text{(added unit} \\ \text{x cost/unit)} \end{array} = \begin{array}{l} \text{Added returns} \\ \text{(added yield} \\ \text{x price/unit)} \end{array}$$

Substitution Principle

The substitution principle is used to determine the least-cost method of producing a given level of output. This principle states that costs can be lowered by substituting one resource for another resource, e.g. wheat for corn, if the cost of the first is less than the cost of the second.

Supplementary and Competitive Relationships

Enterprises that can be added without reducing or interfering with other enterprises are supplementary.

Enterprises are competitive when the expansion of production of one enterprise results in decreased production of another enterprise. Practically all crop and livestock enterprises become competitive at some point.

Cost Concepts

Numerous cost concepts have an essential bearing on the success of modern farm businesses. An understanding of these costs enhances the ability of the farm manager to realize satisfactory profits from farm operations. Some of these are summarized below.

A. Farm Accounting Classification

Cash operating costs or cash expenses: The actual cash outlays during the accounting period for inputs used in the farm business, such as services, upkeep of buildings and equipment, taxes, insurance, interest paid. They ordinarily include both fixed (overhead) costs and variable costs, defined later.

Cash farm expenditures: Under some accounting systems, these include--in addition to the above expenses--the cash outlays such as all new investments for livestock, new farm machinery, service buildings.

Cash farm receipts: These are the cash dollars received from the sale of farm products and all other cash income from the farm business.

Inventory changes: Inventory decreases of productive resources during the accounting period are costs against the business operations--just as inventory increases are added returns. Depreciation is included in depreciable items.

Family living costs: While separate from farm business costs, they must be considered by the farm family in planning and evaluating total operations. These costs often are separated into (a) ordinary cash costs, such as current expenditures for food, clothing, health, recreation, and (b) other costs including new investments, and life insurance premiums, etc.

B. Cost Concepts Used in Economic Analysis

Total fixed costs represent farming expenses of an overhead nature and do not change with output. They must be paid even if nothing is produced and are no greater under high yields.

Total variable costs refer to farming expenses which do change with output. They do not occur if nothing is produced and their amount depends upon what is produced.

Total cost is the sum of fixed and variable costs.

Average cost or average total cost divides the total costs among the various units of output (total costs ÷ units of output).

Average variable cost divides the variable costs among the various units of output (total variable costs ÷ units of output).

Average fixed cost is the total fixed costs pro-rated among the various units of output (total fixed costs ÷ units of output).

Marginal cost is the addition to the total cost associated with production of each last additional unit of output or product.

Marginal factor cost is the increase in total cost associated with using an additional unit of an output.

Opportunity cost (or equal marginal returns principle) is the cost of using a resource, or factor of production in one way. It is the return that would have been received from the same resource when used in its most profitable alternative use.

Replacement cost is the total cost of adding one more unit of input (productive asset or factor) to a business.

APPENDIX B

AVAILABLE FARM MANAGEMENT TEXTS

The following farm management texts are available in the Penn State library system. The newer more popular books will be followed by (**).

1. Adaptation of the theory of the firm to the operation of a single-enterprise dairy farm in northeastern Pennsylvania. Butz, William Taylor. 1951.
2. Agricultural safety. [2nd ed]. c1983.
3. Annual business and educational meetings of farm ownership borrowers. United States. Farmer's Home Administration. 1947.
4. Approved practices in farm management. Hall, Isaac Fuels. [3ded.].1966.
5. The business of farming. DeGraff, Herrell Franklin. [1st ed.]. 1948.
6. The consistency of sociological variables in predicting the adoption of farm practices. Lackey, Alvin Sutton. 1958.
7. Cottage economy. Cobbett, William. 1926.
8. Crop management economics. Rae, Allan N. 1977.
9. Decision making and management for farm and home. Malone, Carl Curtis. 1958.
10. The development of an instrument for measuring the understanding of profit-maximizing principles. McCormick, Floyd Guy. 1964.
11. Do it right the first time. Doane Agricultural Service, St. Louis. 1974, c1973.
12. Doane's farm management guide. Doane Agricultural Service, St. Louis.[11th ed.] 1977.
13. Economics and agricultural management. Casavant, Ken. c1984.
14. The effectiveness of visual aids in presenting an analysis of selected farm management factors. Madison, Eldon Harold. 1962.
15. Elements of farm management. Hopkins, John Abel. [4th ed.] 1953.
16. Elements of farm management. Hopkins, John Abel. [3d ed.] 1947.
17. Elements of farm management. Hopkins, John Abel. [Rev. ed.] c1940.
18. An empirical study of the decision-making process in farm management. Chastain, Elijah Denton. 1956.
19. Experience programs for learning vocations in agriculture. Binkley, Harold. 1970.
20. F.M. United States. Bureau of Agricultural Economics. 1- Nov. 1939-.
21. The farm book. Ainsworth, Ralph Mitchell. [Ed. of 1936.] c1935.
22. The farm business. Norman, L. 2nd ed. 1985.
23. Farm business management. Castle, Emery N. 1965 c1962.
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26. Farm management. Black, John Donald. 1947.
27. Farm management. Boehlje, Michael. c1984.**
28. Farm management. Kadlec, John E. c1985.
29. Farm management. Kay, Ronald D. [2nd ed.] c1986.**
30. Farm management. Kay, Ronald D. c1981.
31. Farm management. Organization for European Economic Cooperation. European Productivity Agency. 1958.
32. Farm management analysis. Bradford, Lawrence Allen. 1953.
33. Farm management and agricultural economics. Hardaker, J. B. 1970.
34. Farm management economics. Heady, Earl Orel. 1954.
35. The farm management handbook. Luening, R. A. [6th ed.] c1979.
36. Farm management handbook. Rev. ed.1973.
37. Farm management handbook. c1973.
38. Farm management in the United States. Organization for European Economic Cooperation. European Productivity Agency. 1958.
39. Farm management manual. Hart, Van Breed. [2d ed.] 1951.
40. Farm management manual. Hedges, Trimble Raymond. 1956.

41. Farm management: principles, budgets, plans. Herbst, John Herman. [3drev. ed.] c1974.
42. Farm mechanisation for profit. Butterworth, Bill. c1983.
43. Farm organization and management. Forster, Garnet Wolsey. 1940.
44. Farm organization and management. Forster, Garnet Wolsey. 1933.
45. Farm organization and management. Forster, Garnet Wolsey. [3d ed.] 1953.
46. Farm planning and budgeting services in farm management advisory work. Organization for European Economic Cooperation. European Productivity Agency. 1955.
47. Farm planning and control. Barnard, Christopher Stephen. [2d ed.] 1979.
48. Farm work simplification. Vaughan, Lawrence Moore. 1949.
49. The farmer as manager. Giles, Tony. 1980.
50. Farming as a business. Upton, Martin. [2d ed.] 1970, c1965.
51. Financial management for farmers. Warren, Martyn F. 1982.
52. Forestry in farm management. Westveld, Ruthford Henry. 1941.
53. How to make your farm pay. Malone, Carl Curtis. 1950.
54. Industrializing agriculture. Voland, Maurice Earl. 1968.
55. Introduction to agricultural accounting. Armbruster, David B. c1983.
56. An Introduction to farm business management. 1980.
57. An introduction to farm organization and management. Buckett, M. [2nd ed.] 1988.
58. An introduction to farm organization and management. Buckett, M. [1sted.] 1981.
59. Keeping and using farm records. Hopkins, John Abel. 1932.
60. Linear programming as a possible refinement of farm budgeting techniques. Rorholm, Niels. 1954.
61. Management games for teaching and research. Babb, Emerson Macaulay. 1966.
62. Managing a farm. United States. Bureau of Agricultural Economics. Division of Farm Management and Costs. 1944.
63. Managing agricultural systems. Dalton, G. E. c1982.
64. Managing the farm and ranch. Richardson, William B. c1982.
65. Managing the farm business. Beneke, Raymond R. 1955.
66. Managing the farm business. Harsh, Stephen B. c1981.
68. Managing the tenant-operated farm. Wallace, James J. 1956.
69. Methodology and problems of farm management investigations. Norman, David W. 1973.
70. Modern agriculture management. Osburn, Donald D. [2nd ed.] c1983.
71. Modern farm management. Boss, Andrew. 1947.
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73. The Penn State farm management handbook. c1977.
74. The Penn State farm management handbook. [Rev. ed.] c1981.
75. Principles of farm business analysis and management. O'Connor, Robert. 1973.
76. Principles of farm management. Efferson, John Norman. 1953.
77. Productivity in farming. Farming Productivity Team. 1951.
78. The role of a crop manager in the horticultural industry. Whitaker, Samuel E. 1976.
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