



HORT-5601

Horticulture?

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AGRICULTURE

- **Technology of raising plants and rearing animals**
 - **Major divisions**
 - **Agronomy**
 - **Forestry**
 - **Horticulture**

INTRODUCTION

Man dependence

Use plants

Food

Fiber

Medicines

Nourishment

Clothes

Protection

Comfort

Pleasant surroundings

HORTICULTURE

- **Term Horticulture introduced in 1631**
- **Derived from two Latin words**
 - Hortus _____ garden
 - Colere _____ to cultivate

DEFINITIONS

- 1. Horticulture is an agricultural science which deals with the cultivation of fruits, vegetables and ornamental plants**

DEFINITIONS

2. **Baily**

Horticulture is concerned with production within an enclosure

DEFINITIONS

3. Jules Janick

Horticulture is that branch of agriculture concerned with intensively cultured plants used for food, for medicinal purposes, or for aesthetic gratification.

Expanded scope

- **Today Horticulture encompasses much more than garden cultivation; as**
 - **Post-harvest technology**
 - **Plant tissue culture**
 - **Mutation breeding**
 - **Soil less culture**
 - **Vegetable forcing**
 - **Mushroom culture**

Expanded scope

- **Now Horticulture is tremendous industry and has role in daily life.**

1. Profession

- **Teaching**
- **Agri. Research workers**
- **Agri. Extension workers**
- **Horticulturist in PIA garden centers**
- **Assistant Directors in Development Authorities**
- **Assistant Directors in Parks and Horticulture Authorities**
- **Landscape architecture**

Expanded scope

2. Occupation

- Farmers
- Nurserymen
- Gardeners

3. Business

- Salesman

4. Hobby

- Aesthetic gratification

TERMS

- **ORCHARD**

- A plantation or enclosure containing fruit trees collectively

- **GARDEN**

- An enclosure for displaying selected plants to the public; also called botanical garden
- Cultivation of fruits, herbs, vegetables and flowers in an enclosure

TERMS

- **CITRICULTURE**

- Cultivation of Citrus, and plantations are called citrus grooves

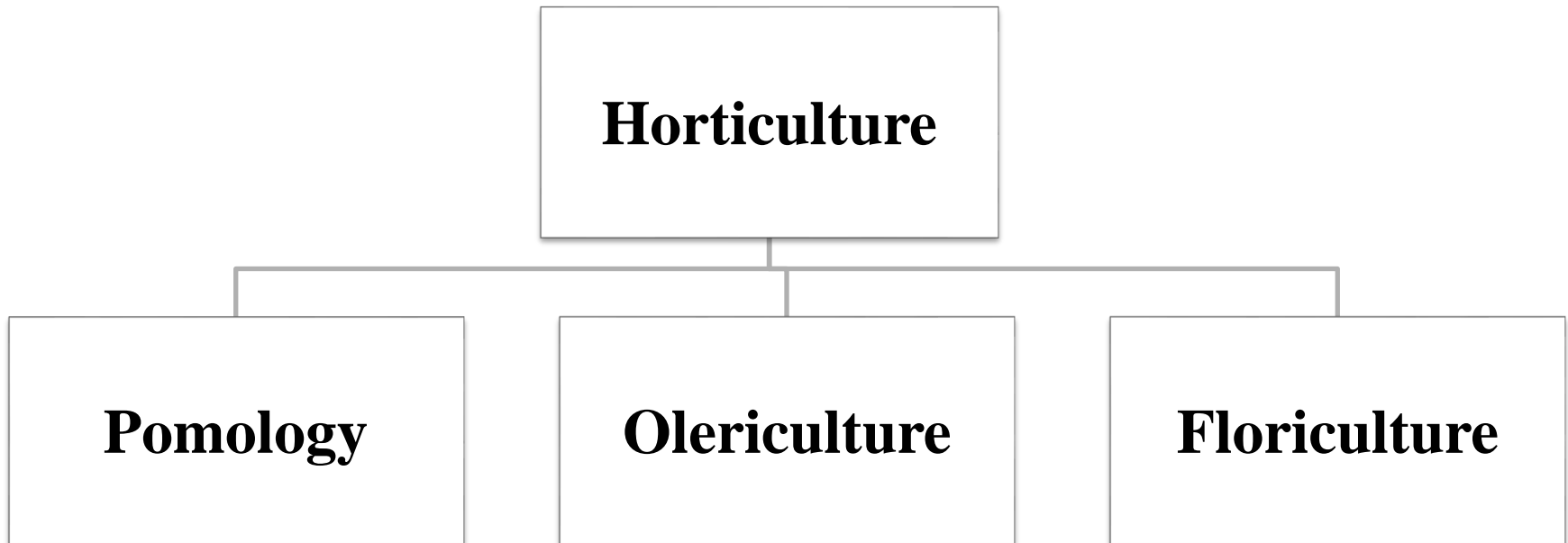
- **VITICULTURE**

- Cultivation of grapes, and plantations are called vine yards

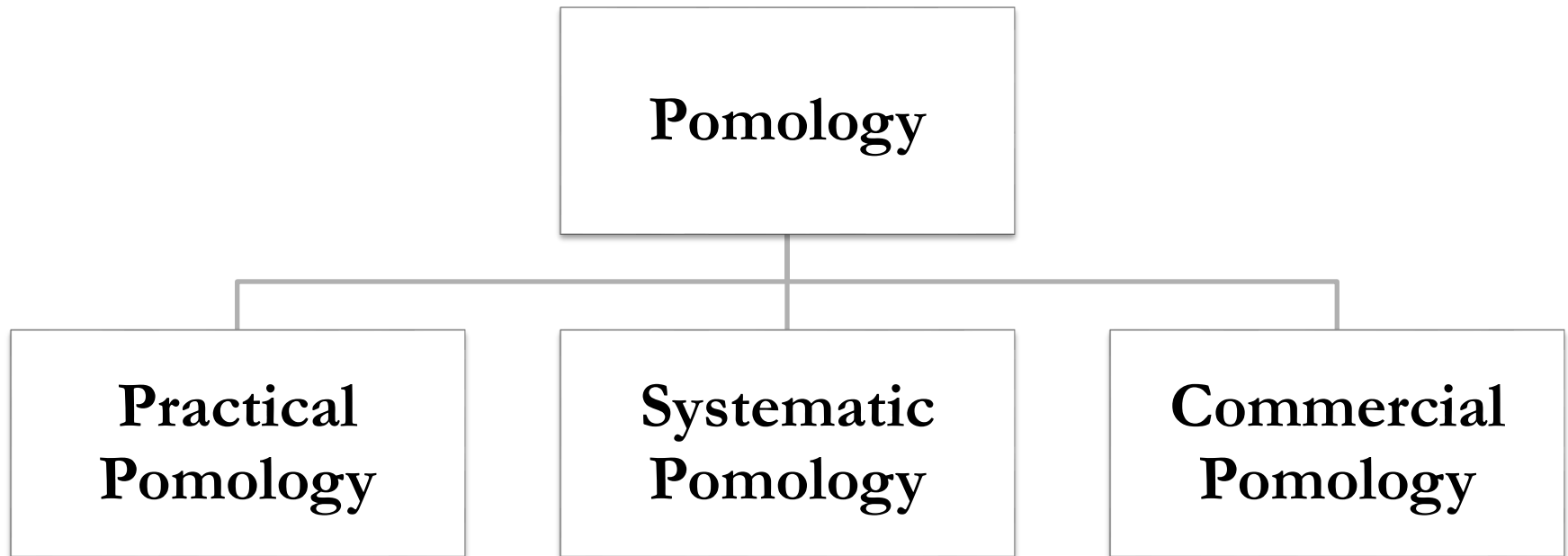
- **MANGO CULTURE**

- The production of mango is called mango culture and the place where mangoes are produced is called mango groove.

DIVISIONS OF HORTICULTURE



DIVISIONS OF HORTICULTURE



POMOLOGY

- Derived from Latin words
- Pomum_____ Fruit
- Logos/Logy_____ Study
- The study of fruits is called pomology.

POMOLOGY

1. Practical Pomology

It deals with the practice of growing fruits and is often considered under the title of fruit production

POMOLOGY

2. Systematic Pomology

It describes fruits according to their structural development, distribution and habitat along with their classification.

POMOLOGY

3. Commercial Pomology

It deals with the marketing and disposition of fruits.

Its phases are

- Preparation for market**
- Storage of fruits**
- Transportation to consumers**

Olericulture

It is composed of two Latin words

Oleris ----- a herb

Culture ----- to cultivate

- **The study of vegetable production is called Olericulture.**
- **The science and practice of growing, harvesting, storing, processing and marketing vegetables.**

Vegetable:

It is defined as the edible portion of an herbaceous plant used fresh or processed.

The edible portion may be:

- Fruit** **tomato, cucumber**
- Foliage** **lettuce, cabbage**
- Tuber** **potato**
- Roots** **sweet potato, radish, carrot**
- Seeds** **peas, beans**

TYPES OF VEGETABLE PRODUCTION

- **Home or kitchen gardening**
- **Market gardening**
- **Truck gardening**
- **Vegetable forcing**
- **Vegetable production for processing**
- **Vegetable seed production**
- **Mushroom culture**

HOME GARDENING

It is source of fresh food supply for an average family of 6-8 members.

Definition: “vegetable growing at home on small scale for self consumption is known as home gardening or kitchen gardening”

Features

- **Size of garden 10-20 marla in backyard.**
- **Only domestic use**
- **Choice of family members.**
- **Organic gardening**
- **Short duration vegetables.**
 - **For example: corriander, mint, lettuce, raddish, carrot, turnip.**

MARKET GARDENING

- **Near large centres of population, many kinds of perishable vegetables are grown for sale in local markets**
 - **Improved roads and transport facilities have made it possible to serve distant areas of 70-100 Km**
- **Planning**
 - **Important is the selection of right time of sowing & varieties to avoid glut seasons & wastage of produce and loss of income.**
- **Hazards**
 - **Market gardeners in the vicinity of big cities utilize city sewerage water as a source of fertilizer and irrigation.**
 - **This sewerage water has heavy load of chemicals that are injurious to humans.**

TRUCK GARDENING

➤ It is the production of special vegetables in relatively large quantities for distant market.

➤ The usual choices are less or non-perishable crops.

➤ Examples.

- | | |
|-------------------------|--------------------|
| • Potatoes | Okara |
| • Melons and peas | Guranwala |
| • Winter muskmelon | lower Sindh |
| • Summer crops of onion | Baluchistan & Swat |
| • Chillies | Multan |
| • Watermelon | Layyah |

VEGETABLE FORCING

“Production of vegetables out of their normal season of out door production is known as vegetable forcing”

- ❖ Great demand by the consumers**
- ❖ Early or late production of summer vegetables**
- ❖ Limitations:**
 - ❖ Vegetables like tomato, cucumber, eggplant, peppers, melons and gourds are frost sensitive**
 - ❖ Hence greenhouses, tunnels, lath houses are used**
 - ❖ So initial cost of production is high.**

VEGETABLE PRODUCTION FOR PROCESSING

“Processing refer to ways and means by which vegetables or their products are preserved for future use instead of fresh consumption.”

➤ Not so developed in Pakistan

➤ Avoid glut in season and stabilize prices

➤ Important processing means include:

Canning

Peas, beans, mushrooms

Freezing

Spinach, Peas, Sweet

corn

Dehydration

Onion, Garlic

Industrial products

Tomato ketchup, Potato chips,

juices

Vegetable Seed production

Vegetables are grown especially for good quality seeds production.

Important steps are:

- Breeding**
- Selection**
- Rogging off**

Mushroom culture

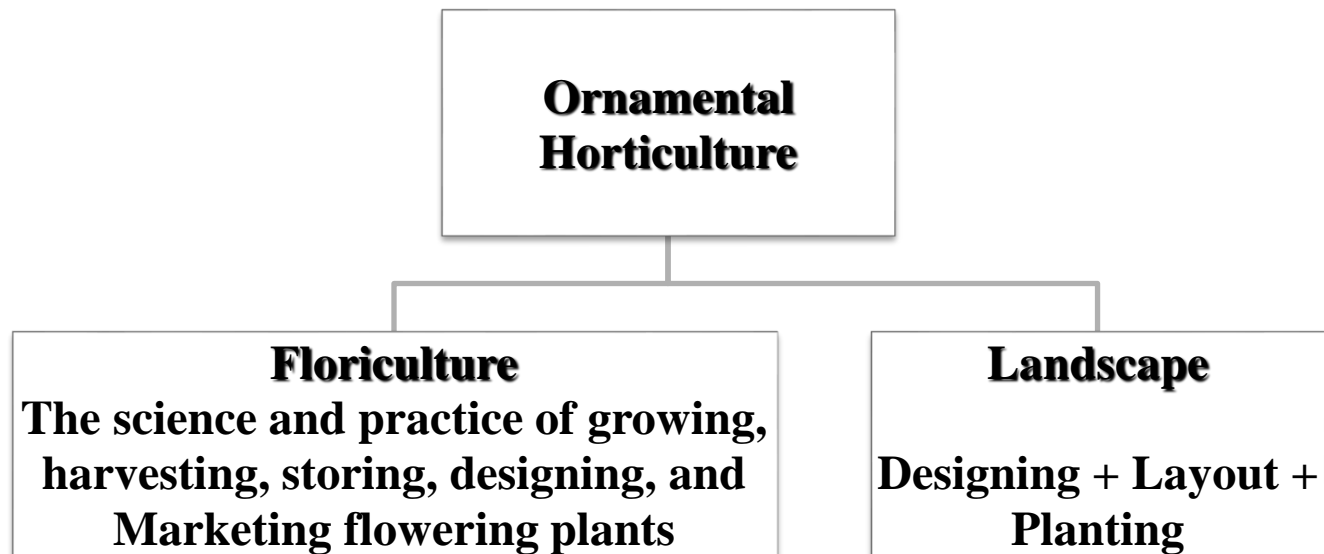
It is branch of olericulture which has the potential for expansion.

It is high priced vegetable.

ORNAMENTAL HORTICULTURE

“It is branch of horticulture which deals with plants & their layout for beautification of the environment or for aesthetic look.”

Flowering plants	Chrysanthemum, roses, carnation.
Foliage plants	Achlypha, dranta, syngonium
Lawn grasses	Dhaka, American, tiffiny, Korean
Bulbs	Canna, amaryllis, lily, narcissus
Shrubs	Shoe flower, marva, flowering peach, jatropa



Other Areas

Landscape Designing

- **Formal: Traditional of Indo-pak**
- **Informal: Japanese or naturalistic nature**

Horticultural Therapy

- **Psychological impact**
- **Mental illness for indoor patients**

Cut flower industry:

- **Bi-products like extraction of essential oil.**

Medicinal purposes: Peppermint, calendula

The Future of the Horticulture Industry

- **Currently in a state of rapid growth**
- **People are becoming more concerned about their surroundings, world resources**
- **Conservation, and controlling pollution**

In the Future:

More plants will be used to:

- Beautify surroundings**
- Conserve soil and control pollutants**
- Protect and feed wildlife**

The Future

Looks exceptionally good for those involved in working with plants and providing goods and services related to Horticulture.

Production of Horticulture Crops

- **Population increases and people have more leisure time, more gardening of all types will be done.**
- **Demand for fruits, vegetables, ornamentals and landscaping plants will increase.**
- **Increase in demand will result in substantial increase in production business.**

Service Industries

- **Increased need for fertilizers, pesticides, seeds, chemicals, tools and equipments.**

Marketing

- **More people are employed in marketing than production.**
- **If marketing increases all other areas will as well.**

Teaching and Extension Work

- More students need training, requiring more teachers.
- Quickly changing technology requires specialists and professionals.

Research

- **To increase production, researchers must:**
 - **Develop better varieties**
 - **Improve insect and disease resistance**

Opportunities for Horticulture Graduates

Each year, there are about 14% more jobs in agriculture than there are graduates to fill these.



What Are Typical Jobs?

- **Landscape managers**
- **Garden center operators**
- **Greenhouse growers**
- **Nursery managers**
- **Golf course superintendents**
- **Plant, seed, chemical, and equipment sales**

What Are Typical Jobs?

- **Extension agents**
- **Horticultural Agriculture
and Vo-Tech teachers**
- **Public garden
horticulturists**
- **Orchard managers**
- **Vegetable growers**
- **Plant or produce inspectors**

What Does the Future Hold for Horticulture Majors?



- Horticulture is a recession-proof industry.
- Good landscaping increases home sales, apartment occupancy rates, and employee productivity. This, in turn, increases demand.

Why Do Most People Become Horticulturists?

- **Job satisfaction--they love working with plants.**
- **It's the fastest-growing agricultural commodity in the state.**

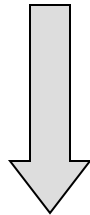


Dietary Importance

Food comprises of

- **Carbohydrates**
- **Proteins**
- **Fats**
- **Vitamins**
- **Minerals**
- **Fiber**

- **Starch** Potato (19%), Sweet potato (27%)
- **Proteins** Peach, Beans, S. corn
- **Fats** Avocado, Olive, Nuts,
- **Fiber** Cabbage, leafy vegetables, Lettuce, Spinach
- **Minerals** Peach, Plums, Apricot, Dry fruits, Dates, Olive, Leafy vegetables
- **Vitamins**



- ✓ **Vit A** **Mango, Spinach, Peaches, Carrot**
Deff.: Night Blindness, Stones in Kidney
- ✓ **Vit. B** **Tomato**
Deff.: Beri Beri, Heart enlargement
- ✓ **Vit. C** **Tomato, Citrus, Guava**
- ✓ **Vit D** **Leafy vegetables**
- ✓ **Vit E** **Banana, Onion**

Economic Importance

- High returns
- Source of foreign exchange by exporting fruits, vegetable, flowers and ornamental plants
- Source of raw material like paper, perfumes, furniture, medicines, and other cosmetics.

Aesthetic Value

- **Source of beautification and mental relaxation**
- **Road side plantation**
- **Green belts and green spaces**
- **Parks and gardens**
- **Lawns**
- **Indoor beautification**

Role in the Environment

- **Plants serve as lungs in cleaning environment**
- **Control pollution**
- **Reduce soil erosion**
- **Reduce wind velocity**
- **Mild micro environment**

Medicinal Plants

- **Falsa, Sweet lime, Jaman --- cooling effect**
- **Grape fruit excellent for dieting patients**
- **Bitter gourd and jaman are good for Diabetes**
- **Roses (rose water, rose hip syrup) many medicines**
- **Calendula ---- facial cream**

Present Status and Future Scope

Of the total cultivated area in Pakistan only 6% is under horticultural crops.

- **3.5 % Fruits**
- **2.0 % Vegetables**
- **0.5 % Ornamental plants**

In USA, the area under Horticultural crops is more than 20%.

- **Of the total area planted to vegetables 17 % is under Potatoes**
- **15% Under Chilies**
- **12% Under onions**
- **And rest of area under 30 different types of vegetables.**

Major fruits are:

- **Citrus**
- **Mango**
- **Guava**
- **Dates**

Citrus is cultivated on 38% area

□ Punjab is the leading province in the country

➤ **Mango in Sindh, Punjab**

➤ **Banana and Papaya in Sindh**

➤ **Grapes in Balochistan**

➤ **Litchi in Punjab**

➤ **Stone fruits in NWFP**

- **In Pakistan, per capita consumption of fruits and vegetables are 88g and 90g per day per person, respectively.**
- **According to WHO, a minimum of 450g of fruits and vegetables per day per person is necessary.**