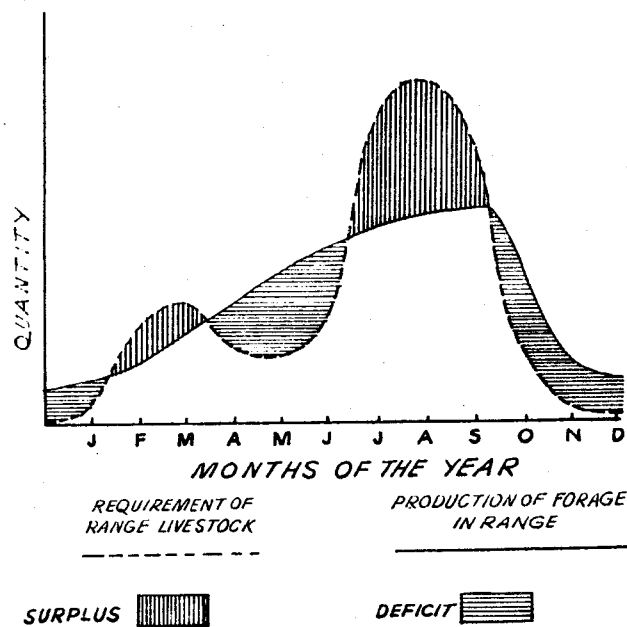


CHAPTER 7

PRINCIPLES OF RANGE MANAGEMENT-V —related to range livestock—

VIII. Range Livestock Management

This principle leads to maintenance of range livestock vigour and robust health. It includes selecting suitable livestock, the provision of balanced forage and feed, clean drinking water and appropriate shelter to the range livestock throughout the year according to their varying body needs. A precise knowledge of feed and other requirements of different kinds of range livestock during their successive growth stages (from birth to offtake) is a prerequisite for successful livestock husbandry. In order to ensure continuous availability of forage and feed, the expected livestock requirements are to be adjusted with average expected forage production by the range during the year. The gaps, if any, between demand and supply are to be filled by either arranging supplementary feed (hay, silage, ready made cattle or sheep feed, etc.) or growing irrigated fodder over a small area in the range. Fig explains this situation very nicely and guides the range manager to make necessary arrangements in advance.



In addition to the provision of required quantity of good quality forage and feed, numerous other materials and services are also needed for maintaining animal vigour and health such as:

- a- plentiful supply of clean drinking water,
- b- provision of shelter against extreme weather,

- c- provision of special energy rich ration during winter,
- d- maintenance of sanitation, vaccinations at regular intervals, administration of preventive medicines, dehorning, shearing and culling etc.

1. Selecting Suitable Livestock

Kind of range livestock that would yield maximum production per unit area varies from place to place and depends on vegetation, climate and topography of an area. In a flat or gently undulating country having moderate climate supporting profuse good quality predominantly herbaceous vegetation, cattle and horses would be ideal. In arid sand dunes having long severe summers and supporting scanty vegetation consisting mainly of thorny and leafless shrubs, camels donkeys and goats would be most suitable. In hilly inaccessible areas with sharp protruding rocks, steep slopes, deep ravines, having extreme weather and supporting a mixture of herbs and shrubs, goats and sheep would be appropriate.

It is always better to maintain a mixed herd (preferably with dominance of one species) because such a herd makes efficient use of varied vegetation and provides a guarantee against any climatic catastrophe or any epidemic etc.

2. Proper Stocking Rate

Stocking rate refers to number of livestock heads grazing over a unit range area for a year. Number of livestock heads should be so adjusted that their total annual feed requirement is more or less equal to the annual available forage production; this number of livestock heads is called Proper Stocking Rate. If one allows grazing to a larger number of livestock than proper stocking rate total livestock production will temporarily increase for a year or so but the size of individual animals and quality of livestock products will decrease. If on the other hand, one allows grazing to fewer number of livestock heads than the proper stocking rate, the total livestock production will be less than the optimum but size of individual animals will be large and quality of livestock products will be better. The best option is to estimate proper stocking rate for the range area in question and to allow grazing accordingly.

3. Regular Culling

It refers to regular removal of animals from the herd having undesirable physical or physiological features and intolerable social behaviour. Its purpose is to keep the herd healthy, vigorous and well behaved/docile. Range livestock differentiate during development. Some animals grow decently and acquire good habits whereas others develop undesirable features and acquire bad habits. In the over all interest and betterment of the herd, animals of latter type are required to be culled or removed systematically from herd and disposed off as quickly as possible. Some times animals of former type are also required to be removed if these disturb desired sex ratio or age class distribution in the herd. Males generally tend to be surplus in a herd and their number has to be kept at a low (desirable) level. Similarly when number of infants, or for that matter number of old animals though otherwise healthy and desirable exceed a certain desirable proportion, these should be removed from the herd.

4. Supplemental Feeding

Pakistani range vegetation is essentially seasonal and is of poor quality in addition to being deficient in quantity. Range vegetation, therefore, does not provide sufficient feed of good quality to the livestock throughout the year. Further more, certain animals such as young ones, pregnant mothers and sick ones require special feed in terms of quality and form. Every range manager must prepare or procure supplementary and emergency feed. It may take the form of hay, silage, commercial feed, mineral mixture, oil cake, general purpose stomach mixture, cereal or pulses bran/husk and fortified molasses etc. Protein and mineral enriched feed should be occasionally provided to the animals in small quantities. The age, health, season and growth rate of livestock are the factors that determine the frequency and quantity of supplementary feed to be provided to the animals.

5. Drinking Water

Scarcity of clean sweet drinking water during summer is a very serious problem of Pakistani range livestock. Water is frequently brackish, dirty and insanitary. Well designed structures for drinking water must be constructed at various watering points. If possible arrangement should be made to provide liberal quantities of fresh/cool drinking water during summer and fresh warm drinking water during winter. This is particularly true for milch cattle and goats. Watering structures should be designed in such a way that animal urine or dung does not enter the water reservoir. Excess number of watering points may lead to overgrazing and unnecessary trampling of vegetation; hence excess number should be avoided.

6. Shelter

Extreme summer and winter temperatures and occurrence of hot dry and cold dry winds necessitate the provision of shelter right in the grazing areas. These extreme temperatures, even when not causing mortality, certainly reduce the growth rates of the animals to a considerable extent and also weaken the animals resistance to various pathogens. Simple cheap shelters such as planting groups of shade trees and erecting sheds or discovering/using natural caves should serve the purpose. Young ones, pregnant mothers and sick animals should not be allowed to leave the shelter at the head quarter during extreme weather conditions.

7. Dehorning, shearing, tagging and secluding etc.

Livestock, being the end product of Range Management, deserve and need to be looked after carefully and watched constantly by the range manager or his representative. A kind look of the owner is better than the best feed. Some animals are always somewhat wild in their behaviour and these may thus harm themselves or others because of their large horns. The standard practice is, therefore, to disallow the growth of large horn and cut away if at all they show up because of earlier negligence. Shearing of sheep for wool should be regularly undertaken in the spring season. Tagging of animals is also a desirable practice for keeping record of each and every animal. In case any animal picks up a contagious disease, it may be desirable to seclude him in a separate enclosure constructed for this purpose.

8. Controlled and Timely Breeding

Continuous uncontrolled breeding throughout the year may give rise to many problems. The mortality rate of infants born during extreme summer or winter may go up. The pregnant mothers may come across great difficulty in procuring sufficient natural forage of good quality. It is, therefore, advisable to practice a kind of "family planning" by keeping the males away from the females for most of the period except when desired. In this way we can regulate the birth of young ones and ensure that period of birth coincides with pleasant season and period of lush green forage availability.

9. First Aid Veterinary Treatment

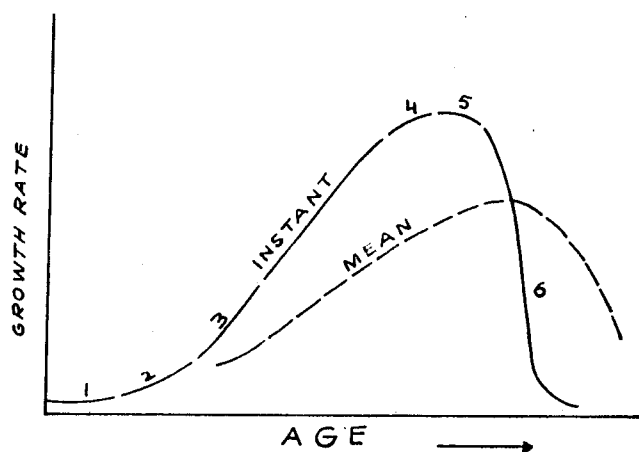
Range livestock are certainly more exposed to certain diseases and health problem than stall fed animals such as accidental intake of poisonous plants, obnoxious seed of certain plants, snake bite, sunstroke, external and internal parasites, injury by beasts or birds etc. Necessary medicines must be procured in advance and must be available when required. The person(s) incharge must have necessary know-how of orally administering correct dose of suitable drugs on the spot. A little training of dressing of wounds, vaccination and of muscular/ subcutaneous/intra-venous injection is highly desirable. Small animals should be regularly dipped in tanks containing anti-skin-parasite aqueous mixture. Anti-itching oil mixture should be occasionally applied manually or by providing suitable wooden structures for itching and filled with anti-itching oil mixture. Arrangements must be made for occasional check up of animals by qualified veterinary doctor. In case of emergency, necessary arrangement must be immediately available for transporting the animal(s) in question to the nearest veterinary hospital.

10. Protection against Predators

A number of small as well as large beasts and birds such as cayotes, wolves, jackals and even crows etc. may occasionally kill or injure range livestock. Necessary protection should be provided to the animals after determining the nature and frequency of predator's hazards.

11. Timely Off-take

Range livestock, like other living organisms, grow according to exponential (J-shaped) curve which is described in Fig. 10. To begin with, instant (current) growth rate is low and more or less constant (1). Later it passes through a brief stage of gradual increase: (2) but then it increases at an immense rate for quite some time; (3) the current growth rate during the following stage increase decreasingly, (4) and then reaches a plateau (5) before its final crash down (collapse) to zero, (6) on approaching the end of their life cycle.



For maximum biomass production, livestock be removed at an age when MAI intersects the CAI. For maximum profits, however, one should combine maximum production and high market prices (such as during pre-Eid-ul-Azah period) together. Specially designed fattening or finishing ration may be profitably fed to the livestock for 8 to 12 weeks prior to off-take. One should remove 65 to 70 per cent of the livestock at the end of a growing season in order to maintain a desired stocking rate. Most graziers of Pakistan generally tend to remove only about 25% of their livestock annually and thus end up with very high stocking rate. The rate of net profit, management system (rate of off-take from 25 to 70 per cent), capital cost of Range livestock and total permissible management cost all be manipulated and adjusted according to the standard formulae of business accounting.

All efforts should be directed to improve transport, communications, storage facilities, and marketing in order to maximize salable production by minimizing losses and wastage.

In case of drought, famine or an epidemic (if beyond normal tolerance limits) livestock be removed from the range and sold in the market soon after the onset of any above mentioned catastrophe. Animals should be disposed swiftly in order to avoid total disaster/collapse even though animals may not have attained full growth. Better transport facilities and wider publicity of proposed sale would fetch higher prices.

IX) Range livestock improvement ✓

Similar to the principle of Range Vegetation Improvement-VII described earlier, the present principle also aims at achieving a breakthrough in the existing productive potential of range livestock. It is an uphill task and requires persistent efforts. Lot of time and capital may be involved in order to secure a significant upward target. Following are a few examples of operations leading to improvement of range livestock.

- a. Selection, introduction of exotic breeds and breeding of superior livestock in order to achieve higher growth rates, better tolerance of environmental extremes and better quality of products.
- b. Use of synthetic material in supplementary feeds such as urea, hormones, mineral mixtures etc. which will accelerate the animal growth rate.
- c. Provision of warm drinking water during winter and cool water during summer.

- d. Provision of most modern veterinary facilities; vaccination against contagious diseases.
- e. Moderation of climatic extremes by constructing better sheds, installing fans and showers etc.
- f. Development of efficient communications and transport system for either to carry water and feed to the livestock in the range during prolonged drought and famine in order to save livestock wealth from total destruction and loss or to make a last minute desperate effort to make something out of nothing by carrying the livestock from the range to the market.
- g. Use of latest inventions and discoveries.

TEST QUESTIONS

1. Write short notes on.
Regular Culling, Supplemental Feeding, Shelter, Drinking Water.
2. What operations are necessary for optimum production of quality Range Livestock ?
3. What is the significance of controlled and timely breeding on young animal's survival and health ?
4. What are guidelines regarding animal hygiene and preventive medicine ?
5. What is the economic importance of timely off-take and sale of Range Livestock ?
6. How can one improve Range Livestock ? Briefly describe various options.
7. What is meant by "Proper Stocking Rate" ? Compare it with Optimum Carrying Capacity.