

Chapter 4 MANAGEMENT OF BREEDING FLOCK

4.1 Improving breeding efficiency

Breeding efficiency is a major component in the overall efficiency of sheep production. Usually the best basis for any type of sheep production is the native (indigenous) animal. Under poor extensive conditions long term breeding efficiency is achieved at a lower reproduction rate; prolificacy is not desirable. However, under intensive conditions breeding efficiency (prolificacy, frequency of lambing and weaning percentage) should be increased. The genetics of the native breeds may be improved by selection or crossbreeding with other breeds characterized by higher prolificacy and longer breeding season.

Practical methods of selection include selection of ewe lamb replacements born as twins or born as singles from younger ewes and producing higher milk yields than the average milk yield of the flock and the selection of twin born rams or rams from ewes with a high level of twinning throughout their lifetime and which have a higher post weaning growth rate than the average post weaning growth rate of the ram lambs in the flock.

The desirable traits in a crossbreeding system in addition to improving breeding efficiency are higher milk yield, improved growth rate, feed efficiency and market desirability of lambs and better adaptability of ewes and lambs to the environmental conditions. To avoid inbreeding; mating is confined to individuals that have no common ancestor nearer than one great grand-parent.

All ewes in poor condition, dry ewes which were not pregnant after the mating period, ewes with low maternal instinct, non-functional udders or with extremely large teats, or suffering from chronic diseases, should be culled. Ewe lambs that fail to breed in the same breeding season with other ewe lambs should also be culled. Rams with limited fertility and sex drive, suffering from lameness or any chronic respiratory disease should be replaced with young rams.

4.2 Early breeding of ewe lambs

Early breeding of female lambs is an important method of intensifying sheep production in the self-replacing flock because it can increase the annual flock output, reduce the unproductive phase and thus overhead costs, facilitate selection programmes and also increase total lifetime productivity. Early breeding of well managed and adequately nourished ewe lambs has no detrimental effects on their subsequent performance and reproductive efficiency.

The important principle to bear in mind is to keep the lambs growing and gaining weight after weaning so that by breeding time they will be sufficiently mature physically to mate successfully. First oestrus is affected by age and body weight which in turn are influenced by the breed and nutrition. Female lambs are kept separately from ewes until lambing. Excessive feeding in late pregnancy should be avoided in order to reduce the incidence of dystocia. During the last two months of pregnancy the level of energy intake should be between that of a mature ewe carrying a single lamb and one carrying twin lambs.

If early breeding is not practised feeding should be adjusted to low levels in order to achieve the desired liveweight at breeding time.

4.3 Management at mating

Good planning for mating results in a short lambing period which allows efficient scheduling of mating, lambing and division of the flock into smaller groups according to the time of mating. This leads to an

improvement in labour utilization and to overall management efficiency. Ewes and rams must be in good body condition at mating.

Replacement rams, selected as described earlier, should be used for mating at the age of 12 to 18 months. These rams should be checked before mating for general health. Physical examination should be made of the external reproductive organs particularly the testes. These must be well developed and free from obvious abnormalities and hardness. Examination of the semen under the microscope is necessary to determine the presence and concentration of spermatozoa and to evaluate their motility and freedom from abnormality. Semen samples are most conveniently taken by electro-ejaculation.

However, there is a variation in libido among rams with high fertility. This can be checked at an early stage with a small number of female animals. Younger rams are generally more active. The rams should be checked before the following mating season for high fertility and sex drive.

Rams should be sheared before each mating season, drenched and dipped for internal or external parasites and vaccinated against enterotoxaemia. Regular trimming of feet and horns should be carried out. Trimming the horns may be carried out with a dehorning wire or using a hack saw in older rams.

Good nutrition is necessary to maintain the mating ability of the ram. Supplementary feeding should be done during mating, consisting preferably of good legume hay or about 250 g of concentrates above the energy requirements for maintenance (which are about 15 percent higher than that of females or wethers of the same breed). A vitamin A injection is necessary before mating. Good body condition at mating is desirable but overfatness should be avoided because it reduces the animal's working performance. After mating all rams should be examined and a decision taken on which animals are to be replaced by younger rams.

Most sheep are seasonal breeders and the ewe's annual breeding pattern usually involves a period during which there are regular oestrus cycles followed abruptly by a period of anoestrus when cycling virtually ceases. Natural mating is practised during the breeding season or synchronization of the oestrus with the use of exogenous hormones employed with the objective of achieving a limited lambing period. During the anoestrus period exogenous hormones are used to induce oestrus.

Under natural mating one ram for 25-30 ewes is needed and when synchronization or induction of oestrus is applied one ram for 6-10 ewes, unless artificial insemination is practised. Provided that the necessary number of rams or artificial insemination services are available, flocks can be timed to lamb within a period of one week if lambing facilities and labour permit. Synchronization of oestrus is achieved by the administration of either natural progesterone or a synthetic progestagen compound, on an intra-vaginal sponge or as a subcutaneous implant 10-15 days prior to target mating. The injection of 500 IU of PMS on the withdrawal of the progesterone is given to ewes bred during the anoestrus period. For increasing breeding efficiency by shortening the frequency of lambing the most suitable system is lambing three times in two years.

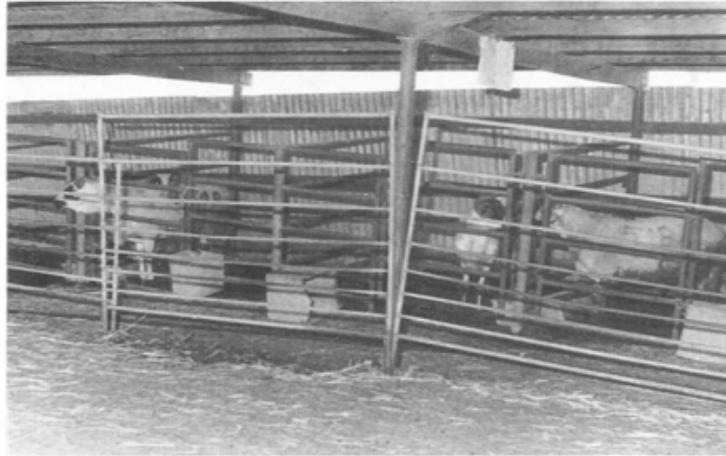
The following systems of mating may be practised:

1. Hand mating - Teaser rams are used to run with the ewes for 15-20 minutes twice daily and to identify the ewes on heat. All ewes found by teasers to be in heat are separated into a smaller enclosure prepared from movable hurdles and near the individual ram pens (Photographs 6 and 7). Each ewe is mated to a certain ram to avoid inbreeding. A list of ewes to be mated by a certain ram is prepared before hand from the individual records of each animal. Each ewe is mated twice within 24 hours. If found in heat in the morning the ewe is mated once in the morning and again in the afternoon using the same ram. If found in heat in the afternoon it is mated once in the afternoon and for the second time on the following morning. With this method the time of expected lambing is known and the identity of the born lambs is also known.

Unsuccessful matings of ewes during the mating season are identified by the teasers and the ewes are mated

again. After the mating period teasers are used to run with the ewes to identify possible non-pregnant ewes. 2. Teaser rams with marking harness or painted brisket are run with the ewes all the time and marked ewes are removed from the flock to the mating enclosure thereafter using the procedure described earlier. This method is used when daily supervision is not available and also when it is necessary to identify ewes in heat during the night. The method is also used after the mating period, changing colours every 16 days in order to detect non-pregnant ewes.

3. Ewes are run in a group (25-30) with a single ram. Teaser rams with or without harness are used after the mating period in order to detect possible non-pregnant or problem ewes.



6. Rams in mating pens



7. Ewes identified in heat in the mating enclosure

Mating activity during the breeding period is higher in the morning and in the afternoon. In warm weather rams may be rested during the day and turned out with the ewes in the afternoon until the following morning.

An effective method of increasing the synchronization of naturally mated ewes is to run harnessed rams or teasers with the ewes at the end of the anoestrus period and start mating 15-20 days later. There is a delay in breeding of a lactating ewe which is more marked in the suckling ewe. For better long-term performance in an intensive system, weaning and/or cessation of milking should be timed so as to allow the ewe about 60 days of a recovery dry period before lambing.