

The STAR system of sheep production (Figure 1) has been developed to maximize production of market lambs on a continuous year-round basis. This even supply of high quality lambs should allow for improved market development and enhanced prices for lambs demanded by discriminating consumers. To be successful, a maternal ewe flock that will breed any time of the year and produce mostly twins at each lambing is necessary. Sheep are normally seasonal breeders and lamb only in the spring so proper selection and continued development of the ewe flock is very important.

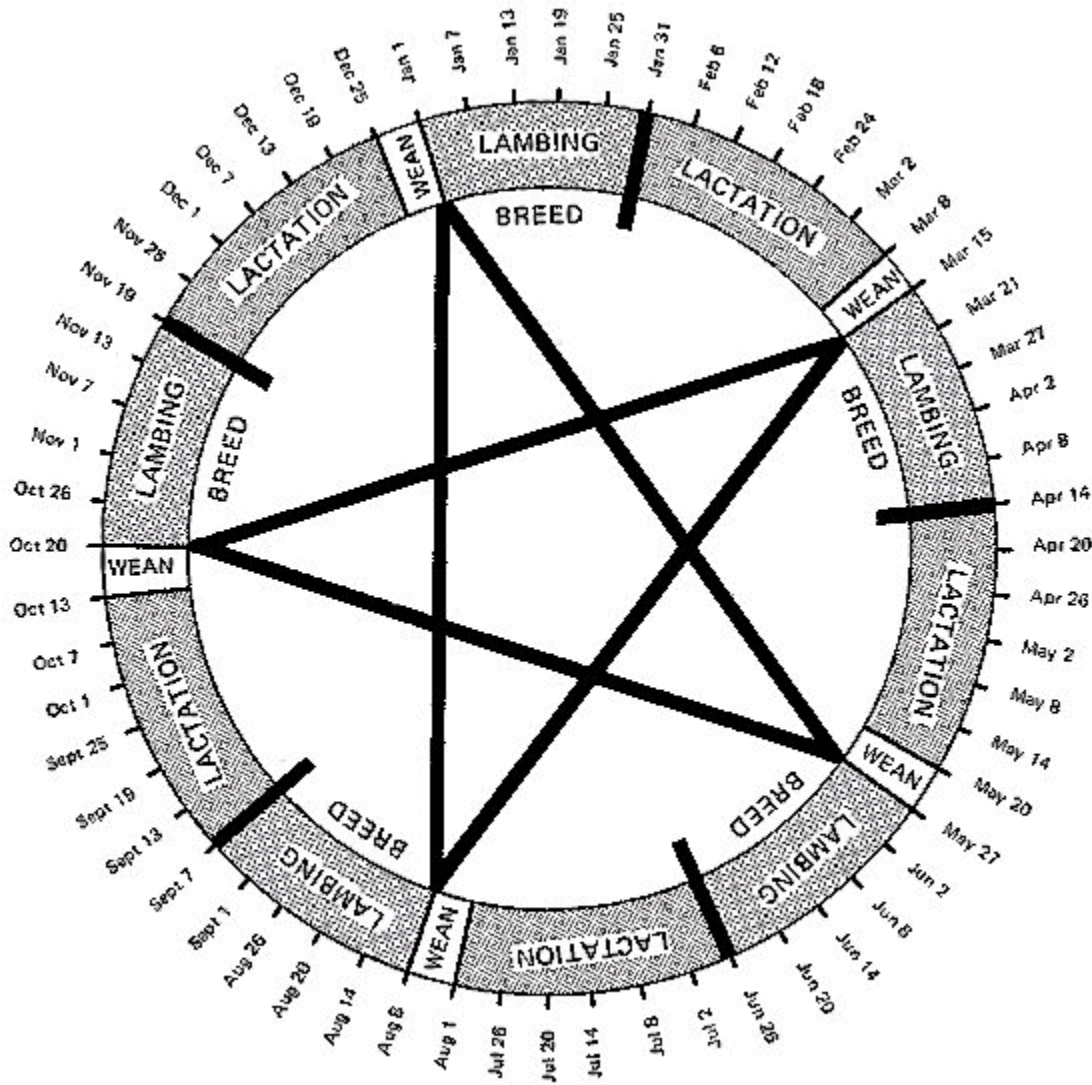


Figure 1. Diagram of the STAR management system.

There are always 3 groups of sheep within a flock managed on the STAR system. These are:

Breeding and pregnant ewes and the rams.

Lambing and/or lactating ewes and their lambs.

Growing lambs - both market lambs and the replacement ewe lambs.

These three groups are kept and managed separately. Late pregnant ewes are moved from the breeding and pregnant flock five times yearly just before lambing and the lactating ewes weaning lambs are moved to the breeding and pregnant flock at about the same time to be bred. This shifting of the sheep and the suggested dates are depicted in Figure 2. Also at the time of weaning, lambs are moved into the growing lamb group. These lambs are fed in this group until they are ready for the appropriate market as depicted in Figure 2, thus allowing for a rather continuous supply of market lambs and a reasonably steady cash flow pattern.



Figure 2. Diagram of the STAR management system including growing lambs.

Even on the rather complex STAR system, we only have to contend with the three groups of sheep. Each group will be managed and fed quite differently in order to meet their requirements and to allow the production expected of them. The producer allocates available feed resources to those animals that can best utilize them and can purchase the additional feeds necessary only for those high producing animals that cannot meet their requirements on the feeds available on the farm. Resources other than feeds such as labor and buildings can also be allocated accordingly.

These three groups of sheep can be considered as separate flocks because their requirements are so different. They are discussed separately.

The Breeding and Pregnant Ewe Flock

This includes all the ewes from the time they wean their lambs until they are ready to lamb the next time. It also includes the rams and the young replacement ewes just entering the flock to be bred for the first time.

Because breeding occurs in this flock, it is here that the genetics of the entire flock is established, whether the resulting lambs will be market lambs or have the proper breeding to be replacement ewes. Sire selection and proper mating for each is very important.

The ewes must be of the type that are not seasonal breeders. Most sheep are seasonal as a result of their sensitivity to changing day length, but some breeds are less seasonal than others and there are some sheep in all breeds that will tend to breed "out of season". At Cornell, we have preferred the Dorset because they are reasonably aseasonal and we have an established flock. The fine wool breeds, namely the Rambouillet and the Merino, also have longer breeding seasons than most breeds. We have also identified some Finnsheep that not only are prolific and have lots of lambs but will also breed out of season. The Polypay is a newer synthetic breed that has been developed to provide more than one lamb crop per year - thus, the name "Polypay". They are actually a 4-way cross between the Dorset the Rambouillet, the Finnsheep and the Targhee.

Producers of several other breeds have also had reasonable success with fall or out-of-season lambing.

Recent calculations, made on records of the Cornell Dorset flock, indicates the heritability of out-of-season breeding is about 0.2. Considering the magnitude of variability present, this estimate indicates we should make reasonable progress selecting for sheep that will perform well on accelerated lambing systems such as the STAR.

These Breeding and Pregnant Ewes have relatively low requirements. They need little housing and can be pastured much of the year. The Cornell Dorset ewes utilized excess stock-piled pasture and aftermath growth the past two winters until early March. These were, of course, fairly open winters without heavy snow cover.

The Lambing and/or Lactating Ewes and Their Lambs

This group requires a relatively high level of both feed and management throughout the year. At Cornell, we lamb all the ewes in the barn and at this time keep the ewes and their lambs inside until weaning. Note in Figure 2 that several of the lambings occur in warm weather and these ewes could be pastured at least some of the time. Also, note that the ewes in this group shift in and shift out five times a year on a fixed schedule. It is also possible to "spin" the STAR and select the set of 5 dates best suited to each individual producer.

We feed ewes in this group either good quality hay or hay-crop silage free choice and grain at the rate of 1 lb per day for each lamb. That is, ewes with one lamb get 1 lb and ewes with twins 2 lb. Ewes with triplets or even quads require more. Artificial rearing is necessary for excess lambs from the very prolific ewes. Lambs are also given access to creep feed from about two weeks of age to weaning. Often the same feed is used in the creep that will be the lambs main feed after weaning.

It is important that lactating ewes not be allowed to lose much weight as they must be able to re-breed soon after the lambs are weaned.

Growing Lambs

Growing lambs are fed a properly formulated total mixed ration from weaning to market. When they are marketed depends on the market demands and the breeding of the lambs. Some markets prefer the typical hothouse lamb at 35-40 lb live weight. This is a specialty market and Dorset lambs about weaning time do nicely. Most markets are for larger lambs weighing from 90-120 lb. Our medium-sized breeds such as the Dorset have the proper body composition at about 100 lb, with the ewe lambs about 10 lb lighter than the ram lambs. Lambs sired by large terminal cross sires such as the Hampshire and Suffolk should be sold at the heavier weights.

All the lambs in this group can be fed and managed the same even though they are marketed at different weights. The best market weight for each lamb is really determined by the ram at the time of breeding. All the ewes in the Breeding and Pregnant flock should be of moderate size and able to produce twin lambs any time of the year. This is where the market lambs start and selection of the proper ram for breeding is very important. Selected ewes in this group can be mated to the proper maternal sire to produce replacement ewes.

This does not begin to cover all aspects of proper STAR sheep management but should give the reader an understanding of how the STAR system works. It should also explain how the STAR system can increase production as well as make a uniform supply of high quality lamb available to the consumer and provide an even cash flow to the producer.