



Feeding and Managing the Ewe Flock: A NEW WATCH

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ABSTRACT

The number of lambs sold per ewe mated in the breeding flock has a considerable impact on sheep operation profitability. This depends primarily on fertility, prolificacy (# of lambs), and lamb survival, mothering ability, milk production of the ewe and lamb growth rate. Optimal reproduction does vary by environment and management system – some sheep operations don't want a lambing rate over 200%. Breed type plays an important part in the prolificacy as well as their tendency to an extended breeding season. Nevertheless, the pounds of lamb produced per ewe mated in the flock affects profitability.

KEY WORDS: Lamb, rearing, management, flock

Introduction

Since most producers finish their own lambs to a desired market weight, weaning weight is only of passing interest in many commercial operations. But it does serve to illustrate the importance of both a high weaning percent and weaning weight (Table 1).

Table 1. Effect of the weaning weight and percent on the pounds of lamb produced at weaning.

Weaning Percent	Weaning Weight (lbs)				
	40	45	50	55	60
150	60.0	67.5	75.0	82.5	90.0
160	64.0	72.0	80.0	88.0	96.0
170	68.0	76.5	85.0	93.5	102.0
180	72.0	81.0	90.0	99.0	108.0
190	76.0	85.5	95.0	104.5	114.0
200	80.0	90.0	100.0	110.0	120.0

The main factors affecting profitability in an operation are:

- The cost of the lamb
- The cost of keeping the ewe flock and feeding the lambs (feed to gain on lambs)
- Pounds of lamb produced per ewe mated
- Selling price of the lambs

Feed costs are an important component of the total cost of keeping a ewe (Ramana et al., 2003). This means that feed sources must be used as efficiently as possible on a sheep farm. Most ewe breeds are short day breeders which allows for a concentrated breeding period in the fall and consequently an

equally short lambing season 5 months later. The benefits of this are that most ewes in the flock will be at the same stage of production at any given time. This makes it easier to feed a group of ewes more accurately and cost effectively. Feeding more accurately, will not only optimize feed use, but will also help ensure good reproduction and production. The pound of lamb for sale per ewe mated is initially influenced by conception rate. High conception rates including high prolificacy are essential if productivity and profitability are to be maximized. Considering all the possible losses between conception and when lambs are weaned, accentuates the importance of the breeding period. A high conception rate is key to a successful lambing season. Reproductive wastage is a major concern in flocks. Despite high conception rates, early embryonic deaths and abortions can markedly reduce the potential lambing percentage. Lambing percent is further reduced by dystocia, pregnancy toxemia and lamb deaths immediately before or after birth. Lamb mortality through to weaning reduces the weaning percent and ultimately the number of market lambs for sale.

3 There are three important stages in the production cycle where nutrition and management have a marked effect on production and reproduction. These include:

1. Pre-breeding / breeding.
2. Late gestation.
3. Lactation.

Gearing up for the breeding season

The breeding season is one of the most important periods in the production cycle of the ewe flock. It is important to manage ewes (and rams) well to ensure high conception rates and minimal subsequent losses. Taking care of the ewes. Get ewes into 3 – 3.5 body condition well before the breeding season. Ewes in low body condition (<2.5) at breeding show:

- Delayed onset of estrus activity
- Lower conception rates to first breeding

- Fewer eggs (ova) shed at ovulation, resulting in fewer lambs born per ewe mated.

Group ewes by body condition and feed to achieve a uniform body condition of 3 – 3.5 in the flock well before they are flushed for breeding.

- Ewes are most likely to spend the summer on pasture. Make sure to deworm them prior to the breeding season.
- Check feet for foot rot. Trim all feet at least 30 days prior to the start of the breeding season.
- Check the flock – make sure they are healthy and ready for the breeding season. Taking care of the ewe lambs.

If replacement ewe lambs are to be bred early, then they will need to be on a good nutritional program to ensure adequate growth. Ewe lambs must be at least 65% of their mature weight at the beginning of the breeding season. Ewes' lambs must be 100 lbs at breeding if the mature weight is 154 lbs. Taking care of rams. All the rams required should be on the farm 2 months prior to the start of the breeding season. This will allow for several important steps to be taken prior to the breeding season.

- Most rams will likely have been on pasture. Make sure to deworm them prior to the breeding season.
- Bring rams in and provide them with a cool shady environment at least 50 days prior to breeding.
- Shear the rams if necessary to help regulate body temperature.
- Trim all hooves at least 30 days prior to the start of the breeding season.
- Condition the rams – feed to achieve 3.5 body condition score by the start of the breeding season.
- Have rams checked for breeding soundness, including semen quality checks.

Rams must be in excellent body condition but not over fat prior to the breeding season. Feed rams a good quality pasture or hay. Rams might need an additional 1 – 2 lbs of grain ration to ensure they are in good condition prior to and during the breeding season. Some special feeding considerations for rams:

- Feed a grain ration properly balanced for protein, energy and minerals.
- Feed a grain ration containing a urine acidifier to help prevent urinary calculi.
- Provide additional salt blocks for the rams
- Provide ample clean water at all times! This is particularly important with rams.

The number of ewes that can be mated per ram varies with season / ambient temperature, age, libido and physical condition of the ram. The following guidelines are helpful in making sure that adequate “ram power” is available for the breeding season.

- Well matured ram lamb – 15 to 30 ewes / ram

- Mature rams – 25 to 50 ewes / ram

- MGA (melengesterol acetate) or sponges to synchronize the ewes – 8 to 10 ewes / ram

Put inexperienced ram lambs in with mature ewes and experienced mature rams with maiden ewes whenever possible. This can help ensure breeding success. Table 2 lists some of the important reproductive parameters to bear in mind.

Table 2. Important reproductive parameters for the ewe flock

<u>Item</u>	<u>Average</u>	<u>Range</u>
Estrus cycle (days)	17	14 – 19
Length of estrus (hours)	35	20 – 42
Gestation length (days)	150	140 – 160
No. ova shed at ovulation		1 – 4
Age at puberty (months)	5	4 – 7

Managing fertility

The ewes.

Many sheep breeds are seasonal breeders with highest breeding activity coinciding with the shortest day. The number of ewes in estrus and ewes ovulating increases very rapidly in the fall and remains high for several months. There is a modest increase in the ovulation rate from the beginning of the breeding season in fall through to winter. There is a tendency for more multiple births later in the breeding season.

Ewes in body condition 3 – 3.5 typically produce more lambs than ewes that are thin (2.5 or less) or ewes that are too fat (> 4.0 BCS). Two methods are also used to improve fertility early in the season (or out of season breeding) and /or help synchronize the ewe flock for breeding. These include:

1. The use of hormonal sponges
2. Feeding MGA (melengesterol acetate) to ewes for a limited period of time.

The rams.

High temperatures affect sperm production in rams. Ambient temperatures above 30 to 32° for a prolonged period of time will interfere with semen production and may lead to sterility in rams. Although this low fertility / sterility is not permanent, it can take up to 50 days of cool weather / environment for normal fertility to return. Rams should be kept in an environment less than 24° to

ensure good fertility. Shearing rams can help keep them cool during the summer prior to the fall breeding season.

The teaser ram.

Anestrus ewes that have had no visual or sensory contact with rams can be stimulated to start cycling by the sudden introduction of rams (teaser rams). Introducing a teaser ram 10 to 14 days prior to the start of the breeding season will speed up the change from anestrus to normal estrus cycles. Ewes will normally

Ovulate within 3 to 6 days after the introduction of the teaser ram. The benefits of the teaser ram are:

- The first cycle is most often silent and less fertile
- Since most ewes cycle within a week, subsequent estrus activity will be synchronized to some extent.
- Ewes tend to conceive earlier in the breeding season.

However, using teaser rams does not necessarily increase lambing percent.

Flushing ewes

Increase the plane of nutrition prior to and during the breeding season. This is typically done by feeding $\frac{1}{2}$ to 1 lb of corn / head /day starting 2 – 3 weeks prior to the start of the breeding season. The objective of flushing ewes is to increase the number of ova shed and consequently increase the lamb crop (Beck et al., 1996). The responses to flushing have been variable. Some of the observations have been;

- Ewes in medium (and poorer) body condition respond well producing a bigger lamb crop (Clinquart et al., 1995).
- Flushing has a greater effect early or late in the breeding season.

Ewes must be grazed or fed grassy type forages. Forages high in legumes, such as alfalfa, clover and red clover contain higher levels of estrogen, which will delay breeding, reduce conception and consequently lower the lamb crop. Avoid feeding moldy feed that may have an estrogenic effect on ewes. Ewes on high protein pasture (but low legume) are best flushed with grain only to avoid excess protein,

Particularly soluble protein that could interfere with fertility / conception. Whole corn is the most practical feed for these animals (Gong et al., 1994). Always reduce grain gradually over a number of weeks at the end of the breeding season. This is important ensure the survival of as many embryos as possible.

Lamb losses

Embryonic losses

Embryo implantation occurs at 21 – 25 days after fertilization. This is a critical stage in determining embryonic survival or death. Keys to improving embryonic survival are:

- Keep stress to a minimum.
- Avoid working ewes with dogs during the breeding season.
- Reduce grain feeding gradually at the end of the breeding season.

Ewes that fail to recognize the pregnancy will also lose the embryo and cycle again.

Fetal losses

Abortions and still births can be induced by many factors. Any time that this occurs, extreme caution must be taken. Here are some important steps to take.

- Get your veterinarian involved immediately.
- Remove the fetus, placenta and any contaminated bedding immediately. Wear protective gloves.
- These must be sent off for diagnosis (veterinary assistance is very important) or destroyed completely.
- Remove the ewes that have aborted, or that have a vaginal discharge, from the rest of the flock.
- Do not allow any contact of remaining ewes with any of the aborted material or aborted ewes (Nelson et al., 2001).
- Never feed ewes, especially pregnant ones, on the ground where feed can be contaminated by urine and feces – these are major routes of disease transmission.
- Prevent feed and water contamination from rodent, bird and cat feces (Machmuller et al., 2000).
- Implement an effective vaccination program – consult with your veterinarian.






Some of the reasons for fetal losses include the following:

- **Vibriotic abortion.** This is caused by *Campylobacter*. Usually abort in the last 6 – 8 weeks of pregnancy. Rates of 30% are common but can also include abortion storms with up to 90% aborting (Wolfensohn et al., 2003).
- **Enzootic abortion.** This is caused by *Chlamydia*. Usually abort in late gestation. Often also evident as still births and weak lambs that die shortly after birth.
- **Toxoplasmosis.** Spread by cat faeces in water or feed. Abortions at any stage of pregnancy.
- **Mycotic abortions.** Feeding forages or grains contaminated with molds and mycotoxins.
- **Listeriosis.** Caused by *Listeria*. Feeding poorly fermented silages or through contaminated feed and water.

Baby lamb mortality

- **Weak lamb syndrome.** There are many possible causes for weak lambs. Some common ones include thin ewes, poor feeding in late gestation, complication of pregnancy toxemia, prolonged lambing, chilled lambs, failure to nurse and poor mothering by the ewe (Moibi et al., 2001).
- **Pregnancy toxemia.** Similar to above with the potential for high mortality in affected cases.
- **White muscle disease.** Caused by selenium /vitamin E deficiency (Ivan et al., 2004).
- **Lambs from thin ewes.** Ewes at 1.5 – 2.0 body condition had lambs 20% lighter than ewes in good condition. If the target birth weight was 9 lbs for good condition ewes, then thin ewes had lambs at 7 lbs with a substantially increased mortality.
- **Low birth weights.** Low birth weights are associated with higher lamb motility.

Body Condition Guidelines for Sheep.

Score		Description	
1		Spine sharp, Back muscle shallow, No fat	Lean
2		Spine sharp, Back muscle full, No fat	
3		Spine can be felt, Back muscle full, Some fat cover	Good Condition
4		Spine barely felt, Muscle very full, Thick fat cover	Fat
5		Spine impossible to feel, Very thick fat cover, Fat deposits over tail and rump	

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