

# Beginning a Sheep Operation

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## Introduction

Kentucky has the resources required for successful sheep production systems. The state has a vast forage production potential, under-utilized labor and facilities, and access to a well-established market. Many Kentucky farmers should consider the sheep enterprise and its benefits, particularly if they want to make more efficient use of their forages, labor, and facilities. In developing this enterprise, the following must be considered: feed supply, labor, facilities and equipment, foundation stock, and the production system.

## Feed Supply

### Forages

More marketable product can be produced from sheep on forage than any other farm animal. Forages can supply up to 90 percent of the total feed in a sheep program.

In planning a program, establish the annual carrying capacity (the number of animals a forage plan will support for a year, including pasture and hay). Carrying capacity is expressed in animal units. Under Kentucky conditions, a beef cow requires approximately 1 ton of hay and 4 tons of pasture dry matter per year. The ewe's annual requirement is 0.3 ton of hay and 0.5 ton of pasture dry matter. Therefore, 1 cow equals 5 to 6 ewes. A forage program capable of supporting 25 cows annually will provide feed for 125 to 150 ewes.

Because of their grazing habits, sheep and cattle complement each other in grazing forage. Sheep graze the shorter, finer material while cattle graze taller, coarser growth. Because of this complementarity, one can normally expect to add one ewe for each cow grazed and not increase the amount of pasture land required. The additional feed required would be 600 lb of hay and necessary concentrates.

The quality of forage needed for sheep is as important as the amount. The quality required is related to the flock's stage of production. Nutrient requirements are highest for ewes in late gestation and early lactation. January/February lambing ewes need high quality hay, corn silage, alfalfa silage, and/or wheat pasture or accumulated fescue, orchardgrass, or bluegrass forage for grazing from mid-December to April 1. Ewes that lamb in October need similar-type diets from September 1 to December 15. An equivalent feeding period for ewes that lamb in April extends from March 1 to July 1. Hay for sheep can range from 100 percent grass (fescue, orchardgrass, or bluegrass harvested in the vegetative stage) to 50 percent legume (alfalfa or clover) and 50 percent grass (fescue, orchardgrass, or bluegrass) to 100 percent legume (alfalfa). Any sheep hay should contain a minimum of 14 percent crude protein, be harvested without weather damage, and be stored to prevent spoilage.

Ewes in the **January/February** system (Figure 1) should have access to high quality orchardgrass or bluegrass pasture during flushing/breeding (August 1 to October 7). Nutritional flushing is a two-week period immediately prior to the breeding season when ewes are fed additional energy feedstuff(s) to increase reproductive efficiency. They can graze accumulated fescue, orchardgrass, bluegrass, or turnips from October 7 until coming into the lambing barn on January 2. Lambs in this system can be 1) weaned to drylot, 2) weaned to spring pasture (fescue, orchardgrass, or bluegrass) by April 1 and grazed with supplemental concentrates until marketing between May 15 and June 15, or 3) be unweaned and creep-fed until marketing directly off the ewe. In the **October** lambing system (Figure 2), ewes are bred in May while grazing orchardgrass or bluegrass pastures with or without white clover. From June 1 until September 1, continue to graze the same, but lower

**Figure 1. Yearly Sheep Operation Calendar—January/February Lambing.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Basic internal parasite treatment *				X	X	X	X	X	X	X	X	X
Flush ewes								—				
Breed ewes									—			
Lamb	—	—										
Dock, castrate, vaccinate lambs	—	—										
Creep feed	—											
Wean at 60 days			X									
Feed weaned lambs (drylot or on pasture) OR Pasture lambs + creep (unweaned)				—	—	—						
Market lambs					—							
Shear & market wool				X						X		
Pasture ewes												
Labor input	H	H	M	M	M	L	L	L	L-M	L-M	L	M

- FAMACHA (a system that allows producers to make de-worming decisions based on estimated level of anemia) every 21 to 28 days. De-worm 3, 4, and 5's.
- L = low            M = medium            H = high

**Figure 2. Yearly Sheep Operation Calendar—October Lambing.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Basic internal parasite treatment *				X	X	X	X	X	X	X	X	X
Flush ewes				—								
Breed ewes					—							
Lamb									—			
Dock, castrate, vaccinate lambs										—		
Creep feed										—		
Wean at 60 days												X
Feed weaned lambs (drylot) OR Pasture lambs + concentrate	—	—	—									—
Market lambs			—									
Shear & market wool			X						X			
Pasture ewes												
Labor input	L	L	L	M	M	L	L	L	L	H-M	M	M

- \* FAMACHA every 21 to 28 days. De-worm 3, 4, and 5's.
- L = low            M = medium            H = high

**Figure 3. Yearly Sheep Operation Calendar—April Lambing.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Basic internal parasite treatment *</b>				X	X	X	X	X	X	X	X	X
<b>Flush ewes</b>												
<b>Breed ewes</b>												
<b>Lamb</b>												
<b>Dock, castrate, vaccinate lambs</b>												
<b>Creep feed</b>												
<b>Wean at 60 days</b>						X						
<b>Pasture lambs + concentrate</b>												
<b>Market lambs</b>												
<b>Shear &amp; market wool</b>			X									
<b>Pasture ewes</b>												
<b>Labor input</b>	L	L	M	H	M	L	L	L	L	L	M	M

\* FAMACHA every 21 to 28 days. De-worm 3, 4, and 5's.

L = low

M = medium

H = high

quality forages. Accumulated growth of these forages can be grazed during late gestation (September 1 to October 1) and the first 60 days of lactation (October 1 to early December). However, supplementation with grain will be required during these production phases because of increased nutrient requirements of the ewes. After lambs are weaned, ewes graze low quality and quantity of pasture and are supplemented with low quality hay or small amounts of corn silage until flushing begins the next April 15. Lambs can be finished in drylot or on pasture after weaning as long as they are supplemented with concentrates. Ewes and lambs in the **April** lambing system (Figure 3) remain on pasture year-round, except for the month of lambing. April lambing in a barn is usually more efficient than lambing outside because of excessive cold and wet conditions that often occur in Kentucky. After May 1, ewes and lambs graze orchardgrass/bluegrass/white clover pastures until July 1 (weaning). Then, ewes graze the poorest quality and smallest amount of fescue, orchardgrass, or bluegrass pasture until breeding again in mid-November. Concurrently, weaned lambs graze orchardgrass or bluegrass pasture, with white clover, orchardgrass or bluegrass with alfalfa, or pure stands of alfalfa. All pastures require supplementation with concentrates until lambs are marketed in October and/or November.

Mature, dry, non-pregnant ewes require only a maintenance level of nutrition. After they have recovered the weight losses from lactation, ewes need only to maintain or slightly increase their weight until a month before the next lambing. To accomplish this, these ewes graze the poorest quality and smallest quantity of forage.

### Concentrates

When hay containing at least 50 percent legumes is used in a sheep feeding program, the primary source of supplemental concentrates is corn. The corn required/ewe/year may vary from 1½ to 5 bushels depending on the feeding program. Typical rations used in a sheep program are shown in Table 1.

**Table 1. Corn Required per Ewe per Day.**

<b>160 lb Ewes</b>		<b>Creep ration for lambs</b>
<b>Last 4 weeks of gestation</b>	<b>First 8 weeks of lactation</b>	
4.0 lb alfalfa hay (mid-bloom)	5.0 lb alfalfa hay (mid-bloom)	90% coarsely ground shelled corn 10% soybean meal
1.0 lb shelled corn	1.5 lb shelled corn (single lamb)	
	2.0 lb shelled corn (twin lambs)	

## Labor

The labor required/ewe/year can range from 4 to 7 hours in a 25 to 30 ewe flock down to 2½ to 3 hours/ewe in a 200 ewe flock. Here are the monthly labor requirements for a January-February lambing flock.

**January-February:** General feeding, mix rations, bed, clean barn, sort ewes as they lamb, observe ewes and lambs in lambing pens, dock, castrate, vaccinate, keep records.

**March-June:** Observe sheep daily, move to fresh pasture as needed, shear, sort, grade and market lambs, cull ewes, trim feet, FAMACHA, de-worm.

**July-September:** Observe sheep daily, move to fresh pasture as needed, prepare rams for breeding, keep breeding records, FAMACHA, de-worm

**October-November:** Observe sheep daily, FAMACHA, de-worm, move to fresh pasture as needed.

**December:** Observe sheep daily, start grain feeding, prepare barn for winter feeding/lambing.

The labor used in a sheep enterprise must be timely and precise. Planning for and using proper equipment increases labor efficiency. Many jobs can be combined: FAMACHA, de-worming, foot trimming, moving to new pasture, and sorting, for example.

Shearing is a special labor consideration. You can hire shearers or you may want to learn to shear your own sheep. Of course, if you have hair sheep, no shearing is required.

## Facilities and Equipment

### Housing

Sheep can be easily housed in unused tobacco barns, hoop structures, or other barns constructed so there is always some air movement. Inexpensive hay and grain feeders can be constructed from detailed plans published in the *Sheep Housing and Equipment Handbook, Third Edition* (1982) of the Midwest Plan Service or they can be purchased from sheep equipment manufacturers. These

can be wooden, concrete, or “pvc pipe feeders.” Small gates, home-built or purchased, can be used to make lambing, nursery, mixing, and other “small” or “large” pens in the barn. A source of water must be available at all times. Automatic waterers are ideal, but are not necessary to have in every situation. However, maintaining cleanliness is required in every situation.

Ewes are moved from maternity pens, as they lamb, to 4' x 5' lambing pens where they stay for two to five days after lambing. From these pens, ewes and lambs can be moved to a nursery pen for a few days and then moved to a pen for ewes with singles and a pen for ewes with twins. The ewes with twins need extra feed above that fed to ewes with singles.

**Space Requirements:** All pen space listed is usable space exclusive of feeder and feed storage, which is listed later. Using these data, the space required for a one ram flock (35 ewes) including pen space, lambing pens and feed storage is about 1,200 sq ft (a 32 x 40 ft barn), while 100 ewes require 3,200 sq ft (a 40 x 80 ft barn).

#### Pen space:

Ewes	10 to 14 sq ft/head
Ewes with lambs	16 to 20 sq ft/unit
Weaned lambs	8 to 10 sq ft/head
Lambing pens <sup>a</sup>	16 to 20 sq ft/pen

<sup>a</sup> 1 pen/6 ewes in flocks under 100 head  
1 pen/8 ewes in flocks over 100 head

**Lot area:** 35 to 50 sq ft/adult sheep

**Creep area:** 2 sq ft/lamb

#### Feeder space:

Type	Ewe	60 to 100 lb lamb
Self-fed	10 to 12 inches	3 to 4 inches
Hand-fed	16 to 20 inches	9 to 12 inches

**Waterer space:** 8 to 10 head/ft of perimeter or 25 to 35 head/automatic waterer

#### Feed storage

Hay and bedding	350 cu ft/ton
Concentrate	1.25 cu ft/bushel

## **Equipment**

Large equipment needed includes a permanently or temporarily constructed foot bath and some gates to form a working area for handling and sorting sheep. Basic fencing requirements can be met by using conventional woven wire or high tensile electric for boundary fencing. Use electric fence for cross or interior space. A set of platform scales for weighing sheep and feed is a necessity.

Small equipment required includes drench guns, syringes, foot trimmers, electric clippers, needles, syringes, stomach tubes, prolapse retainers, ear taggers, elastrators, paint sticks, and thermometer.

## **Foundation Stock**

### **Selecting Your Ewes**

Ewes in a January/February lambing program should be crossbred. Examples include Hampshire x Polypay, Suffolk x Rambouillet, or Dorset x Rambouillet or Polypay. Use of a terminal sire (Suffolk or Hampshire) will increase lamb growth rate. If all ewes are expected to conceive during a May breeding season (October lambing system), they have to be Rambouillet, Merino, or Dorset. Of the medium-season breeders, like the Polypay, only about 40 to 50 percent of a mature ewe flock will lamb in October after a 30-day breeding season in May. Ewes in the April lambing system can be seasonal breeders. Crossbreeds listed above or purebreds of most any breed will give satisfactory April lambing rates.

Consider age when selecting ewes. Ewe lambs and yearling ewes are normally available in uniform groups and should produce 5 or 6 lamb crops over their lifetimes. However, they are more difficult to breed the first time and experience more lambing problems than mature ewes. Older ewes offer the advantage of fewer lambing problems and cheaper price, but may have other problems and a shorter production life.

Use a thorough systematic approach to selection including the following considerations:

**Eyes:** The eyes should be clear, bright and both should be functional.

**Mouth:** When records are not available as to the age of sheep, the incisor (front) teeth in the lower jaw serve as a reliable indicator of age up to four years. Some variation in the time of appearance of permanent teeth reduces the accuracy of the estimate.

The lamb has 20 temporary (milk) teeth. Adult sheep have 32 permanent teeth. The eight front incisor teeth are used to determine age. At 10 to 15 months, the lamb's two center temporary, narrow incisor teeth are replaced by two broad permanent teeth. The second pair of permanent teeth (one on either side of the yearling teeth) come in at 20 to 30 months of age. The three-year-old teeth come through at 36 to 40 months of age and the "full" mouth (eight incisors) appears at 48 months.

After a sheep becomes full-mouthed, the age cannot be accurately determined, but the teeth tend to develop a "long" appearance due to receding gums. The teeth also "shoe-peg," becoming wider apart at their inner borders as the sheep gets older. The front teeth should be flush with the dental pad, which serves as the upper chewing surface in the front of the sheep's mouth. The teeth should not extend far out over the pad or vice versa.

**Feet:** When sheep's feet are properly trimmed, they stand squarely on them. Trim overgrown feet early in the pasture season. The feet should be free of disease. Legs and pasterns should be straight and strong and all joints free of stiffness.

**Udder:** The udders of ewes that have been in production should be soft, pliable and free of lumps. Check teats to eliminate ewes with abnormally large or unproductive teats due to disease or injury.

**Wool:** Avoid ewes with large amounts of black fiber.

**Size:** Ewe size has been shown to be related to productivity. Selection for larger ewes can be expected to produce faster growing lambs than smaller ewes.

**Condition:** Avoid excessively fat ewes since over-condition may reduce reproductive efficiency. Ewes that lamb early and wean their lambs during the peak season of pasture production can become too fat unless properly managed. Likewise, poor producing and barren ewes fed in amounts above their nutrient requirements can be expected to become too fat.

**Health:** All sheep should be free of disease and internal and external parasites. Always buy stock early enough to allow for a suitable "isolation period" in order to prevent the spread of diseases or parasites throughout the flock. Ewes accustomed to their surroundings should be expected to breed and settle more readily than "new arrivals."

## Selecting Your Rams

Rams should always be purchased from reputable breeders who will provide performance records (type of birth – twin vs. single, weaning weights, and post-weaning gains) and/or National Sheep Improvement Program genetic evaluation data (Estimated Breeding Values).

Rams used as terminal sires of slaughter lambs should be selected for size, muscling and soundness. Mature size of rams is positively related to growth rate in their lambs, so above average size rams should always be selected as market lamb sires. The high-priced cuts in a lamb carcass are the loin and leg, so rams should be heavy muscled in these areas. Rams should be free of disease and able to walk without stiffness in feet or legs.

The ram's age affects the number of ewes he can breed in a season. The following are suggested guidelines: well-grown ram lambs 15 to 25 ewes, yearling rams 25 to 35 ewes and rams 2 to 5 years old 35 to 50 ewes. Older rams are best suited for smaller numbers of ewes in a restricted area.

Hampshire and Suffolk rams are used extensively as sires of slaughter lambs. White-faced (Rambouillet, Rambouillet-Dorset cross, Dorset, Polypay) rams may be best when replacements are saved from the flock.

## The Production System

Once the resources and production goals have been evaluated, a production system needs to be chosen. The three systems illustrated each require unique resources and management.

- The January/February and April lambing production programs require precise internal parasite control and forage management.
- The October lambing program, for example, requires specific genetics to be successful.
- The systems may be combined to increase efficiency.

## Summary

A successful sheep enterprise requires a feed supply that allows the ewes, rams, and lambs to perform all their productive functions. Labor requirements for sheep are usually greatest when other farm labor is minimal. Usable facilities are essential to success. Selecting breeding stock that will perform to the producers' expectations is critical to the enterprise's economic success. Managers need to develop and fine-tune a basic system that will be productive under their particular conditions.