

# NEWS TO EWES

A photograph of two sheep in a green field. One sheep is in the foreground, looking down at the grass. The other sheep is slightly behind and to the right, looking towards the camera. There are other sheep visible in the background.

## Can I Breed My Ewes to Lamb at a Year of Age?

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### Introduction

The **traditional** lambing season in Kentucky and surrounding states has been January/February. This was a time when most producers had a tobacco barn for lambing. Ewes were wool breeds or crossbreeds that lambed from 95%+ conception rates in an August/September breeding season. Youngest ewes at breeding were 17 to 19 months and these made up about 15% of the total flock. Marketing 1.5+ lambs per ewe was commonplace. Lambs weighed 100 to 120 pounds each when marketed at 4 to 6 months of age in May and June. Lamb prices were traditionally higher in May and June than any other time of the year.

In recent years, more and more producers have begun to raise hair-type ewes that lamb in the spring (April). Many lambs are marketed for harvest (slaughter) "off grass" at 50 to 60 pounds

during the summer and fall. This production system is in contrast to the **traditional** system where any lambs marketed in the summer or fall were considered to be mismanaged because they should have been marketed at 100 to 120 pounds during the previous May and June.

As more producers are raising hair-type sheep, the concept of breeding ewe lambs has become more prominent. The main reason for this greater interest is the fact that hair-type ewe lambs born in April can theoretically be bred in late November and early December to lamb the next April at 12 months of age. Although lambing first at this age has several production advantages, these ewe lambs will require specific and intense management before the advantages become reality. It is the purpose of this paper to provide some research evidence for breeding ewe lambs, describe factors needed to successfully mate ewe lambs, and enumerate some recommendations for managing ewe lambs to lamb at 12 months of age.

### ***Breeding Ewe Lambs is Not a New Concept!***

The first scientific work in the U.S. that compared breeding ewe lambs with yearlings was published by North Dakota State University in 1936. Two hundred and forty-four Hampshire x Rambouillet ewes were purchased as lambs, divided into two groups, and evaluated over six years. One group was mated as lambs and the other as yearlings. Of the ewes mated as lambs, 85% produced lambs at approximately 14 months of age. Over six seasons (years), the group bred as lambs weaned 0.69 more lambs and 31 more pounds of lamb per ewe exposed than those bred as yearlings. There was no difference in wool production. Ewes mated first as yearlings reached their mature weight at approximately 21 months of age. Those first mated as lambs reached the same mature weight, but at 31 months. Through the fifth season, approximately 75% of the original ewes were still in both flocks. However, after the sixth season, ewes bred as lambs started to leave the flock faster than those bred as year-

lings. When the ewes were 7.5 years old, 57% of the yearling-breds remained, but only 46% of the lamb-bred group remained in the flock. This early study showed that well-grown ewe lambs bred at 9 months of age could produce more pounds of lamb per lifetime than ewes mated first as yearlings. However, the culling rate was higher for those bred first as lambs, especially as they reached advanced ages.

South Dakota State University conducted a similar study in 1942 and concluded, under farm flock conditions, that Hampshire ewes bred first to lamb at 12 to 14 months of age showed an advantage over yearling-bred ewes in lifetime lamb production. However, not all segments of the sheep industry adopted the practice of breeding ewe lambs, even after these two studies. For example, Dr. W. G. Kammlade, author of a 1947 textbook entitled *Sheep Science*, stated that practically all purebred producers oppose the practice. He further stated "Range sheep producers do not follow the practice; perhaps not because they are opposed to it, but because the conditions under which they operate make it unadvisable. On the other hand, some farm-sheep raisers have followed the practice for years and think it is profitable."

Hohenboken, in 1977, suggested the experience gained by ewes raising lambs at one year of age make them better mothers at the two-year-old lambings than ewes lambing first at two years of age. In his study, both groups gave birth to the same number of lambs per ewe exposed, but those that had been bred as ewe lambs weaned 12 more lambs and 840 more pounds of lamb per 100 ewes exposed than those exposed first as yearlings. This difference was attributed to the previous maternal experience of the ewes bred as lambs versus the lack of previous maternal experience of ewes bred first as yearlings. Other research has shown that ewe lambs with the ability to lamb at 12 to 14 months will produce more pounds of lamb per lifetime than those lambing first at two years of age.

### **Factors Affecting Successful Breeding of Ewe Lambs**

**Season.** Ewes are short-day breeders, which means their mating activity **increases** as the day length **decreases** from the **longest** (June 21) to the **shortest** (December 22) days of the year (i.e., the normal breeding season for ewes is fall). Typically, ewe lambs begin cycling later than mature

ewes, so their mating season is shorter in length. Consequently, there are fewer opportunities for ewe lambs to become pregnant. Put another way, in order for ewe lambs to have "acceptable conception rates" and lamb at 12 months, they need to reach puberty (begin cycling) early in the fall of the year.

**Age.** The age at first behavioral estrus (puberty) generally varies from 5 to 17 months of age. Age at puberty varies among breeds and is affected by the time of birth and level of nutrition. Lambs born early in a lambing season will cycle earlier than those born later in the season. This is due to the fact that they are normally heavier in body weight and are older at the beginning of the breeding season. To lamb at 12 months, ewe lambs must begin to cycle by 7 months of age. In order for age and season to be in concert, ewe lambs need to be born in April, exposed to rams in late November and early December, and lamb the next April. Higher levels of pre- and post-weaning nutrition lowers the age of first estrus. Also, single lambs cycle at younger ages than twins or triplets, primarily because they are heavier at any given age.

**Weight.** Numerous research studies have reported that ewes of a breed or cross-bred at a given time during the breeding season must pass a specific threshold of body weight before they are physiologically capable of exhibiting estrus. Other research has shown that ewes begin cycling once they reach a fixed percentage of their predicted adult weight. However, this percentage has varied by different genetic types and in different experiments from 33 to 80%. This leads to the conclusion that ewe lambs of most of the breeds in the U.S. reach puberty between 80 and 100 pounds.

**Weight Change During Breeding.** Nutritional flushing, i.e., having ewes on a

rising level of feed intake and weight gain going into the breeding season, is known to increase fertility and twinning rate in mature ewes. Flushing has not, however, had much effect on the twinning rate in ewe lambs. This is because ewe lambs should be fed at a relatively high level of nutrition from weaning through breeding so they gain 0.5 pounds or more per day. Efforts to increase the gain even more during the nutritional flushing and through the breeding season will not increase the twinning rate. Apparently, most ewe lambs of most breeds are capable of carrying only a single lamb to parturition, regardless of whether they have a high frequency of twin ovulations.

**Breed.** Differences among breeds and breed crosses in age and weight at puberty have been documented. Fine wool breeds and composite breeds carrying high percentages of fine wool breeding (Rambouillet, Targhee, Corriedale, Columbia) are not the best candidates for lambing first at a year of age. Although some may conclude this is a disadvantage for these breeds, it actually becomes an advantage because these breeds are produced in arid climates where the feed supply on an annual basis limits maximum production. Breeding ewes to

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lamb at 12 months could be a disaster in this environment because of low conception rates, lambing problems, extra labor needs, and slow growth rates of offspring.

Too small a proportion of long wool (e.g., Romney, Lincoln) ewe lambs conceive at 7 months to warrant trying to breed at this early age. The same is true for late maturing medium wool lambs (e.g., Hampshire, Suffolk). On the other hand, Finnsheep, Romanov, and hair breeds (e.g., Katahdin, St. Croix) and their crosses are high in both ewe lamb fertility and twinning rate. The advantage is carried through to a larger number of lambs weaned per ewe lambing and per ewe exposed. Crossbred ewe lambs cycle at younger ages and exceed purebred ewes in fertility, prolificacy, and total pounds of lamb weaned.

### ***Selection of Ewes to Lamb at 12 Months***

Accepting the fact that any one or a combination of factors just discussed may keep some ewe lambs from conceiving at 7 months of age, selection of those with the best chance of lambing at 12 months (yearlings) becomes critical. **Select lambs born early** in the year and early in the lambing season. Research has shown these ewes, like their mothers, tend to breed and lamb earlier than those born later. If ewe lambs are at least **7 months old in the fall of the year** (normal breeding season), age should not be a significant selection factor. These lambs are old enough to cycle (5 to 17 months range), should weigh enough (80 to 100 pounds), and the season for breeding (fall) is correct. **Select the top two-thirds of the twins** in the flock for average daily gain. This means the producer who owns the ewes should provide a set of records. Although twinning is lowly heritable (10%), continual selection for twinning, over years, will result in more lambs produced per ewe per year and ultimately more pounds of lamb produced per ewe per lifetime. It should be remembered that, on average, single lambs will weigh more than individual twins at birth, at weaning, and at other times until mature weights are reached at 2 to 3 years of age. Even though **singles tend to exhibit first estrus before twins**, to successfully breed ewe lambs at 7 months, they must first reach this age in the correct season (fall). That is, if they are at least 6 months old in the fall, age is not a factor that will affect puberty. They should also

be heavy enough for breeding (two-thirds of projected mature weight). This weight is usually **80 to 100 pounds** depending on breed. Ewe lambs weighing less may cycle and become pregnant but are more prone to have lambing and milking problems than heavier lambs.

When selecting ewes to lamb at 12 months, always remember **October is the optimum month** to breed January/February born lambs. **Late November and early December is the optimum time** to breed April born lambs. These months are in the correct season for breeding ewes, the lambs will be old enough to cycle, and they should weigh enough to successfully conceive if they are breeds or crossbreeds that have the potential to lamb at 12 months of age.

### ***Advantages of Breeding Ewe Lambs***

Advantages of breeding ewe lambs are gained after the **Factors Affecting Successful Mating of Ewe Lambs** are considered. When comparing ewes that lamb as yearlings with those that lamb as two-year-olds, some growth retardation of ewe lambs can be expected. Equal mature weights will be reached, but it may take ewe lambs longer to get there. Wool growth (production) does not appear to be affected by lambing at a year of age. A significant advantage of lambing at 12 months is that poor performers can be culled prior to breeding again as yearlings. This can result in a significant savings in maintenance feed cost. Income from ewe lambs comes sooner than from two-year-olds. First lamb income from yearling lambers can come as early as 14 to 17 months from the time they were born whereas two-year-old lambers will not produce any lamb income until they are 26 to 29 months old. Another real advantage of breeding ewe lambs at 7 months is those lambs that did not conceive can be sold as lambs (before they are 12 months old) and still bring lamb, not mutton, prices. Extensive research has shown the main advantage of breeding ewes to lamb first at 12 months is the production of 80 to 130 more pounds of marketable lamb per ewe per lifetime than for ewes that lamb first at two years of age.

### ***Management Recommendations***

Ewe lambs require more daily attention – from pre-breeding through breeding, gestation, lambing, and lactation than ewes bred first as yearlings. Internal parasite control must be more strict than for older ewes. Therefore, they should be main-

tained separate from yearling and older ewes through breeding, gestation, lambing, and lactation. Even so, producers should be prepared for lower conception rates, smaller birth weights, and lower lambing rates than obtained with more mature ewes.

The first thing producers should do is to plan the breeding season so they can be sure their breed of ewe lambs will be cycling. Mating ewe lambs prior to October 1 is not recommended. November and early December will produce best results. **This means ewe lambs should not be allowed to mate until they are at least 7 months old and weigh 80 to 100 pounds at the start of the breeding season.**

Nutritional management should be so ewe lambs gain 0.5 or more pounds per day from weaning through the breeding season. If they are on pasture, this means each lamb will need to be supplemented with 1.0 to 1.5 pounds of shelled corn or a grain mix from weaning through breeding. This level of supplementation may be slightly reduced during early gestation (depending on the ewes' body condition), but increased in late gestation. Pregnant ewe lambs require about 25% more feed than mature ewes of similar weight because they have nutritional needs not only for production, but for their own continued body growth, too.

Choose a mating system that is compatible with land, feed, equipment resources, management skills, and goals for raising sheep. Systematic crossbreeding should increase lamb production when breeding ewe lambs. For producers whose goal is efficient and economical conversion of forage and harvested feeds into lamb for the slaughter market, crossbreeding often will be the mating system of choice. However, a knowledge of genetics and a flock size of at least 100 ewes will be required for a systematic crossbreeding system to be economical.

The choice of breeds or breed crosses should be made for their adaptability to physical and management conditions, then for their ability to produce lamb and wool in the total management program (as ewe lambs and mature ewes). Once these choices have been made, then determine if breeding ewes to lamb at 12 months will be an economical venture. To aid this economic venture, mate ewe lambs to rams of breeds of smaller mature size and/or rams with relatively small heads and shoulders. Either or both of these breeding management techniques will reduce the incidence of difficult births for these ewe lambs. Many research studies around the world have

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shown that ewe lambs have a shorter length of standing heat and they are less likely to seek out and court a ram than are mature ewes. The chances of them being detected in estrus and mated successfully will be increased by (1) mating them separately from mature ewes, (2) using more rams per 100 ewes than would be necessary with mature ewes, (3) using experienced rams, but not using rams so large there might be a danger of injuring the ewes during mating, and (4) maintaining ewes and ram in a pen, lot, or small pasture during the breeding season. Even if these recommendations are followed, expect a larger percentage of open ewes after the breeding season than for mature ewes. Therefore, exposing 30 to 40% more ewe lambs than are actually needed could prevent the expense of carrying open ewe lambs until the next breeding season as yearlings. As mentioned above, the opens can be marketed when still young enough to command lamb, not mutton, prices.

In many flocks, ewe lambs normally begin lambing about the time mature ewes are finishing. This allows for earlier recognition and more attention to lambing difficulties and more time for ewe/lamb pairs to “mother-up” in lambing jugs. It also allows ewe lambs to go deeper into the breeding

season before exposure to rams. In contrast, if ewe lambs can be bred early in the breeding season, they will lamb earlier and before many of the mature ewes. This is the time when shepherds are the freshest and can give their undivided attention, without distractions, to these young ewes.

Post-lambing, yearling ewes with lambs should be managed separately from mature ewes. This way, adequate nutrition can be provided and continual observation of both ewes and lambs is more intense. Yearling ewes will not produce as much milk as mature ewes so a creep availability for lambs is a necessity. If these ewes and lambs are on pasture in the spring and summer, supplementation with 1.0 to 1.5 pounds of shelled corn or a grain mix per head per day will be necessary to maintain milk production, prevent excessive weight loss, and help reduce internal parasite infestation. Lambs born to these ewe lambs should be weaned at six to eight weeks of age. This will allow the ewe sufficient time to recover from the strain of lactation and for growth prior to the next breeding season.

### Summary

Can I Breed My Ewes to Lamb at a Year of Age? The answer is “yes” in most

situations. The success of “yes” situations requires a fall breeding season for lambs that are at least 7 months old and weigh 80 to 100 pounds (two-thirds of their projected mature weights). Early maturing (Finnsheep and Romanov) and hair (Katahdin and St. Croix) breeds fit this model best. These ewes should produce 80 to 130 pounds more lamb per lifetime than breeding them to lamb first at two years of age. To attain this increased productivity, ewe lambs will have to be managed separately from mature ewes because they require greater attention through pre-breeding, breeding, gestation, lambing, and lactation. They also have to be fed to produce concurrent body growth, wool/hair growth, fetal growth, and maximum milk production.

Yes, ewes can be bred to lamb first at a year of age. However, success will depend on the incorporation of genetic principles, animal breeding systems, reproductive capabilities, nutritional management, and health maintenance into an integrated management program.

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