BREEDING EWE LAMBS TO LAMB AS YEARLINGS *

Increasing production efficiency is an ever present need in any livestock enterprise. One method available to increase efficiency in a sheep operation is to breed ewe lambs to lamb as yearlings. This is particularly applicable for producers who have a planned breeding program with flexibility of feed sources. It is also more applicable for those who raise their own replacements. Both large producers and small flock owners can benefit from this practice. However, small breeders and more intensified operations may have better opportunities to capitalize on this practice.

In most sheep operations approximately 20% of the total ewe flock consists of ewe lambs being developed for replacements. In most cases this 20% represents a non-income producing unit of the operation. It is this unit which with proper management could contribute significantly to the income of a sheep operation.

Reports of research at various stations have indicated varying degrees of success in breeding ewe lambs. The major factors affecting reproduction in ewe lambs are (1) breed or breed cross, (2) age at desired breeding time, (3) season when breeding, (4) climate (temperature) and (5) to a certain extent weight and condition at breeding.

The report by Laster et. al. (1972) from the U.S.D.A. Meat Animal Research Center in Nebraska gives data on a number of different breeds and crosses evaluated at a common location. In this report 565 ewe lambs from 19 breed and crossbred groups were studied. These were spring born (March & April) ewe lambs weaned in June and July and exposed to rams from November 9 through December 14. They were exposed to fertile rams when they were at 216 days of age at an average weight of 88 pounds. For all breeds and crosses 71% of the ewe lambs exposed for the 33 day breeding period conceived. The range of conception among breed groups was 31 to 100%. There were 93% lambs born per ewe exposed and 126% lambs born per ewe lambing. The average number of lambs weaned per ewe lambing was 91%. The breed of ewe lamb was by far the most significant factor affecting the percentage of ewe lambs bred under the conditions in the evaluation.

Under Alabama conditions reported by Wiggins et. al. (1970) 98% of fall born (October 10 - November 29). Rambouillet and Rambouillet crossbred ewe lambs exhibited estrus by the end of November of the year following birth (at approximately 1 year of age). The average age at puberty was 316 days with a range of 199 to 577 days.

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Results of work at the U.S.D.A. Sheep Experiment Station at Dubois, Idaho is of particular importance to Western sheep producers. Sheep of the same breeds and from this general area represent a source of replacements for California producers. Work there reported by Southam et. al. (1971) showed that 96% of spring born (April 1 - May 25) ewe lambs reached puberty at the average age of 212 days (range of 163 to 241 days) and at an average weight of 100 pounds (range of 68 to 137 pounds). These ewe lambs of Rambouillet, Targhee, Columbia, Dorset X, Targhee and Rambouillet X Finn-sheep breeding produced 62% live lambs per ewe lamb exposed. Ewes lambing as yearlings did not experience any more lambing difficulties than two-year olds lambing for the first time.

Mallampati et. al. (1971) examined breeding patterns of Targhee ewes and ewe lambs throughout the year under Wisconsin conditions. Their work showed that ewe lambs exhibited the same anestrous seasonal pattern as older ewes. The main breeding season was found to be of six month duration (September to February). Age of ewe lambs at first conception differed significantly between different months of birth. Those ewe lambs born in the months of April and May ahd the shortest time interval to conception.

The work reported by Hulet et. al. (1969) with very large numbers of Rambouillet, Targhee and Columbia ewe lambs at the Dubois Station showed 12% of these ewe lambs exhibited estrus their first year. The important finding of this study was that lambs which exhibited estrus their first winter (but not bred) had a greater cumulative lamb production record than ewe lambs which did not show estrus. Cumulative weight of lambs weaned is the most important lamb production trait. Rambouillet ewes showing estrus as lambs accumulated an average of 45 pounds of lamb more per ewe over five production years than those not showing estrus their first winter. This did not reflect the increased difference which might have occurred had those ewes exhibiting heat been bred as lambs. It should also be noted that a higher per cent of the ewe showing estrus their first winter lambed each subsequent year and had a higher proportion of twins.

From this work on 5,670 ewes it was concluded that ewe lambs coming into heat their first year had the following characteristics: (1) lower inbreeding, (2) less face covering, (3) heavier weaning weights, (4) better condition scores and (5) were slightly older and had heavier yearling fall body weights.

Research, as well as experience, has shown the practice of breeding ewe lambs is feasible. Based on these research findings and experience of breeders the following criteria are necessary for a successful program of breeding ewe lambs to lamb as yearlings.

1. The first and most important ingredient is a breed or breed cross which will reach physiological maturity at an early enough age to breed. Sheep are generally classified as seasonal breeders, but substantial differences are known to exist between breeds in the timing and duration of the breeding season.

There are two breeds which are recognized as possessing the characteristics of early breeding and an extended estrus season. These breeds are the Rambouillet and breeds derived from Rambouillet breeding and the Dorset.

The Rambouillet is adapted to the hot environment typical of the San Joaquin and Sacramento Valleys. Although Rambouillets are not early maturing, they do have the extended breeding season many other breeds do not possess.

The Dorset possesses both early maturing sex characteristics and an extended breeding season. Dorsets are more adapted to moderate temperatures and particularly well adapted to the coastal conditions.

Crossbred ewes with a percentage of Rambouillet or Dorset breeding often exhibit heterosis for reproductive performance and can be expected to perform even better than straight breeds. The Finnsheep crosses, particularly when crossed with Rambouillet, Targhee, Columbia or Dorsets seem to exhibit a high potential for early breeding.

The practice of breeding ewe lambs is not restricted to the use of Rambioullet or Dorset breeds or crosses with these breeds. This early and extended breeding period is a genetic characteristic of these breeds. Other breeds may breed as ewe lambs, particularly if breeders have put some emphasis on this trait in their breeding and selection program for several generations. There is a wide variation in reproductive performance both between breeds and within breeds of sheep.

2. Ewe lambs must be old enough and well developed to achieve a high conception rate in a reasonable length breeding period. They need to be kept growing after they are weaned which means providing them with the better pastures or some other supplemental feeding.
3. Manage ewe lambs compatable with their natural characteristics. Research and experience has shown ewe lambs are not likely to come into heat for the first time until their optimum breeding season which is the Fall. Breeding any earlier may also be restricted due to the high summer temperatures in many areas of the West. Therefore, it does not appear that ewe lambs, whether born in October or February, will breed until natural conditions are favorable. Don't expect to achieve changes which work against the sheep's built in characteristics.
4. The care and nutrution of the yearling ewe after lambing are vital for her continued development and towean a respectable weight lamb. Lactation has the greatest nutritional requirement of the production cycle. Lactating yearling ewes should be kept on good pasture and allowed a reasonable length of time after weaning the lambs to continue their growth.

Yearling ewes also experience a temporary burden during this early production phases as they are cutting their yearling teeth. Breeders may be disappointed in the size of their two-year old ewes which lambed as yearlings when compared to those that did not produce lambs. However, given an opportunity, they will attain good size by three-year olds.

Here is what has been achieved with cooperative commercial producers on the North Coast who breed ewe lambs to lamb as yearlings.

1. Sixty-five to 85% ewe lambs bred to lamb in February and early March.
2. Excellent mothering ability with no more lambing difficulties than with two-year olds lambing for the first time.
3. Produced a 55 to 80 pound feeder lamb, depending on type of birth and year, by the second week in June.
4. Provided with the better range these yearling ewes breed back with the mature ewe flock for lambing as two-year olds.
5. Some reduction in size of the two-year old ewe, but with good feed conditions' optimum mature size was attained by three-years of age.
6. Increase the fertility and over-all productivity of certain ewe flocks by eliminating ewe lambs which did not breed as ewe lambs.

Based on our results the following example would be appropraite. A 1000 ewe operation keeping 20% replacements (200 ewe lambs) of which 70% would breed may gross an additional $5,880. This is based on a 100% lamb crop raised from the 70% ewe lambs breeding with lambs averaging 70 pounds at market and selling at current feeder lamb prices. Based on last year's lower prices and the much larger spread between fat and feeder lamb prices, this figure would be around $3,500. Either figure is significant, especially considering much of the costs of raising these ewe lambs is present whether they are bred or not.

CONCLUSION

Breeding of ewe lambs appears to offer many sheep producers an opportunity of increasing production efficiency. The breeding of ewe lambs has an added long range benefit as an effective tool for selecting ewes for increased fertility and total reproduction performance. This practice would afford both purebred and commercial breeders an opportunity to produce more lambs for increased income and to provide larger numbers for a better selection differential of breeding stock. Bringing ewes into production a year earlier would also shorten the generation interval. Both increased numbers and a shorter generation interval would allow more rapid progress in improvement in traits being selected. By utilizing this practice the purebred breeder could furnish stock with the genetic potential for more efficient reproductive performance.

The increased income potential from a given ranch unit and the long range benefit of more productive sheep merits consideration of the practice of breeding ewe lambs to lamb as yearlings.

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