

TECHNIQUES FOR EARLY WEANING OF LAMBS

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INTRODUCTION

The only justifiable reason for early weaning of lambs is to improve the overall efficiency of the production system. It can be more efficient to put the feedstuffs directly into the lamb, rather than indirectly through the ewe in the form of milk. Increased efficiency in this case is dependent on the physiological age of the lamb, the relative costs of the two ewe diets, the costs of the lamb diet, the rate of gain of the lamb, and other benefits that might accrue, such as earlier marketing of lambs while the price is higher, enhanced opportunity to rebreed the ewe for a second lamb crop, and the opportunity to operate a larger production unit without increasing acreage.

The primary motivation for early weaning of lambs at the U.S. Sheep Experiment Station has been to facilitate rebreeding of late fall- or winter-lambing ewes in an accelerated lamb-production system. Many farm flock owners have been weaning lambs at moderately young ages for years. They are usually interested in selling their lambs when the market price for lamb is highest. This is usually in late April, May, and early June; to make these sales, they breed as early in the season as they can, shed lamb, creep feed, and wean the lambs when the ewes start dropping off on milk. The lambs are usually physiologically efficient enough at this age to convert roughages and concentrates to red meat. The ewes go out when pasture is ready--but the lambs stay in the feedlot where every effort is made to maximize growth rate.

We have found that lambs can be weaned successfully while very young (28 days to 40 days), and also that rate and efficiency of postweaning gain increases following weaning in the winter or spring, and cost of feeding the ewe and lambs often can be reduced.

Other benefits of early weaning when rate of gain is increased are: 1) reduced maintenance cost, 2) reduced finance costs, 3) reduced facilities and utilities cost per

animal unit or reduced stocking rate on the range, 4) reduced parasitism of lambs when not allowed to go on pasture, 5) reduced predator losses.

The above benefits are similar to production efficiency in an industrial plant. The greater the product output per unit of time in a plant of a given size, the less the cost per unit of the product.

Early weaning may be a beneficial program for you if your objectives are to: 1) increase the number of lambings per year (accelerated lambing), or 2) produce early season market lambs when the supply of lamb is normally down and price of lamb is normally at its highest point, or 3) increase the number of breeding ewes your farm or ranch will support.

IMPORTANT FACTORS TO CONSIDER WHEN EARLY WEANING LAMBS

Lambs to be early weaned should be conditioned by creep feeding with the same diet they will be weaned to. Young lambs will usually start picking at solid food such as hay leaves and rolled or chopped grain when they are about 1 wk old. It takes time for animals to adapt to different feeds as well as other environmental factors. This is certainly true of young lambs. If they are to do well when they are weaned, before weaning they must be adapted, both psychologically and physiologically, to the feed they will be weaned to. When the lambs are 1 wk old, we provide creep feeders with the early-weaning starter diet at convenient locations. We make the area attractive and comfortable and keep it well supplied with the early-weaning diet.

Unless preventive measures are taken, ewes may develop mastitis or blue bag. Formulas for drying off ewes vary greatly in severity--from complete removal of all food and water for 3 days to a gradual reduction in available feed and water. The removal or severe restriction of palatable feed and water for a period of time appears to markedly cut milk flow, thus reducing 1) the amount of trauma ordinarily sustained by the milk-engorged udder and 2) mastitis infection. Restricted movement of sheep during the drying-off period also appears to reduce mastitis problems by reducing bruising of the gland during this critical period. Dry Clox, a long-lasting antibiotic for infusion in cow udders at drying-off time also can be effective in protecting ewe udders from mastitis when the lambs are weaned.

We cut the ewes' feed in half the day before weaning, remove all feed and water the night before weaning, restore the water and 25% of the feed the day after weaning, and restore the feed to about 50% of the preweaning diet the second day after weaning. Depending on the condition of the ewe and whether or not she is to be rebred, the new diet level may be adjusted slightly around the 50% level. In the

interest of economy, especially if the ewe is not to be rebred, a lower-quality, high-roughage feed may be utilized by the ewe at this time.

Young lambs are easily stressed when taken from their mothers and put on totally dry diet. Studies of animal behavior suggest that there will be much less stress and that lambs will perform better during the early-weaning period if they are not moved from their familiar haunts when weaned. Rather, it is recommended that the only change to be made is to move the ewes away from their lambs. This appears to be good advice. We also recommend that the ewes be moved sufficiently far away that the bleating cannot be heard. With the removal of the source of milk, more creep feed will be required. Characteristically, lambs will be upset at the loss of their mothers for 2 days or 3 days and it will take a few days to make the transition to a completely nonmilk diet.

In accelerated lambing programs where weaning age is critical to the efficient rebreeding of the ewe, it is usually best to wean once per week to systematize management and reduce labor.

Lamb nutritional needs change rapidly as they grow older and rumination develops. A baby lamb is essentially a single-stomached animal (like a pig) and cannot utilize roughages efficiently. However, the ingestion of small amounts of roughage starting when the lamb is about 1 wk old appears to stimulate the rumen and to inoculate it with the bacteria essential to rumen function. The digestive tracts of lambs that have been on a high-concentrate creep feed from soon after birth can handle concentrates efficiently by the time they are 28 days to 35 days old. The rumen is only beginning to function for the efficient digestion of roughages at this time. Therefore, it cannot yet utilize large amounts of roughage efficiently. The following diet (a modified pig starter) (table 1) has been found to work well. The high protein (about 18% crude) as well as the high energy, is essential to good growth rate at this young age.

The first 2 or 3 days some of the lambs will not eat well and will be "hollow-sided." However, by the second week they should be gaining well and will soon be making very efficient gains. Early in the feeding period the average gains are from about .60 to .75 lb/head/day on about 1.5 to 2.0 lb of feed. Efficiency is very high at this stage because rate of gain is high while maintenance is low due to lower initial body weight.

As body weight increases, efficiency declines because of the larger requirements for maintenance. To optimize efficiency of gain throughout the feeding program, it is important to maximize rate of gain during this youthful, efficient period.

TABLE 1. STARTER DIET COMPOSITION AND COST/TON AT DUBOIS, IDAHO, SEPTEMBER 1982 (NONPELLETED)

Ingredients	Percentage	Cost
Barley (chopped)	59	\$ 92.04
Soybean oil meal	23	71.07
Alfalfa meal	15	15.00
Calcite (limestone)	1.8	1.15
Trace mineral salt	.5	.53
Vitamin Premix #1	.5	10.80
D-L Methionine	.2	8.80
Total cost per ton		\$199.39

Following the weaning period, the rumen develops rapidly. By the time the lamb is 50 days to 60 days of age, it can efficiently utilize up to 50% to 60% of its diet in the form of dried roughage, or even 100% of its diet in the form of succulent pasture forbs and grasses.

Vaccination is recommended for enterotoxemia types C and D. If the ewes are vaccinated before lambing, the lambs should be vaccinated at weaning time.

We routinely start adding alfalfa pellets and whole barley to the pig-starter diet about 3 wk after weaning. By 4 wk postweaning, the lambs are on 50% whole barley, 50% alfalfa pellets. This is a relatively low-cost diet that produces good gains. This diet can be varied relative to the cost of barley and alfalfa pellets to minimize cost in relation to gain. A diet of 60% to 70% barley will usually give slightly faster gains for lambs being pushed for early market. It may be desirable to put replacement lambs on 70% alfalfa pellets and 30% whole barley so that they do not get too fat.

The sheep station replacement lambs are put on 100% alfalfa pellets, or pasture as available, by the time they reach 65 lb to 85 lb body weight. During their lifetime at the sheep station, they are not likely to again receive concentrate feed.

Ewes require much less feed and lower-quality feed after the lambs are weaned. Sheep station ewes lambing in the winter are fed alfalfa pellets free choice as the only feed for about 1 wk to 10 days following lambing. If alfalfa hay is fed, then a concentrate should be provided to supply the energy needed for good lactation. Ewes will eat 8 lb to 9 lb of alfalfa pellets per head per day. After this early period is past, ewes with twins are limited to 7 lb/day and ewes with singles 6 lb/day. A ewe eating 7 lb of \$95/ton pellets costs \$.33/day to feed (\$.28 for 6 lb). After the lamb is weaned, the ewe can be maintained on about 3 lb of alfalfa pellets per day at a cost of \$.14. However,

if the ewes are to go into breeding for a second lamb crop, especially if they are in thin condition, they should eat at least 3.5 lb per day (\$.16). That is a difference of between \$.12 and \$.19 per day. The difference in cost would be even greater if the ewes were put on a lower-quality feed after weaning. A 25 lb to 35 lb lamb will usually consume less than 1.5 lb of feed a day on the average, as shown for the first 3 wk postweaning period in table 2.

TABLE 2. COST OF FEED/EWE AND LAMB(S)

	Feed/day (lb)		Feed cost per day		Total feed cost/day
	Ewe	Lamb(s)	Ewe	Lamb(s)	
Single					
Last 3 wk preweaning	6	.5	\$.28	\$.05	\$.33
1st 3 wk postweaning ^a	3	1.2	.14	.12	.26
2nd 3 wk postweaning ^b	3	1.9	.14	.14	.28
3rd 3 wk postweaning ^c	3	2.3	.14	.12	.26
Twins					
Last 3 wk preweaning	7	1.0	.33	.10	.43
1st 3 wk postweaning ^a	3	2.4	.14	.24	.38
2nd 3 wk postweaning ^b	3	3.8	.14	.28	.42
3rd 3 wk postweaning ^c	3	4.6	.14	.23	.37

^a100% early-weaning starter diet.

^b50% starter diet, 50% alfalfa and barley.

^c50% alfalfa pellets, 50% barley (whole).

The daily feed cost for a high-protein, high-energy diet for lambs of this age would be less than \$.15/day. We do not have good estimates of the amount of starter diet consumed as creep feed by unweaned lambs at various ages. We are assuming that the average consumption for the last 3 wk before weaning is about 1/2 lb/day. It may be less. However, we know that the amount increases with age and would amount to more than 1 lb/day between 74 days and 95 days of age (comparable to 3rd 3-wk period in table). Therefore, the feed cost savings estimates probably are conservative. We also have observed that body weight gain per day also increases following weaning by more than .1 lb on the average. Therefore, the cost per pound of gain decreases following weaning even more than does cost per day.

Within 2 wk or 3 wk after weaning, the lamb's diet can be gradually changed to a higher roughage, less-costly diet (table 2). By the time lambs reach 40 lb to 50 lb body weight, they can make good gains on a mixture of equal parts of alfalfa pellets and whole barley plus mineralized salt, free choice. Many producers will choose, for management and

economic reasons, to wean at this older age when a cheaper more simple diet is adequate. At \$95/ton for alfalfa pellets and \$105/ton for barley, this diet costs \$.05/lb or very little more than the \$.048/lb cost of the ewe's diet. Even for ewes with twin lambs, a feed cost savings of about \$.01 to \$.06/day could be realized. This totals \$.05 to \$.07 for ewes with singles.

If adequate public range is available in the spring and rebreeding of the ewes is not desired, it usually would be more economical to leave the lambs on the ewes and market milk-fat lambs off their dams. Another alternative is to put the early-weaned lambs (after they reach 40 lb to 50 lb) on good range or high-quality irrigated pasture not used by adult sheep.

Functional, labor-efficient facilities and feeders contribute much to successful early weaning and to feed and production efficiency. Performance will be enhanced if dry and comfortable shelter is provided for the lambs to protect them from wind and storm. Self-feeders, which allow the free flow of feed, little or no wastage, and are located near a fence or window so that they can be mechanically filled without opening gates, contribute materially to the efficiency of an early weaning operation.

The early weaning of summer- or fall-born lambs does not have all the advantages that it has for winter-born lambs. Lactating ewes raising late summer or early fall lambs appear to breed back as readily as do ewes whose lambs were early weaned. Early weaning at this season of the year also does not advance the breeding date. Summer or fall lambs can be born on pasture so there is no urgency to wean to reduce feed costs.

CONCLUSIONS

Early weaning can be advantageous to facilitate accelerated lambing programs, to reduce costs and increase rate of gain for early winter-born lambs being pushed for the early market, to reduce predation and parasitism, and to increase the number of sheep production units without increasing acreage. Production efficiency can be improved by the application of animal psychology, efficient diets, prompt adjustment of both lamb and ewe diets as rumination develops in the lamb, and when lactation ceases in the ewe. Good nutritional management in the ewe can reduce costs, reduce problems from mastitis, and improve rebreeding performance.