

RAISING LAMBS ON PASTURE OR IN COMPLETE CONFINEMENT

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In an upper midwest farm-flock, there is little doubt that by choosing the correct forage plant and using the correct grazing management, the grazing season can be extended considerably reducing the feed cost of the breeding flock. Pasture lambing in April-May at the start of the growing season can also help in reducing lambing cost and labor. The question remains in the choice of management for slaughter lambs. Should a producer feed his slaughter lambs on a high concentrate diet after weaning at 60 - 70 days, or should he raise them on high quality pasture? Many producers are now considering making better use of their forage resources by raising their lambs on pasture. Their decision is based on the following considerations:

- better soil stewardship and a higher quality environment.
- ability of ewes and lambs to harvest forage
- better carcass quality of lambs
- reduced cost of production

The first two considerations will not be discussed. However, in an era where environmental issues are very important, grazing of ewes and lambs on a well managed natural setting is certainly a plus and can open doors for several types of market. The true value of the last two considerations, however, can be debated and will be discussed below.

1. Effect of Management on the Carcass Characteristics of Lambs.

Murphy et al. (1994) compared the carcass characteristics of lambs raised and finished either on 100% grazed alfalfa or on 100% high concentrate in drylot. They found no difference between lambs raised on the two diets in the amount of intramuscular fat. However, lambs raised on high concentrate diets had significantly more trimmable fat. The authors concluded that trimmable fat may be reduced with the all forage finishing system but without large reduction in the fat content of consumable product. The forage based system would solely lead to reduction of waste during processing.

Also, Notter et al.(1991) and Murphy et al. (1994) found that if lambs are raised on forage and then finished on grain the amount of trimmable fat will be the same as on lambs raised and finished on a high concentrate diet. Therefore, the beneficial effect of raising lambs on forage is lost if lambs are finished on grain after having been raised on a good quality pasture. The carcass quality of lambs can be improved, in terms of external fat, only if lambs are marketed at slaughter weight directly off pasture.

2. Effect of Management on Growth of Lambs.

All authors (Ely et al., 1979; Arnold and Meyer, 1988; Notter et al., 1991; Murphy et al., 1994) reported lower ADG for lambs that grazed forage than for those in drylot. Differences in ADG led to increases in days required to reach slaughter weight.

The study made by Notter et al. (1991) is especially interesting. They compared the

growth of lambs raised in drylot directly after weaning at 70 days and the growth of lambs raised on a high quality alfalfa pasture after weaning at 70 days using an intensive rotational grazing system with a stocking rate of 10 lambs per acre. In both systems, lambs were creep fed before weaning.

The observations were made during three years (1982, 1983, 1984). They found that:

-Pre-weaning growth of lambs in both systems was similar (.6 lb/day).

-Growth of lambs in drylot was .76 lb/day, and they were slaughtered at an average age of 156 days at 110 lbs. Feed efficiency of these lambs was 4.4. lbs of feed per lb. of gain. The figures are in agreement with the ones from the Spooner Ag. Research Station (University of Wisconsin-Madison) where lambs are routinely fed on drylot directly after weaning at 60 days (Table 1).

-Growth of lambs on alfalfa over the 3 years was .4 lbs/day until July 15th and .2 lb/day from July 15 to Sept. 15. Differences were important between years. In 1982 growth in the two periods was .42 and .13, and lambs had to be removed from pasture on August 16 because of poor regrowth of the alfalfa stand. In 1983 it was only .25 and .16 because of low rainfall. In 1984 growth performance was .52 and .26. A southeastern Wisconsin sheep producer reported at the 1993 Wisconsin Sheep Industry Conference an average ADG of .40 between birth in April and off pasture in November. Considering an ADG of .6 during the first two months of life, the ADG on pasture would be .34. It becomes apparent, then, that if a producer wants the majority of his lambs to reach a slaughter weight of 110 lbs directly off pasture, weaning and not lambing should coincide with the start of the growing season.

Table 1. Growth Performance of Male Lambs Born From Dorset Type Ewes Between March 15th and April 15th at the Spooner Agricultural Research Station (1991-1994).

Year	# of Lambs	Weaning Weight	Weaning Age	Weight at 60 Days	Sale Weight	ADG, Sale Age	ADG, Birth to 60 Days	60 Days to Sale
1991	21	51	58	52.8	119	153	.74	.78
1992	60	68	70	59.0	120	147	.80	.71
1993	80	50	59	50.5	113	144	.68	.76
1994	66	50	58	50.1	123	146	.68	.87

3. Effect of Management on Feed Cost.

Knowing the growth performances of lambs in the different systems of management, it is fairly simple to obtain a crude estimate of the cost of feed to raise one lamb from birth to slaughter weight of 110 lbs. (not including the feed cost of the ewe). For the sake of simplicity let's consider the two systems (drylot and pasture) in which:

- lambing occurs from March 15 to April 19
- Before lambing and weaning, ewes in both system are managed similarly
- lambs are weaned at 70 days at an average weight of 50 lbs.
- ewes in both systems are put on low quality pasture after weaning.

a. Feed Cost in Drylot

- ADG of .70
- Feed efficiency of 4.5
- Cost of feed of 6.3 cts/lb (see Table 2)
- Slaughter weight of 110 lbs
- Gain in drylot of 60 lbs
- Amount of feed necessary: 270 lbs
- Average sale date and price of lambs: August 31 at \$ 59.2/cwt (see Table 3)
- Total feed cost: **\$ 17.00**
- Return above feed cost: **\$ 48.12**

b. Feed Cost on Pasture

- Weaning weight of 50 lbs
- On pasture from May 15 to Sept. 15
- Weight of lambs on July 15: 74 lbs
- Weight of lambs on Sept 15: 86 lbs
- Gain in drylot : 24 lbs and 108 lbs of feed at a cost of \$6.80
- Pasture Costs. Schraufnagel (1986) reports an annual cost of \$72/acre for high quality alfalfa - bromegrass pasture including seed, fertilizer, chemicals, machinery, equipment and fencing. The southeastern Wisconsin sheep producer who reported on his grazing system at the 1993 Wisconsin Sheep Industry Conference mentions an annual cost of \$76/acre permanent pasture. His cost included \$30 for land rented value. A stocking rate of 10 lambs/acre is fairly reasonable. Therefore a pasture cost of \$7.00 per lamb seems a good estimate.
- Average sale date and price of lambs: October 15 at \$ 56.4/cwt (see Table 3)
- Total feed cost : **\$ 13.80**
- Return above feed cost: **\$ 48.24**
- If lambs are sold at 86 lbs on September 15 as feeders for \$ 55/cwt (see Table 3) the return above feed cost (pasture cost only) is **\$ 40.30**

Therefore, lambs raised on forage and then finished on grain have a 20-25% lower feed cost than lambs raised on drylot. However, because of a generally higher sale price in August than in October, the return per lamb above feed cost is very similar.

Table 2. Composition and cost/t of finishing ration used for slaughter lambs at the Spooner Agricultural Research Station (UW Madison).

	Cost, \$	Composition, lbs.
Corn	2.5/bsh	1500 (whole)
Oats	1/bsh	200 (whole)
Bovatec	340/t	170
Soybean Meal	250/t	-0-
Molasses	180/t	80
Mineral	600/t	10
Ammonium Chloride	1300/t	10
Lime	160/t	30
Grinding & Delivery	6/t	
Total Cost	127.21/t	

Table 3. Price of lambs at Central Livestock Association, South St Paul.

Year	August 31 (110 lbs)	Sept. 15 (feeders)	Oct. 31 (110 lbs)
1990	48	50	50
1991	54	45	52
1992	54	52	50
1993	62	63	62
1994	78	65	68
Average	59.2	55	56.4

4. Advantages and Disadvantages of Each System.

Drylot:

Advantages

- Lambs grow faster. Can take advantage of higher July and August sale prices.
- No predator problems.
- No parasite problems. At the Spooner Research Station, lambs on drylot are never treated for internal parasites. Ration contains lasalocid (20 mg/t of feed) to control coccidiosis.
- Ease of feeding. Self-serve feeders can be easily and cheaply built.
- Monitoring of lambs is easily performed since they are close to the facilities.

Disadvantages

- Drylots have to be cleaned on annual basis.
- Urinary calculi can be a problem if ammonium chloride is not added in the ration.
- Rectal prolapses have to be expected at the rate of 1%.
- Drylots do not have a good image to the consumers.
- Some sort of feed storage might be needed.
- Drylot needs to be built on a well drained terrain to avoid accumulation of mud.
- Feed cost is very dependent on grain price. If cost of corn is \$ 3/bsh instead of 2.5 as mentioned in the example, the total feed cost becomes \$ 19.

Pasture:

Advantages

- More natural environment and better image to the consumer.
- Manure returns to the land although it is in an uneven fashion.
- Lower overall feed cost.

Disadvantages

- Slower growth of lambs. At the end of the growing season, lambs need to be fed or sold as feeders.
- Lamb growth subject to climatic conditions. Too much rain or not enough. If drought strikes, a quick alternative has to be found.
- Lambs subject to coccidiosis, internal parasites, and predators, which might be costly to fight or prevent.
- Rotational grazing is a must. This involves the moving of portable fences on a daily or twice daily basis.
- Excellent grass management is a must.
- Lambs grazing pastures occupy an acreage that may be limited. If lambs were put in drylot after weaning, the number of breeding ewes could be increased.

Both systems have their advantages and disadvantages. The producer of slaughter lambs should study carefully before setting up his system. Knowing that the carcass quality of lambs is not really affected by the type of feed, the choice of system will be based mostly on the management ability of the producer, his market opportunity, and his feed resources.

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