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Economic and Management Considerations for Lamb Production Through the 1980's

R.M. Jordan, Extension Animal Scientist

Whether feed prices double during the 1980's or remain unchanged, sheep production costs will be considerably higher than during the generations of $1 corn, $20 hay, and $30 to $40 ewes. Therefore, you should be asking some hard questions about your sheep enterprise, such as:

When ewes cost $100, hay costs $40 to $60 per ton, and shelter, fencing and equipment cost $5 to $10 per ewe annually

- Can lambs return a profit commensurate with your capital and management inputs?
- Is the feeding and husbandry program in tune with the genetic production potential of the flock?
- Are April-born lambs and a good pasture program better than January-February lambs and no pasture?
- Are "hot rations" (80 to 90 percent grain) more profitable than high roughage and time rations?
- What management areas and what other factors can you control best for greatest profits?

The last question could be most important. A profitable sheep enterprise is usually *above average* in most phases but may be outstanding in one or two areas. Conversely, the unsuccessful enterprises usually do a less-than-adequate job in many areas rather than very poorly in only one or two phases of production.

Some areas are more significant than others. The producer has great control over some factors (production costs, weaning percentage, and weight per lamb), while over others he has little control (interest rates, value of cull ewes, and general wool prices).

Some of the factors that have a significant bearing on the profits from a sheep enterprise and the magnitude of their effects on profits are presented in table 1. Obviously, some factors influence profits more than others. Some producers wean 150 percent lamb crops, others an 80 percent crop. Lamb weights between flocks may vary 100 percent, and production costs are 50 to 100 percent greater in some flocks than in others. You should focus on areas where management and labor will have the greatest influence. Don't waste your efforts in areas that have little influence on profit or that as a producer you have little control over.

The effect that factors in table 1 have on gross profits per ewe are based on the following assumptions:

- Wool, 10 pounds @ $.90 per pound, including incentive payments
- Weaning percentage, 100 percent
- Sale weight per lamb, 100 pounds
- Sale price per 100 pounds lamb, $60
- Cost of replacement ewe, $60
- Value of cull ewe, $15
- Interest rate, 10 percent
- Ewe replacement, 20 percent
- Ewe death loss, 4 percent
- Annual ewe production costs, $65 (includes ewe and lamb feed, $52; ram, $1.50; shearing, $1.50; barn, fencing, and equipment, $10.00)

Table 1. Significance of factors affecting sheep profits

Factors	Change up or down	Effect on the annual gross return per ewe dollars
Weaning percentage	10%	$6.00±
Sale price per 100 lbs.	$1.00	1.00±
Weight per lamb	5 lbs.	3.00±
Lamb death loss	10%	6.00±
Wool price per lb.	5 cents	.50±
Pounds wool sheared	1 lb.	.90±
Cost of replacement ewe	$1.00	.20±
Value of cull ewe	$1.00	.15±
Age of ewe culled	1 year	4.00±
Annual death rate of ewes	1%	1.00±
Interest rate (ewes, equipment, barn, etc.)	1%	1.00±
Production costs (feed, pasture) per ewe	$2.00 (4%)	2.00±
Lambing barn cost per ewe per year	25%	1.50±
Cost per ram	$25.00	.25±

Ewe depreciation, interest rates, barn and equipment costs, health, and parasite problems are some additional factors, aside from feed, that affect profits. These are discussed in detail in Extension Folder AG-FO-0730, "Starting or Expanding Your Sheep Flock."

What factors most contribute to or detract from your profits? Production cost—a factor you have some control over—has doubled since the 1960's. It is now one of the most important factors aside from weaning rate, in determining "net" returns. So let's ask:

What affects production cost per lamb aside from the capital costs of the ewe flock and the facilities and equipment? The major ones are:

- Feed costs per ton
- Level of winter feeding
- When your ewe lambs
- Feeding program for lambs
- Pasture costs
- Production level as affected by weaning percentage and average weight per lamb sold.

Tables 2 and 3 illustrate the effect that feed costs, the level of feeding, and the season of lambing have on lamb production costs. Basically, these include:

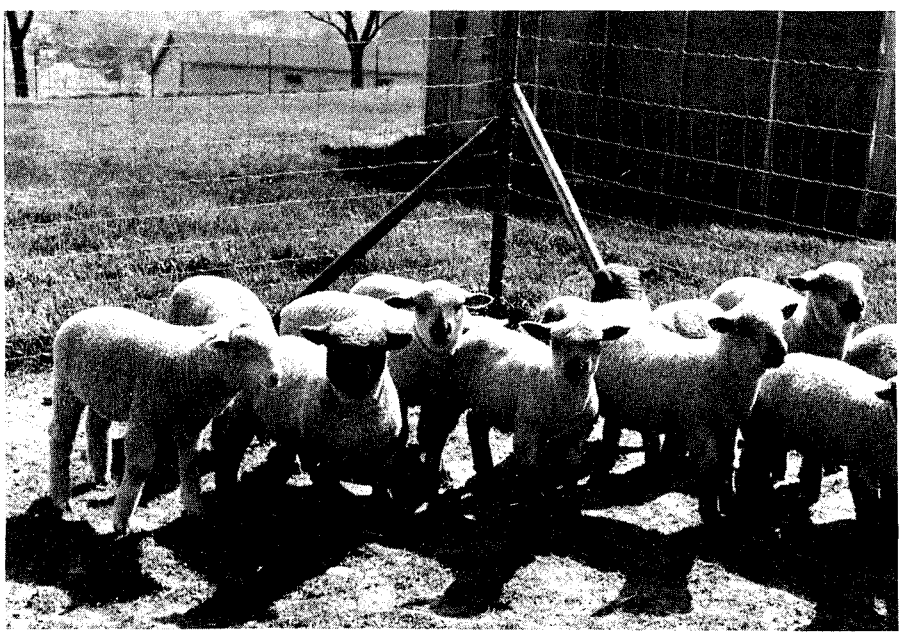
- Reducing winter feeding of harvested feeds by only 20 days per year (by having sheep graze corn stalks, ditch banks, etc.) reduces wintering cost 10 percent. This is equivalent in value to 3 to 5 pounds of additional weight on every lamb produced.
- Feeding ½ pound less forage per ewe daily ("wintering off her back") will reduce the hay cost per ewe 15 percent, regardless of what hay costs per ton, or $3 to $5 per ewe.
- A $10 per ton increase in hay costs (within a range of $50 to $80 per ton) increases the hay cost per ewe about 15 percent or $3 to $5 per ewe.
- A 50 cents per bushel increase in grain prices increases the grain cost per ewe about 20 percent.
- Ewes lambing in February should normally be fed three times more grain than ewes lambing in April (100 pounds vs 30 pounds). However. higher pasture

Table 2. Effect of feed prices on the costs of producing lambs

Amount of hay fed daily	Cost per		Ewe feed costs per	
pounds	ton	pound	day	200 days
3.5	$50	$.025	$.088	$17.50
	60	.030	.105	21.00
	80	.040	.140	28.00
4.0	50	.025	.100	20.00
	60	.030	.120	24.00
	80	.040	.160	32.00

Corn costs per			Amount of grain fed and the costs per ewe when lambed in	
			February	April
bushel	pound	ton	100 pounds/ewe	30 pounds/ewe
$2.00	$.036	$ 72.00	$3.60	$1.08
2.50	.045	90.00	4.50	1.35
3.00	.063	108.00	5.40	1.62
3.50	.063	126.00	6.30	1.89

April-born lambs are much less costly to produce than are February lambs, but sale prices of lambs sold in December are almost always lower than those sold in June or July.



charges reduce this apparent advantage considerably. Assuming that twice as many non-lactating ewes can be grazed per acre as lactating ewes, the total feed cost for February and April lambing ewes becomes about equal (table 4).

Table 3 illustrates the effect that feed costs and feed efficiency have on the costs of finishing lambs. As feed prices increase and feed efficiency decreases (number of pounds of lamb feed required to produce a 100-pound gain increases), the cost of producing 100 pounds of gain naturally increases. The producer cannot affect general feed prices, but he can have a significant effect on how much feed is required to produce a unit of gain.

A *reduction* by 100 pounds of feed per 100 pounds of gain via better rations and management reduces production cost $5 per 100 pounds when the ration costs $100 per ton. However, an *increase in feed costs* of $10 per ton, when 600 pounds of feed are required per 100 pounds of gain, would affect production costs by only $3 per 100 pounds of gain.

In general, this means that more efficient rations (higher in energy) will usually more than offset the increase in extra cost.

Table 3. Effect of costs of lamb-finishing rations on the costs of producing 100 pounds of lamb gain

Feed costs costs per ton	Amount of lamb feed required per 100 lb. gain, lb.						Avg. increase in production costs with each 100 lb. increase in feed per 100 lb. gain
	300	400	500	600	700	800	
	Feed costs per 100lb. gain, dollars						
$ 80	$12.00	$16.00	$20.00	$24.00	$28.00	$32.00	$4.00
90	13.50	18.00	22.50	27.00	31.50	36.00	4.50
100	15.00	20.00	25.00	30.00	35.00	40.00	5.00
110	16.50	22.00	27.50	33.00	38.50	44.00	5.50
120	18.00	24.00	30.00	36.00	42.00	48.00	6.00
150	22.50	30.00	37.50	45.00	52.50	60.00	7.50
	Avg. increase in production costs with each $10 increase in feed costs per ton						
	1.50	2.00	2.50	3.00	3.50	4.00	

To arrive at year-round feed costs per ewe, pasture costs should be included, together with the effects of feed prices, level of feeding, and season of lambing. If your pasture has no alternative use, you may put little monetary value on it. If it's tillable, you may charge far more than the $30 per acre used in this example.

Table 4 illustrates typical year-round ewe feed costs.

Table 4. Effect of level of ewe feeding, hay cost, and pasture and grain cost as affected by season of lambing on cost of feeding ewes[1]

Amount of hay daily	Costs		February costs			April costs		
pounds	hay per ton	hay per ewe	pasture, grain, total per ewe			pasture, grain, total per ewe		
3.5	$50	$17.50	$3.75	$5.40	$26.65	$7.50	$1.60	$26.60
	60	21.00	3.75	5.40	30.15	7.50	1.60	30.10
4.0	50	20.00	3.75	5.40	29.15	7.50	1.60	29.10
	60	24.00	3.75	5.40	33.15	7.50	1.60	33.10

[1]Pasture costs per acre are based on 10 percent of $300 land value. February-lambed ewes grazed @ 8 nonlacting ewes per acre, and April-lambed ewes grazed @ 4 lactating ewes and their lambs per acre. Corn costs used were $3 per bushel, and February lambing ewes were fed 100 pounds per ewe. April-lambed ewes were fed 30 pounds. Hay fed is consumed daily over a *200-day* winter period.

Forage normally makes up the bulk of ewe rations. "Selling" it to sheep can increase your farm's profit.

While it costs more to feed a ewe that lambs in February than one lambing in April, feeding ½ pound more hay per ewe daily or a $10 per ton increase in hay price exerts greater influence on production costs than does the season of lambing.

The effects of lambing season on the feed costs of lamb are presented in table 5. The main reason February-born lambs have higher feed costs is that they gain far more weight during the grain feeding period. The April lamb gained 55 pounds on pasture (10 pounds birth weight to 65 pounds feeder weight) at a cost of only 14 cents per pound ($7.50 pasture cost divided by 55 pounds gain).

Total ewe and lamb feed costs, as affected by level of feeding and season of lambing, appear in table 6.

Table 5. Effect of season of lambing on lamb feed costs[1]

Lamb feed costs	February lamb	April lamb
Dry Lots Feed, lb.	90	35
Feed per lb. gain, lbs.	3.5	7
Total feed per lamb, lbs.	315	245
Feed cost per lb. (creep and finish ration)	$.07	$.06
Dry lot ration costs per lamb	$22	$14.70

[1]Feed charge to February-born lambs includes that eaten by the lambs from birth to market. For the April-born lambs, it includes only feed eaten from 65 pounds (weight off pasture) to market.

Table 6. Total annual ewe and lamb feed costs

Amount of hay daily	Hay cost per ton	Yearly ewe feed cost (hay, pasture, grain)	Lamb feed costs/ 100 lb	Total costs/ ewe and 150 lb. lamb/ 100 lb.
	Feb. lambing			
3.5 lbs.	$50	$26.65	$22.00	39.77
	60	30.15	22.00	42.10
	April lambing			
3.5 lbs.	$50	$26.60	$14.70	32.43
	60	30.10	14.70	34.17
	Feb. lambing			
4 lbs.	$50	$29.15	$22.00	41.43
	60	33.15	22.00	44.10
	April lambing			
4 lbs.	$50	$29.10	$14.70	34.10
	60	33.10	14.70	36.77

Total annual feed cost data presented in table 6 are for 100 and 150 pounds of lamb per ewe. Annual costs to feed the February- or April-lambing ewe remain virtually the same whether 100 pounds or 150 pounds of lamb are produced per ewe. If 150 pounds of lamb are produced per ewe, the production cost per 100 pounds of lamb produced (irrespective of when the ewe lambs), is reduced from about $9 to as much as $11 per 100 pounds of lamb. This amounts to about 25% reduction in production costs and points out the importance of a high marketing percentage.

Lamb feed costs are about 50 percent ($8 per lamb) higher for February lambs fed in dry lot until marketed than for April lambs pastured and finished in dry lot when they are 7 to 8 months old. Lamb feed costs are the major factors contributing to higher production costs of February lambs.

Ewe and lamb feed costs of $45 to $50 may appear discouraging, but remember these so-called feed costs actually represent feed sales to the sheep rather than to a grain and hay buyer. At least half of these feed costs represent forages valued at high prices that were produced on your farm. Thus, your farm enterprise has sold its produce at a liberal price and marketed them through sheep. When there are no forage-consuming animals, hay won't be $60 per ton.

The way to "have your cake and eat it too" (i.e., sell feeds at high prices, but produce lambs at low prices) is to have a high weaning percentage (table 7). Regardless of hay costs or season of lambing, a 20 percent increase in weaning percentage reduces total feed expenditures about 10 percent ($4 to $5 per lamb) between 100 and 120 percent weaning and about $2 to $3 when the weaning percentage is 140 to 160 percent. This is true because the feed fed the twin-bearing ewe is the same as the single-bearing ewe during the majority of the year.

Table 7. Effect of weaning percentage on total feed costs per lamb

	Feed cost per lamb[1]			
Weaning percent	100	120	140	160
February-lambed ewe fed 3.5 lbs. hay daily				
$50 per ton hay	$48.65	$44.21	$41.04	$38.66
$60 per ton hay	52.15	47.12	43.54	40.84
February-lambed ewe fed 4 lbs. hay daily				
$50 per ton hay	51.15	46.29	42.82	40.22
$60 per ton hay	55.15	49.62	45.68	42.72
April-lambed ewe fed 3.5 lbs. hay daily				
$50 per ton hay	41.30	36.87	33.70	31.32
$60 per ton hay	44.80	39.78	36.20	33.51
April-lambed ewe fed 4 lbs. hay daily				
$50 per ton hay	43.80	38.95	35.48	32.89
$60 per ton hay	47.80	42.28	38.34	35.39

[1]Feed costs include ewe's yearly feed cost plus lambs feed cost figured at 120, 140, and 160% more for the respective weaning rates. Lambs are to be marketed at 100 pounds. Thus, feed costs per lamb and per 100 pounds are the same.

With the decline in ewe prices since 1981 but no decrease in other capital requirements, coupled with nearly a doubling in interest rates during the past 8 to 10 years, it is estimated that ewe and lamb feed represents 65 percent of the total cost of sheep production. Using the above feed costs and levels of production, you can project the necessary break-even selling price for the 1980's (table 8). April-born lambs, because of their lower production costs, can be sold for about $11 less per 100 pounds than can February lambs.

During the past several years, lamb prices in January and February have equaled the previous July-August prices. If that trend continues, the selling price differential between February-born and April-born lambs will become less of a factor in determining lambing date. If April lambing increases weaning percentage 20 percent, the necessary selling price can be reduced $3 to $6 per 100 pounds. Increasing the weaning percentage is the most effective way to increase sheep profits, particularly when feed costs are high.

Table 8. Projected necessary break-even selling prices per 100 lbs. for the 1980's[1]

Weaning percent or pounds of lambs sold per ewe	100	120	140	160
February lambs (sold June-July)	$64.58	$58.02	$53.14	$49.48
April lambs (sold November-December)	$53.54	$46.72	$41.85	$38.18

[1]Assuming that ewe and lamb feed represents 65% of all costs of production. The $10 value of cull ewes and wool have been subtracted from the calculated costs to arrive at the above necessary selling prices. Values based upon feeding 3.5 pounds hay per ewe daily during the winter months ($50 per ton hay and $3 per bu. corn).

Conclusions

1. April-born lambs are less costly to produce, but:
- The price of lambs sold in December has been $10 per 100 pounds less than those sold in June or July.
- Death loss on pasture (bloat, maggots, parasites, etc.) may reduce weaning percentage 10 to 15 percent, thus negating much of the advantage of April lambs.
- A pasture program appears better because pasture costs are modest. Pasture factors used in this study were based on research results involving well-fertilized legume-grass pastures and production of 400 pounds of lamb per acre. If your pasture production and parasite control program are mediocre, the cost of producing lambs on pasture will be far greater (fewer ewes and lambs per acre and lighter weights at the end of the grazing season). With tillable land, land costs may be nearer $800 than the $300 per acre used in this comparison.

2. If you're committed to February lambs, sell in June. Don't manage April lambs like February lambs. Don't creep feed April lambs. Produce them with grass, time, and a drench bag, and hope lamb prices will rebound well from the normal lower summer prices.

3. The pounds of lamb sold per ewe is a reflection on the sheepman as well as the sheep.
- Try to save all your lambs.
- A bag of ewe milk replacer, a bottle, and a nipple must be part of your standard operating equipment.
- After 6 weeks, a pound of grain fed directly to the lamb will produce more lamb gain than if fed to the ewe.
- You cannot afford fat ewe lamb replacements. Grow them out, but don't blow them out!

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