Volume 29 Fall 2017

Hoof Print

The Small Ruminant Magazine

ARE YOU PREPARED
FOR THE NEXT DISASTER
IN YOUR AREA?

GREETINGS AND SALUTATIONS FROM THE AMERICAN INSTITUTE FOR GOAT RESEARCH

SELL 'EM LIGHT AND SELL 'EM HEAVY

Sell 'em Light? Sell 'em Heavy?

By Dr. Donald G. Ely
Department of Animal and Food Sciences
University of Kentucky

Introduction

Historically, sheep production in Kentucky has followed an annual production schedule of breeding in August/September, lambing in January/February, and selling 100 to 120 lb milk-fed slaughter lambs in May/June. Today, however, sheep producers have more options as to the weights and dates when lambs can be marketed. These options have arisen because of the concurrent ethnic market development and "high" prices per pound that lightweight lambs bring at the market place. Selling lambs for slaughter (harvest) at weights less than 100 lb may be an economically viable opportunity because of the extraordinary high price per pound these lambs may bring. On the other hand, marketing lambs at the traditional 100 to 130 lb weight may increase the size of the take-home check, even though the price per pound may be lower than that received for lighter weight lambs. Deciding when to sell may present a dilemma for producers.

60 vs. 100 lb

Table 1 shows an example for marketing January/February born Hampshire, Polypay, and White Dorper lambs at 60 vs. 100 lb. This example assumes 60 lb lambs can be marketed in April at $2.25/lb. Granted, lambs of these three breeds will not reach 60 lb at the same time, but in the example they sell for the same price. If these lambs are fed from 60 to 100 lb live weight rather than selling at 60 lb, they have to gain 40 lb each. Hampshire lambs can gain as much as 1.0 lb/hd/d while Polypays gain 0.7 and White Dorpers gain 0.6 lb/hd/d when fed the same ration. Research data show, and experience substantiates, that faster growing lambs eat more feed than slower growers. Hampshire lambs in Table 1 ate 4.0 lb/hd/d as Polypays and White Dorpers ate 3.5 and 3.2 lb/hd/d, respectively. The differences in gain among the breeds in Table 1 were greater than the differences in daily feed intakes. Therefore, the feed required to produce each pound of gain [Feed:Gain (F:G)] favored the Hampshire (smaller the F:G ratio, the better). Looking at the numbers another way, even though the Hampshires consumed more feed/d (4.0 lb), they ate less total feed (160 lb/hd) because it only took 40 days to gain 40 lb. On the other hand, it took the Polypays 57 days (200 lb feed) and the White Dorpers 67 days (213 lb feed) to gain 40 lb each. Assuming all 100 lb lambs are sold for the same price ($1.75/lb), the take-home check is $40 per head more than for the 60 pounders.

This example demonstrates an advantage, above feed costs, for marketing heavier lambs.

If one is trying to make a decision whether to **Sell 'em Light? Sell 'em Heavy?**, a breakeven price per pound (above feed costs) needs to be calculated. In other words, what is the minimum price per pound these heavy lambs must bring in order to not lose money nor make a profit? In this example, all lambs sold for $1.75/lb, but breakeven prices were calculated to be $1.59, $1.65, and $1.67. Therefore, a profit should have been made. Breakeven price was calculated by the following formula:

Value of 60-lb lamb + feed cost divided by weight of lamb
using the Hampshire as an example:

$$\frac{\$135 + \$24}{100\ \text{lb}} = \frac{\$159}{100} = \$1.59/\text{lb}$$

Generally, lightweight lamb prices per pound are higher than for heavies. Once an acceptable price for lightweight lambs is established, a decision can be made whether or not to feed the lambs to heavier weights. Establishing an acceptable price for heavies can be based on feed efficiency (F:G; Table 1), cost of

Table 1. Comparison of January/February Born Hampshire, Polypay, and White Dorper Lambs Marketed at 60 or 100 lb (An Example)

	Breed		
Item	**Hampshire**	**Polypay**	**White Dorper**
60 lb @ $2.25/lb[a]	$135	$135	$135
Total Gain, 60 to 100 lb	40	40	40
Days to 100 lb	40	57	67
ADG, lb[b]	1.0	0.7	0.6
Total Feed, lb	160	200	213
DFI, lb[b]	4.0	3.5	3.2
F:G, lb/lb[b]	4.0:1	5.0:1	5.3:1
100 lb @ $1.75/lb[c]	$175	$175	$175
Difference, 100 vs. 60 lb	+ $ 40	+ $ 40	+ $ 40
Feed Cost[d]	$ 24	$ 30	$ 32
Difference Minus Feed Cost	+ $ 16	+ $ 10	+ $ 8
Breakeven Price/lb[e]	$ 1.59	$ 1.65	$ 1.67

[a] April lamb price.
[b] ADG = average daily gain, DFI = daily feed intake/lamb, F:G = feed required to produce each unit of gain.
[c] June lamb price.
[d] $300/ton.
[e] 60 lb value + feed cost divided by 100 lb.

feed (Table 1), frame size of lambs, and the optimum weight to harvest lambs of a specific breed or breeds.

Daily feed intake of lambs raised in confinement is usually between 3.5 and 4.0% of body weight, regardless of the actual weight. So, the main factor that will affect feed efficiency (F:G) will be average daily gain (ADG) which is, in turn, largely influenced by frame size. Sheep breeds vary in frame size; some large, some small, and some medium. Frame size is also the biggest factor in determining optimum harvest weights of lambs (when they reach physiological maturity). The American Sheep Industry recommends lambs be harvested when they have 0.10 to 0.25 inches of carcass backfat. These lambs are considered physiologically mature; that is, they have maximum carcass lean and optimum fat resulting in the highest quality food for human consumption. Research has shown lambs will yield carcasses with 0.10 to 0.25 inches of backfat if they are harvested when their weights are between 60 and 70% of the average mature weights of ewes of their sire and dam breeds. The SID Sheep Production Handbook lists the range in mature weight of Hampshire, Polypay, and White Dorper ewes at 160 to 220, 130 to 180, and 170 to 200 lb, respectively. Using a weight of 200 lb for Hampshires, lambs harvested at 65% of this weight will weigh 130 lb (200-lb mature ewe weight x 0.65). Straightbred Polypay lambs produced by 180-lb ewes should be marketed at 117 lb (180 lb x .65).

If Hampshire rams are crossed on Polypay ewes, the optimum harvest weight of physiologically mature lambs is 123.5 lb if Polypay ewes weigh 180 lb.

$$\frac{\text{200 lb (Hampshire) + 180 lb (Polypay)}}{2} \times 0.65 = 123.5 \text{ lb}$$

If the same Hampshire rams are crossed on Polypay ewes that weigh 170 lb, optimum harvest weight of lambs will be 120 lb.

$$\frac{\text{200 lb (Hampshire) + 170 lb (Polypay)}}{2} \times 0.65 = 120 \text{ lb}$$

Next, consider straightbred Hampshire lambs. An example of whether to sell these lambs at 70 lb or feed them to 130 lb, based on actual lamb prices, is shown below:

Assume,
- 70 lb lambs @ $2.10/lb
- 130 lb lambs @ $1.45/lb
- ADG 70 to 130 lb = 0.75 lb
- F:G 70 to 130 lb = 5:1 lb/lb
- Ration cost = 15¢/lb ($300/ton)

Then,
- 70 lb lambs @ $2.10/lb = $147.00
- 130 lb lambs @ $1.45/lb = $188.50
- Difference = $41.50 ($188.50 - $147.00)
- Can we feed lambs from 70 to 130 lb for less than $41.50?
- 300 lb feed x 15¢/lb = $45.00

In this example, the answer is "No!" In order to breakeven, feed costs needed to be only $41.50, not $45.00. So, $3.50/head was lost in feed costs by feeding these lambs from 70 to 130 lb. Calculation of the breakeven price for the 130-lb lambs follows:
- $45.00 feed cost per 60 lb gain
- 70-lb lamb's worth $147.00
- $45.00 + $147.00 = $192.00/130-lb lamb to sell
- Breakeven price = $1.48/lb needed

So, back to the example:
- $1.48 needed vs. $1.45 received
- $192.00 needed vs. $188.50 received
- Loss = $3.50/head

News to Ewes continues on pg. 24

News to Ewes continued from pg. 23

Other considerations for feeding lambs to physiologically mature weights include potential death loss as well as health, shearing, labor, and marketing/transportation costs. Finally, what will the price be for heavy lambs 2 to 3 months down the road after they could have been sold at lighter weights (60, 70, 80 lb, or even any weight less than 100 lb)?

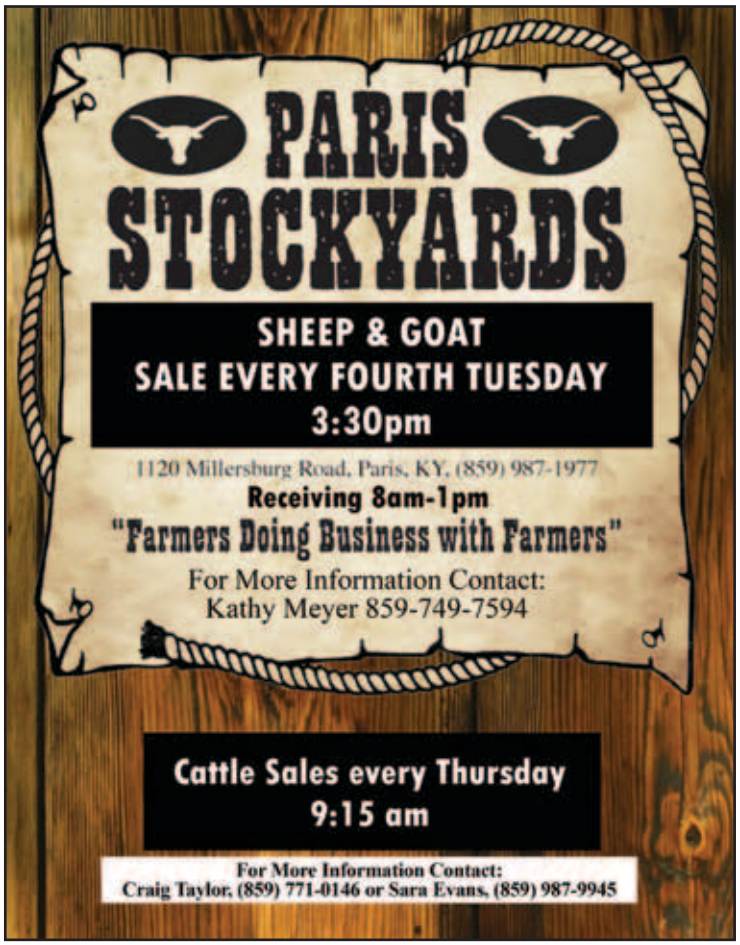
60 lb vs. Physiological Maturity

Although we cannot control the price per pound that lambs will bring at the marketplace, we can calculate some prices required to breakeven under different lamb price and feed cost scenarios. Table 2 compares January/February born lambs marketed at 60 lb vs. feeding to heavier harvest weights (physiological maturities) for the Hampshire, Polypay, and White Dorper breeds. Physiologically mature weights of optimally finished slaughter lambs, based on mature Hampshire, Polypay, and White Dorper ewe weights of 200, 180, and 169 lb, were used for the Table 2 calculations. In the end, differences in physiologically mature harvest weights are a function of breed and frame size. The larger the frame size (Hampshire), the heavier the lambs will be when they reach physiological maturity. In contrast, smaller frame sized lambs (White Dorper) reach physiological maturity at lighter weights.

Table 2. Comparison of Hampshire, Polypay, and White Dorper Lambs Born in January/February and Marketed at 60 lb or at Physiological Maturity (PM)[a].

	Breed		
Item	**Hampshire**	**Polypay**	**White Dorper**
60 lb @ $2.25/lb	$135	$135	$135
Physiological Maturity (PM), lb[b]	130	117	110
Total Gain, lb	70	57	50
Days, 60 lb to PM	70	81	83
ADG, lb[c]	1.0	0.7	0.6
Total feed, lb	280	267	266
DFI, lb[c]	4.0	3.3	3.2
F:G, lb/lb[c]	4.0:1	4.7:1	5.3:1
PM lb @ $1.50/lb	$195	$175	$165
Difference, PM $ - 60 lb $	+ $ 60	+ $ 40	+ $ 30
Feed Cost[d]	$ 42	$ 40	$ 40
Difference Minus Feed Cost	+ $ 18	$ 0	- $ 10
Breakeven Price/lb[e]	$ 1.36	$ 1.50	$ 1.59

[a] Lamb weights equal to 65% of mature ewe weights (Hampshire = 200 lb, Polypay = 185 lb, and White Dorper = 169 lb).
[b] Live weights that will produce carcasses with 0.10 to 0.25 inches of backfat.
[c] ADG = average daily gain, DFI = daily feed intake, F:G = feed required to produce each unit of gain.
[d] $300/ton.
[e] 60 lb value + feed cost divided by physiologically mature (PM) weight.



Marketing lambs in Table 2 at 60 lb will likely occur when they are between 60 and 90 days of age (depending on breed). On the other hand, if we assume these lambs are born on January 15 and are marketed at physiological maturities of 130, 117, and 110 lb, all can be marketed between June 2 (Hampshire) and June 10 (Polypay). None of these lambs will be more than 5 months old when marketed.

Differences calculated in Table 2 are based on specific market prices shown. Higher or lower prices, different animal performances, and feed cost variations will alter the pluses and minuses of the calculated Difference Minus Feed Costs and Breakeven Prices. What the market price will be when heavy, finished lambs reach market weights vs. the in-hand price for 60 lb lambs is a gamble producers have to take when deciding, prior to the breeding season, whether to feed January/February born lambs to physiologically mature harvest weights.

Although lambing in January/February has been traditional, interest has dramatically increased for lambing in April. Contributors to this peaked interest include the assumption that lambing will be in warmer weather, hair sheep (no shearing), high prices for light weight lambs, and the prospect of using more forage (pasture) in the annual production scheme. Again, the decision of when and at what weight to market April born lambs should be made before the breeding season (November/December). Factors that will affect this decision will be the same as those affecting January/February borns: lamb prices, feed costs, time, lifestyle, facilities, breed, frame size, cost of gain, and breakeven prices.

Table 3. Comparison of Hampshire, Polypay, and White Dorper Lambs Born in April and Marketed at 60 lb or at Physiological Maturity (PM)[a]

Item	Breed		
	Hampshire	Polypay	White Dorper
60 lb @ $2.25/lb	$135	$135	$135
Physiological Maturity (PM), lb	130	117	110
Total Gain, lb	70	57	50
Days 60 lb to PM	100	95	114
ADG, lb	0.7	0.6	0.44
Total Supplement, lb	190	152	160
DSI, lb[b]	1.9	1.6	1.4
S:G, lb/lb[c]	2.7:1	2.7:1	3.2:1
PM Value/lb	$ 1.50	$ 1.60	$ 1.70
Total PM Value	$195	$187	$187
Difference, PM $ - 60 lb $	+ $ 60	+ $ 52	+ $ 52
TS Cost[d]	$ 29	$ 23	$ 24
Pasture Cost[e]	$ 5	$ 5	$ 6
Difference Minus Feed Cost[f]	+ $ 26	+ $ 24	+ $ 22
Breakeven Price/lb	$ 1.30	$ 1.39	$ 1.50

[a] Live weight that will produce a carcass with 0.10 to 0.25 inches of backfat.
[b] Daily supplement intake.
[c] Supplement : Gain (lb supplement required to produce 1.0 lb gain).
[d] Total supplement cost (total supplement consumed x $0.15/lb).
[e] 5¢ per lamb per day.
[f] Difference (PM $ - 60 lb $) minus total supplement plus pasture cost.

60 lb vs. Physiological Maturity: Pasture

Table 3 compares April born Hampshire, Polypay, and White Dorper lambs marketed for harvest at 60 lb vs. physiological maturity. Price per pound for the 130, 117, and 110 lb lambs is assumed to be $1.50, $1.60, and $1.70, respectively. Total feed cost in this scenario includes TS (total supplement) plus pasture and is less than that calculated for January/February lambs (Table 2).

This is a result of feeding a grain supplement to April lambs at only 2% of body weight per day and charging pasture cost at 5¢ per lamb per day. January/February lambs (Table 2) were fed a complete grain mix diet at 3.5 to 4.0% of body weight per day in confinement. Based on the lamb prices and feed costs used in Table 3, it is more economical to feed lambs to heavier harvest weights than to sell at 60 lb and especially so for Hampshire lambs. However, feed costs were the only expenses used in these examples for both January/February and April lambs.

Summary

The decision to **Sell 'em Light? Sell 'em Heavy?** should be made before the breeding season. Generally, larger framed lambs can be efficiently and economically finished to physiological maturities in both confinement and on pasture. In contrast, the smaller the frame, the greater the advantage for selling lambs for harvest at light weights (~ 60 lb). Frame size is a function of breed, so harvesting lambs of small frame breeds at 60 lb is advantageous compared with harvesting at physiological maturities. Feed costs and calendar dates when lambs will be marketed also have to be factored into deciding when to sell lambs for harvest. In the end, predict the actual market price you will expect to get for your lambs. Then, calculate a breakeven price based on feed costs and decide whether to **Sell 'em Light? Sell 'em Heavy?**

Dr. Donald G. Ely, *Professor in the Department of Animal and Food Sciences at the University of Kentucky.*