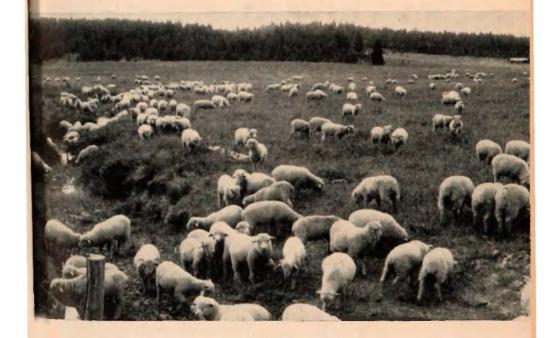# Factors that Affect Sheep Income

R. T. BURDICK



Colorado Experiment Station
Colorado State College
Fort Collins

# Factors that Affect Sheep Income

R. T. BURDICK, ASSOCIATE ECONOMIST

SHEEP IN Colorado are handled under a wide variety of conditions, from the small farm flock to the large "roving" bands. Any discussion of sheep income needs to be qualified or defined so the reader will know the conditions under which the sheep were handled.

From the many discussions which the writer has had with representative sheep men in different parts of Colorado, and from consideration of the variety of conditions under which sheep are produced, the conclusion has been reached that it would be most helpful and useful if some analysis were made of the factors which affect sheep production. Accordingly, the tables in this report have been prepared to show the effect of changes in the factors selected for analysis.

The objectives of this study might be stated as follows: (1) To show the effect of lamb crop, death loss, and other factors upon the total production of lamb and mutton from 1,000 breeding ewes; (2) to show the effect of these same factors upon the size of flock necessary to maintain 1,000 ewes; (3) to condense many sheep calculations; and (4) to furnish basic calculations to assist in estimating the probable income from any size flock.

## Factors Analyzed

### Lamb Crop

Lamb crop was based upon the number of ewes in the breeding flock on January 1 prior to date of lambing and upon the number of lambs docked. In all cases 1,000 ewes were used as the basis of calculation in order to permit an easy transfer to any other size of breeding flock. Ten-percent intervals were used in order to include as wide a total variation as possible in a table confined within the limits of a page. Some operators calculate lamb crop at marketing time. Where this is the case, the number available for sale would be greater than shown in these tables by the amount of the 5- or 10-percent death loss used in all tables.

### Replacement of Ewes

Replacement of ewes was handled to show the effect of replacing 14, 17, 20, and 25 percent of the original flock each year.

Young ewes entering the flock were studied under the following conditions: (1) All replacements purchased, thus permitting the sale of the entire lamb crop; (2) ewe lambs saved in the fall and

bred to have their first lamb at 1 year of age; and (3) ewe lambs saved in the fall and segregated from the rest of the flock for a year, then bred to have their first lamb at 2 years of age. These conditions were used since they represent the more common methods of handling the breeding flock.

In the tables these variations were not handled in a way to assume any arbitarary effect of these differences upon resultant weights or prices. All comparisons are on an identical basis so that direct contrast can be made. Tables are also included which show the percentage of change which would result from other weights or prices (tables 4 and 19). Where experience has proved that a particular method of handling young ewes or a special rate of replacement has resulted in more favorable weights or prices, then the user of these tables can take the percentages as shown in tables 4 and 19 and use them to modify the uniform results. This permits a wide variation in conditions to be analyzed.

### Death Loss

Death loss was calculated at 5 percent and 10 percent. These are close to the losses frequently reported by experienced sheepmen. No allowance was made for the abnormally heavy losses which sometimes occur. Effects of such heavy losses can be ascertained from the tables approximately as follows: Assume the death loss of old ewes was 20 percent. Then the lamb sales should be calculated on the basis of 20-percent replacement of ewes and the old ewe sales should be omitted, since none were available for sale. For lambs, the effect of a heavy death loss can be studied quite accurately by using a lower "lamb crop docked." Where lamb crops exceed the 120-percent maximum shown in the tables, the extra production can be quickly calculated by using an extra 95 or 90 lambs for each 10 percent increase in lamb crop, as explained in the footnote on table 1.

### Sale Weights

Sale weights were calculated uniformly at 75 pounds for all lamb sales and 125 pounds for ewe sales. Table 4 will permit a percentage adjustment to any other average sale weight. For example, table 4 shows that 61-pound lambs are 81.3 percent of the 75-pound base while 81-pound lambs are 108 percent of the 75-pound base.

Some sheepmen sell their fat and feeder lambs separately and at different prices. To attempt to allow for this condition seemed too complicated to warrant the calculations. It is a comparatively sim-

ple matter for the operator to add all his sales and calculate the average weight and average price for the total. With these averages, the operator can use tables 4 and 19 to find what percentage change would be necessary under his conditions to apply to the data in the tables in order to make a comparison with his flock.

### Sale Prices

Sale prices have been handled on a uniform basis also. All lamb sales were calculated at 8.5 cents per pound and all ewe sales at 4 cents per pound.

The 29-year average for 1910 to 1938 for "prices received by Colorado producers" shows that "lamb" prices were $9.03 per hundredweight in September, $8.87 in October, and $8.81 in November. Fat and feeder lambs were not listed separately in these quotations. During the 18 years, 1921 to 1938, inclusive, the prices on the Chicago market for feeder lambs averaged $9.88 in September, $9.17 in October, and $9.74 in November. After deducting 80 cents to $1 per hundredweight from the Chicago prices for marketing expense, it would seem that the 8.5-cent price was less instead of more than the long-time average price for feeder lambs. (The cost of shipping lambs from Colorado to Chicago ranges from 80 cents to $1 per hundredweight.)

The market prices for aged ewes at Chicago indicate that for the 18 years, 1921 to 1938, inclusive, the September price was $4.39 per hundredweight, the October price was $4.45, and the November price was $4.68. This would be equivalent to from $3.50 to $3.90 after deducting marketing expenses for Colorado shipments. Since there is no aged-ewe price available for Colorado conditions, a 4-cent price was used to allow for the possibility of sale of some ewes at better prices. (The "sheep" price received by Colorado producers for the 29 years, 1910 to 1938, inclusive, averaged $5.68 in September, $5.25 in October, and $5.36 in November, but this price apparently included more than aged ewes.)

Table 19 gives the percentages which can be used to compare any sale price of lambs and ewes with the base prices of 8.5 and 4 cents.

## Use of Tables

Use of the tables will depend upon circumstances. The number of breeding ewes was used uniformly as 1,000 in order to facilitate the quick calculation of possible results with any other size of flock. For example, a farm flock of 100 ewes would have one-tenth of the total sales shown in the table but would have the same "per

head" amounts as given in tables 12, 13, and 15. On the other
hand, a band of 2,500 ewes would have 2.5 times the values
shown, when identical calculations are assumed. With the larger
flocks, the lamb crop or average sale weight may not be as high as
with smaller bands. However, even in such cases, the actual con-
ditions with the large flock will be known, and the equivalent val-
ues in the tables can be multiplied by the proper percentage to ob-
tain an estimate for the larger flock. As stated earlier, a wide range
of possibilities is shown, with no intention of suggesting that the
Experiment Station favors any one practice or believes that these
extremes are normal. They are calculated as a guide in studying the
sheep business.

Several illustrations may help to indicate the usefulness of the
tables. Selection of these illustrations does not mean that the Ex-
periment Station recommends these various methods.

1. What would be the difference in yearly receipts, other things
remaining the same, if an operator sold all his lambs in the fall in-
stead of holding his ewe lambs to enter the flock at 2 years of age?
Assume, for purpose of illustration, that a 90-percent lamb crop, 5-
percent death loss, and 17-percent replacement are normal. Tables
9 and 11 show the values of lambs and ewes at average prices.
Table 9 shows that under the assumed conditions lamb sales
amounting to $5,451 will result from the sale of all lambs in the
fall. Table 11 shows sales of only $4,310 where lambs are saved
to replace 17 percent of the ewes. Thus receipts from lamb sales
will be $1,141 more if all lambs are sold. If yearling ewes can be
purchased at $7 per head, the $1,141 will permit the purchase of
163 head. If yearling ewe prices were $8 per head, only 142 head
could be purchased with the $1,141. However, when the opera-
tor's own ewes are held over to lamb at 2 years of age, the saving
of 179 head (table 2) is required. This means that a total of 1,209
head (table 14) is necessary to maintain 1,000 breeding ewes,
while 1,030 head are required where all the lambs are sold and
yearling ewes are purchased. The difference of 179 head requires
an additional ranch expense for feed and care plus the added ex-
pense of keeping them separate from the main flock at breeding
time. These costs, as well as the difference in income, should be
included in any comparison of the two methods of management.
Also the relative possibilities of improving the flock under the two
systems are an important consideration.

2. What is the difference in annual income from 1,000 breeding

ewes under the following two sets of conditions: (1) Twenty percent of the ewes are replaced annually, the lamb crop as docked is 70 percent, the death loss is 10 percent, and lambs sell at 65 pounds and 7.5 cents a pound; (2) 17 percent of the ewes are replaced, the lamb crop is 90 percent, the death loss is 5 percent, and lambs sell at 77 pounds and 8.5 cents? In both cases all lambs are sold in the fall. Table 1 shows 630 lambs remaining for sale in the fall under conditions of a 10-percent death loss and a 70-percent lamb crop. Since both weight and price are different from the rates given in the tables concerning weight and price, it might be easier to disregard these tables for the first set of conditions and use simple arithmetic. The 630 lambs multiplied by 65 pounds and 7.5 cents shows that the value of lamb sales from the first set of conditions would be $3,071. For the second set of conditions, table 9 can be used. It shows $5,451 as the value of 75-pound lambs at 8.5 cents from a 90-percent lamb crop. Since 77-pound lambs are 102.7 percent of the 75-pound weight (table 4), the $5,451 must be multiplied by 102.7, giving $5,598 from the second set of conditions as listed. Thus it is seen that $2,527 more income results from the second set of conditions. This suggests that a change in method of handling sheep to attain the more favorable set of conditions would be desirable as long as the additional yearly cost of the change did not exceed $2,527. If in the above comparison the change was from a 90-percent lamb crop in the first set of conditions to a 110-percent lamb crop in the second, with all other conditions as stated, the increased income from 1,000 ewes would be $2,893.

3. What is the possible income from 300 ewes with a 90-percent lamb crop and a 5-percent death loss, if half the lambs are sold fat at 82 pounds and 9 cents, and half are sold as feeders at 65 pounds and 7 cents. Table 1 shows 855 lambs available for sale from 1,000 ewes with a 90-percent lamb crop and a 5-percent death loss. With 300 ewes, the equivalent number would be 256. Using the actual weights and prices assumed in this illustration, with 128 lambs for sale as fat and 128 as feeders, the total value from the sale of the entire lamb crop would be $1,527 (128 x 82 x 9 cents plus 128 x 65 x 7 cents equals $1,527).

4. What price for lambs is necessary in order to "break even?" Table 20 shows the necessary price when the number of pounds produced and the ranch costs per head are known. For example, suppose that the net ranch expenses (after deducting value of wool sales) which must be met from lamb and ewe sales were $4.20 per

head, and that the total number of pounds of all lambs and ewes
sold amounted to 60 pounds per head the first of the year. Table
20 shows that under these conditions $6.99 is the necessary price
as an average of all sales, both lamb and ewe. If one-fourth of
the sales was from ewes at 4 cents per pound, then the lambs would
need to bring approximately 8 cents in order to cover these costs.
(Out of every 100 pounds of sales which must bring $6.99, 25
pounds at 4 cents would bring $1; the remaining 75 pounds would
need to bring $5.99 or 8 cents per pound.)

5. How many ewes are necessary in order to obtain the same
gross income as from 100 breeding cows? Naturally, there are
many comparative figures needed, some of which are not in this
report. However, a similar report on cattle[1] may be consulted for
confirmation of the comparisons used. Assume a 90-percent lamb
or calf crop, a 5-percent death loss, and a 17-percent replacement
for each. Since cattlemen normally save heifer calves for replace-
ment while sheepmen frequently purchase yearling ewes, a further
limitation should be made that both raise their own replacements.
The cattle study showed[2] $1,530 as the gross value of calves sold
from 100 breeding cows, while table 11 shows that $4,310 is the
value of lambs sold from 1,000 ewes with a 90-percent lamb crop,
17-percent replacement, and 5-percent death loss. It would require
355 ewes under these conditions to furnish an income of $1,530.
However, this is with an 8.5-cent price. At 6 cents, the price used in
the cattle calculations, the 50,700 pounds of lamb sales (table 8)
would bring $3,042. It would seem, then, that under identical
conditions of production and price, 500 ewes would be needed
(when lambs sell at 75 pounds each) to bring in the same lamb in-
come as the calf sales from 100 cows (when calves sell at 375
pounds each). Obviously, this is begging the question and forcing
the issue, since the relationship between calf and lamb weights, un-
der actual conditions, would seldom show this 5 to 1 ratio. Nei-
ther would calf and lamb crops be identical in summer death loss or
sale prices. The long-time lamb price, for example, has shown ap-
proximately 2.5 cents advantage over the feeder cattle price. This
in itself, if continued, would radically change the relative advant-
age in favor of sheep and this ignores wool sales, which are an im-
portant item. Referring again to the cattle study, $2,646 would
be the gross income from the sale of 700-pound long yearlings at

[1]Colo. Exp. Sta. Bul. 460, table 21.
[2]Colo. Exp. Sta. Bul. 460, page 34.

6 cents (from 100 breeding cows) when the conditions remain as before (90-percent calf crop, 17-percent replacement, and 5-percent death loss).[*] Under similar conditions, it would require 614 ewes at an 8.5-cent lamb price to do as well.

This problem might be cleared by using the receipts per head rather than the total receipts. For example, the receipts per head of all cattle from calf sales as just discussed would be $10.92, from yearling sales $12.72, and from lamb sales $3.57 (table 18). Old cow and aged ewe sales are not included in this case. They would increase the average to $14.36, $15.04, and $4.05, respectively. Using the sales of young animals, 305 head of sheep would be needed to furnish as much income from lambs only as from calf sales from 100 head of all cattle. With the yearling comparison, 356 head of sheep would be required to equal 100 head of all cattle. When cow and ewe sales are included, the numbers are 355 and 372, respectively. This ignores wool sales. If 7 pounds of 20-cent wool or $1.40 per head of sheep the first of the year are included in both cases, the total receipts per head of sheep would be $4.97 and $5.45. Then considering young animals only, 220 head and 256 head, respectively, of sheep would equal 100 head of all cattle. When cow and ewe sales are added, the numbers are 264 and 276, respectively.

Under long-time conditions, it would appear from this analysis that 300 sheep (more or less) might give approximately the same gross income as 100 head of cattle. A study of ranch expenses on representative cattle and sheep ranches in western Colorado shows that in 1940 the expenses per head of all cattle or sheep on hand the first of the year were almost exactly in this ratio of 3 to 1, while sales in 1940 were 2.5 to 1.

## Conclusion

As stated previously, the value of these tables will depend upon the way they are used. They represent some basic calculations which will prove time-saving in making comparisons and which will be helpful in studying the business. They have been prepared with that idea in mind and not as a recommendation for any specific method of management.

[*] Colo. Exp. Sta. Bul. 460, table 22.

TABLE 1—*Effect of death loss and lamb crop on number of lambs per 1,000 ewes.*

| Lamb Crop Percentage docked | Number lambs born | Number lambs end of first year when death loss is: | |
|---|---|---|---|
| | | 5% | 10% |
| | * | † | † |
| 50 | 500 | 475 | 450 |
| 60 | 600 | 570 | 540 |
| 70 | 700 | 665 | 630 |
| 80 | 800 | 760 | 720 |
| 90 | 900 | 855 | 810 |
| 100 | 1,000 | 950 | 900 |
| 110 | 1,100 | 1,045 | 990 |
| 120 | 1,200 | 1,140 | 1,080 |

*Where lamb crop is calculated at marketing time, this column shows the number available for sale.
†Each 10-percent increase in lamb crop adds another 95 lambs for sale with a 5-percent death loss and 90 lambs with a 10-percent death loss.

TABLE 2—*Effect of death loss and replacement upon the number of ewe lambs saved at the end of the year to replace ewes, per 1,000 head.*

| Percentage of ewes replaced | Death loss (per- cent) | Number of ewe lambs saved in fall to enter breeding flock | |
|---|---|---|---|
| | | at age 1 year | at age 2 years |
| 14 | 5 | 140 | 147 |
| | 10 | | 156 |
| 17 | 5 | 170 | 179 |
| | 10 | | 189 |
| 20 | 5 | 200 | 210 |
| | 10 | | 222 |
| 25 | 5 | 250 | 263 |
| | 10 | | 278 |

Note: If ewes are bred to have their first lamb at 1 year of age, the number saved goes immediately into the breeding flock. Hence, the number of ewe lambs saved is the same as the replacement percentage. The last column shows the number of ewe lambs required in order to allow for 1 year's death loss before breeding.

TABLE 3—*Effect of death loss and replacement upon number of old ewes for sale per 1,000 in the breeding flock.*

| Percentage of ewes replaced | Sale of old ewes per 1,000 ewes when death loss is: | |
|---|---|---|
| | 5% | 10% |
| 14 | 90 | 40 |
| 17 | 120 | 70 |
| 20 | 150 | 100 |
| 25 | 200 | 150 |

Note: The percentage of ewes replaced, and the death loss, together determine the number of ewes available for sale. For example, if 25 percent of the ewes are replaced, that would be 250 out of 1,000 ewes. However, if 10 percent of the ewes died, or 100 per 1,000, then only 150 would be available for sale if 250 were to be replaced.

TABLE 4—*Percentage of change in sale weight compared to a 75-pound basis on lambs and 125-pound basis on ewes.*

| Lambs | | Ewes | |
|---|---|---|---|
| Weight per head | Percent | Weight per head | Percent |
| 55 | 73.3 | 100 | 80 |
| 57 | 76 | 105 | 84 |
| 59 | 78.7 | 110 | 88 |
| 61 | 81.3 | 115 | 92 |
| 63 | 84 | 120 | 96 |
| 65 | 86.7 | 125 | 100 |
| 67 | 89.3 | 130 | 104 |
| 69 | 92 | | |
| 71 | 94.7 | | |
| 73 | 97.3 | | |
| 75 | 100 | | |
| 77 | 102.7 | | |
| 79 | 105.3 | | |
| 81 | 108 | | |
| 83 | 110.7 | | |
| 85 | 113.3 | | |

Note: All tables dealing with production or sales have been prepared on the basis of lambs weighing 75 pounds and old ewes weighing 125 pounds. Where other weights are anticipated, this table can be used to find the result required by multiplying the figure found in any other table by the percentage shown in this table for that specific weight. For example, if lambs are sold averaging 67 pounds, then lamb sales in any table can be multiplied by 89.3 percent to show the effect of these lighter lambs. In actual practice some lambs are fat and others are feeders. It would be difficult to allow for this variable. If 20 percent of the lambs were sold as feeder lambs at 65 pounds and 80 percent were sold as fat lambs at 80 pounds, the average weight of all lambs would be 77 pounds. Frequently the entire lamb crop is sold at a uniform price and the buyer sorts the lambs. In this case, the average weight of the entire shipment is the only figure available to the rancher.

TABLE 5—*Possible number of lambs available for sale from 1,000 breeding ewes, after saving ewe lambs for replacement of old ewes.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | (a) Based on ewe lambs entering the breeding flock in the fall | | (b) Based on ewe lambs held to enter the breeding flock to lamb at 2 years of age | |
|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% |
| 50 | 14 | 335 | 310 | 328 | 294 |
| | 17 | 305 | 280 | 296 | 261 |
| | 20 | 275 | 250 | 265 | 228 |
| | 25 | 225 | 200 | 212 | 172 |
| 60 | 14 | 430 | 400 | 423 | 384 |
| | 17 | 400 | 370 | 391 | 351 |
| | 20 | 370 | 340 | 360 | 318 |
| | 25 | 320 | 290 | 307 | 262 |
| 70 | 14 | 525 | 490 | 518 | 474 |
| | 17 | 495 | 460 | 486 | 441 |
| | 20 | 465 | 430 | 455 | 408 |
| | 25 | 415 | 380 | 402 | 352 |
| 80 | 14 | 620 | 580 | 613 | 564 |
| | 17 | 590 | 550 | 581 | 531 |
| | 20 | 560 | 520 | 550 | 498 |
| | 25 | 510 | 470 | 497 | 442 |
| 90 | 14 | 715 | 670 | 708 | 654 |
| | 17 | 685 | 640 | 676 | 621 |
| | 20 | 655 | 610 | 645 | 588 |
| | 25 | 605 | 560 | 592 | 532 |
| 100 | 14 | 810 | 760 | 803 | 744 |
| | 17 | 780 | 730 | 771 | 711 |
| | 20 | 750 | 700 | 740 | 678 |
| | 25 | 700 | 650 | 687 | 622 |
| 110 | 14 | 905 | 850 | 898 | 834 |
| | 17 | 875 | 820 | 866 | 801 |
| | 20 | 845 | 790 | 835 | 768 |
| | 25 | 795 | 740 | 782 | 712 |
| 120 | 14 | 1,000 | 940 | 993 | 924 |
| | 17 | 970 | 910 | 961 | 891 |
| | 20 | 940 | 880 | 930 | 858 |
| | 25 | 890 | 830 | 877 | 802 |

Note: The difference between (a) and (b) is due to the age at which the young ewes have their first lamb. If they are bred to lamb at 2 years of age, then more ewe lambs must be held back to allow for an extra season's death loss, as shown in table 2. See also footnotes to table 1.

TABLE 6—*Pounds of lambs and ewes sold from 1,000 ewes when all of the lambs are sold in the fall.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales at 75 pounds | | Pounds ewe sales at 125 pounds | | Total pounds sales lambs and ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 35,625 | 33,750 | 11,250 | 5,000 | 46,875 | 38,750 |
| | 17 | | | 15,000 | 8,750 | 50,625 | 42,500 |
| | 20 | | | 18,750 | 12,500 | 54,375 | 46,250 |
| | 25 | | | 25,000 | 18,750 | 60,625 | 52,500 |
| 60 | 14 | 42,750 | 40,500 | 11,250 | 5,000 | 54,000 | 45,500 |
| | 17 | | | 15,000 | 8,750 | 57,750 | 49,250 |
| | 20 | | | 18,750 | 12,500 | 61,500 | 53,000 |
| | 25 | | | 25,000 | 18,750 | 67,750 | 59,250 |
| 70 | 14 | 49,875 | 47,250 | 11,250 | 5,000 | 61,125 | 52,250 |
| | 17 | | | 15,000 | 8,750 | 64,875 | 56,000 |
| | 20 | | | 18,750 | 12,500 | 68,625 | 59,750 |
| | 25 | | | 25,000 | 18,750 | 74,875 | 66,000 |
| 80 | 14 | 57,000 | 54,000 | 11,250 | 5,000 | 68,250 | 59,000 |
| | 17 | | | 15,000 | 8,750 | 72,000 | 62,750 |
| | 20 | | | 18,750 | 12,500 | 75,750 | 66,500 |
| | 25 | | | 25,000 | 18,750 | 82,000 | 72,750 |
| 90 | 14 | 64,125 | 60,750 | 11,250 | 5,000 | 75,375 | 65,750 |
| | 17 | | | 15,000 | 8,750 | 79,125 | 69,500 |
| | 20 | | | 18,750 | 12,500 | 82,875 | 73,250 |
| | 25 | | | 25,000 | 18,750 | 89,125 | 79,500 |
| 100 | 14 | 71,250 | 67,500 | 11,250 | 5,000 | 82,500 | 72,500 |
| | 17 | | | 15,000 | 8,750 | 86,250 | 76,250 |
| | 20 | | | 18,750 | 12,500 | 90,000 | 80,000 |
| | 25 | | | 25,000 | 18,750 | 96,250 | 86,250 |
| 110 | 14 | 78,375 | 74,250 | 11,250 | 5,000 | 89,625 | 79,250 |
| | 17 | | | 15,000 | 8,750 | 93,375 | 83,000 |
| | 20 | | | 18,750 | 12,500 | 97,125 | 86,750 |
| | 25 | | | 25,000 | 18,750 | 103,375 | 93,000 |
| 120 | 14 | 85,500 | 81,000 | 11,250 | 5,000 | 96,750 | 86,000 |
| | 17 | | | 15,000 | 8,750 | 100,500 | 89,750 |
| | 20 | | | 18,750 | 12,500 | 104,250 | 93,500 |
| | 25 | | | 25,000 | 18,750 | 110,500 | 99,750 |

Note: The pounds of lamb and ewe sales are calculated from the number of lambs available for sale as shown in table 1 and the number of ewes available for sale as shown in table 3. In this case all the lambs raised are sold.

TABLE 7—*Pounds of lambs and ewes sold from 1,000 breeding ewes when ewe lambs are saved to enter flock at 1 year of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales at 75 pounds | | Pounds ewe sales at 125 pounds | | Total pounds sales lambs and ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 25,125 | 23,250 | 11,250 | 5,000 | 36,375 | 28,250 |
| | 17 | 22,875 | 21,000 | 15,000 | 8,750 | 37,875 | 29,750 |
| | 20 | 20,625 | 18,750 | 18,750 | 12,500 | 39,375 | 31,250 |
| | 25 | 16,875 | 15,000 | 25,000 | 18,750 | 41,875 | 33,750 |
| 60 | 14 | 32,250 | 30,000 | 11,250 | 5,000 | 43,500 | 35,000 |
| | 17 | 30,000 | 27,750 | 15,000 | 8,750 | 45,000 | 36,500 |
| | 20 | 27,750 | 25,500 | 18,750 | 12,500 | 46,500 | 38,000 |
| | 25 | 24,000 | 21,750 | 25,000 | 18,750 | 49,000 | 40,500 |
| 70 | 14 | 39,375 | 36,750 | 11,250 | 5,000 | 50,625 | 41,750 |
| | 17 | 37,125 | 34,500 | 15,000 | 8,750 | 52,125 | 43,250 |
| | 20 | 34,875 | 32,250 | 18,750 | 12,500 | 53,625 | 44,750 |
| | 25 | 31,125 | 28,500 | 25,000 | 18,750 | 56,125 | 47,250 |
| 80 | 14 | 46,500 | 43,500 | 11,250 | 5,000 | 57,750 | 48,500 |
| | 17 | 44,250 | 41,250 | 15,000 | 8,750 | 59,250 | 50,000 |
| | 20 | 42,000 | 39,000 | 18,750 | 12,500 | 60,750 | 51,500 |
| | 25 | 38,250 | 35,250 | 25,000 | 18,750 | 63,250 | 54,000 |
| 90 | 14 | 53,625 | 50,250 | 11,250 | 5,000 | 64,875 | 55,250 |
| | 17 | 51,375 | 48,000 | 15,000 | 8,750 | 66,375 | 56,750 |
| | 20 | 49,125 | 45,750 | 18,750 | 12,500 | 67,875 | 58,250 |
| | 25 | 45,375 | 42,000 | 25,000 | 18,750 | 70,375 | 60,750 |
| 100 | 14 | 60,750 | 57,000 | 11,250 | 5,000 | 72,000 | 62,000 |
| | 17 | 58,500 | 54,750 | 15,000 | 8,750 | 73,500 | 63,500 |
| | 20 | 56,250 | 52,500 | 18,750 | 12,500 | 75,000 | 65,000 |
| | 25 | 52,500 | 48,750 | 25,000 | 18,750 | 77,500 | 67,500 |
| 110 | 14 | 67,875 | 63,750 | 11,250 | 5,000 | 79,125 | 68,750 |
| | 17 | 65,625 | 61,500 | 15,000 | 8,750 | 80,625 | 70,250 |
| | 20 | 63,375 | 59,250 | 18,750 | 12,500 | 82,125 | 71,750 |
| | 25 | 59,625 | 55,500 | 25,000 | 18,750 | 84,625 | 74,250 |
| 120 | 14 | 75,000 | 70,500 | 11,250 | 5,000 | 86,250 | 75,500 |
| | 17 | 72,750 | 68,250 | 15,000 | 8,750 | 87,750 | 77,000 |
| | 20 | 70,500 | 66,000 | 18,750 | 12,500 | 89,250 | 78,500 |
| | 25 | 66,750 | 62,250 | 25,000 | 18,750 | 91,750 | 81,000 |

Note: The pounds of lamb and ewe sales are calculated from the number of lambs available for sale as shown in table 5 and the number of ewes available for sale as shown in table 3.

TABLE 8—*Pounds of lambs and ewes sold from 1,000 breeding ewes when ewe lambs are saved to enter flock at 2 years of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales at 75 pounds | | Pounds ewe sales at 125 pounds | | Total pounds sales lambs and ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 24,600 | 22,050 | 11,250 | 5,000 | 35,850 | 27,050 |
|  | 17 | 22,200 | 19,575 | 15,000 | 8,756 | 37,200 | 28,325 |
|  | 20 | 19,875 | 17,100 | 18,750 | 12,500 | 38,625 | 29,600 |
|  | 25 | 15,900 | 12,900 | 25,000 | 18,750 | 40,900 | 31,650 |
| 60 | 14 | 31,725 | 28,800 | 11,250 | 5,000 | 42,975 | 33,800 |
|  | 17 | 29,325 | 26,325 | 15,000 | 8,750 | 44,325 | 35,075 |
|  | 20 | 27,000 | 23,850 | 18,750 | 12,500 | 45,750 | 36,350 |
|  | 25 | 23,025 | 19,650 | 25,000 | 18,750 | 48,025 | 38,400 |
| 70 | 14 | 38,850 | 35,550 | 11,250 | 5,000 | 50,100 | 40,550 |
|  | 17 | 36,450 | 33,075 | 15,000 | 8,750 | 51,450 | 41,825 |
|  | 20 | 34,125 | 30,600 | 18,750 | 12,500 | 52,875 | 43,100 |
|  | 25 | 30,150 | 26,400 | 25,000 | 18,750 | 55,150 | 45,150 |
| 80 | 14 | 45,975 | 42,300 | 11,250 | 5,000 | 57,225 | 47,300 |
|  | 17 | 43,575 | 39,825 | 15,000 | 8,750 | 58,575 | 48,575 |
|  | 20 | 41,250 | 37,350 | 18,750 | 12,500 | 60,000 | 49,850 |
|  | 25 | 37,275 | 33,150 | 25,000 | 18,750 | 62,275 | 51,900 |
| 90 | 14 | 53,100 | 49,050 | 11,250 | 5,000 | 64,350 | 54,050 |
|  | 17 | 50,700 | 46,575 | 15,000 | 8,750 | 65,700 | 55,325 |
|  | 20 | 48,375 | 44,100 | 18,750 | 12,500 | 67,125 | 56,600 |
|  | 25 | 44,400 | 39,900 | 25,000 | 18,750 | 69,400 | 58,650 |
| 100 | 14 | 60,225 | 55,800 | 11,250 | 5,000 | 71,475 | 60,800 |
|  | 17 | 57,825 | 53,325 | 15,000 | 8,750 | 72,825 | 62,075 |
|  | 20 | 55,500 | 50,850 | 18,750 | 12,500 | 74,250 | 63,350 |
|  | 25 | 51,525 | 46,650 | 25,000 | 18,750 | 76,525 | 65,400 |
| 110 | 14 | 67,350 | 62,550 | 11,250 | 5,000 | 78,600 | 67,550 |
|  | 17 | 64,950 | 60,075 | 15,000 | 8,750 | 79,950 | 68,825 |
|  | 20 | 62,625 | 57,600 | 18,750 | 12,500 | 81,375 | 70,100 |
|  | 25 | 58,650 | 53,400 | 25,000 | 18,750 | 83,650 | 72,150 |
| 120 | 14 | 74,475 | 69,300 | 11,250 | 5,000 | 85,725 | 74,300 |
|  | 17 | 72,075 | 66,825 | 15,000 | 8,750 | 87,075 | 75,575 |
|  | 20 | 69,750 | 64,350 | 18,750 | 12,500 | 88,500 | 76,850 |
|  | 25 | 65,775 | 60,150 | 25,000 | 18,750 | 90,775 | 78,900 |

Note: The pounds of lamb and ewe sales are calculated from the number of lambs available for sale as shown in table 5 and the number of ewes available for sale as shown in table 3.

TABLE 9—*Value of lambs and ewes sold from 1,000 ewes when all the lambs are sold in the fall.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lambs sold at 8.5c per pound | | Value of ewes sold at 4c per pound | | Value of lambs plus ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $3,028 | $2,869 | $ 450 | $200 | $3,478 | $3,069 |
|  | 17 |  |  | 600 | 350 | 3,628 | 3,219 |
|  | 20 |  |  | 750 | 500 | 3,778 | 3,369 |
|  | 25 |  |  | 1,000 | 750 | 4,028 | 3,619 |
| 60 | 14 | 3,634 | 3,442 | 450 | 200 | 4,084 | 3,642 |
|  | 17 |  |  | 600 | 350 | 4,234 | 3,792 |
|  | 20 |  |  | 750 | 500 | 4,384 | 3,942 |
|  | 25 |  |  | 1,000 | 750 | 4,634 | 4,192 |
| 70 | 14 | 4,239 | 4,016 | 450 | 200 | 4,689 | 4,216 |
|  | 17 |  |  | 600 | 350 | 4,839 | 4,366 |
|  | 20 |  |  | 750 | 500 | 4,989 | 4,516 |
|  | 25 |  |  | 1,000 | 750 | 5,239 | 4,766 |
| 80 | 14 | 4,845 | 4,590 | 450 | 200 | 5,295 | 4,790 |
|  | 17 |  |  | 600 | 350 | 5,445 | 4,940 |
|  | 20 |  |  | 750 | 500 | 5,595 | 5,090 |
|  | 25 |  |  | 1,000 | 750 | 5,845 | 5,340 |
| 90 | 14 | 5,451 | 5,164 | 450 | 200 | 5,901 | 5,364 |
|  | 17 |  |  | 600 | 350 | 6,051 | 5,514 |
|  | 20 |  |  | 750 | 500 | 6,201 | 5,664 |
|  | 25 |  |  | 1,000 | 750 | 6,451 | 5,914 |
| 100 | 14 | 6,056 | 5,738 | 450 | 200 | 6,506 | 5,938 |
|  | 17 |  |  | 600 | 350 | 6,656 | 6,088 |
|  | 20 |  |  | 750 | 500 | 6,806 | 6,238 |
|  | 25 |  |  | 1,000 | 750 | 7,056 | 6,488 |
| 110 | 14 | 6,662 | 6,311 | 450 | 200 | 7,112 | 6,511 |
|  | 17 |  |  | 600 | 350 | 7,262 | 6,661 |
|  | 20 |  |  | 750 | 500 | 7,412 | 6,811 |
|  | 25 |  |  | 1,000 | 750 | 7,662 | 7,061 |
| 120 | 14 | 7,268 | 6,885 | 450 | 200 | 7,718 | 7,085 |
|  | 17 |  |  | 600 | 350 | 7,868 | 7,235 |
|  | 20 |  |  | 750 | 500 | 8,018 | 7,385 |
|  | 25 |  |  | 1,000 | 750 | 8,268 | 7,635 |

Note: The values are calculated from the pounds shown in table 6, with all lamb sales at 8.5 cents and all ewe sales at 4 cents per pound. In this case, all the lambs raised are sold at 75 pounds each and ewes at 125 pounds each

TABLE 10—*Value of lambs and ewes sold from 1,000 breeding ewes when ewe lambs are saved to enter the flock at 1 year of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lambs sold at 8.5c per pound | | Value of ewes sold at 4c per pound | | Value of lambs plus ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $2,136 | $1,976 | $ 450 | $200 | $2,586 | $2,176 |
| | 17 | 1,944 | 1,785 | 600 | 350 | 2,544 | 2,135 |
| | 20 | 1,753 | 1,594 | 750 | 500 | 2,503 | 2,094 |
| | 25 | 1,434 | 1,275 | 1,000 | 750 | 2,434 | 2,025 |
| 60 | 14 | 2,741 | 2,550 | 450 | 200 | 3,191 | 2,750 |
| | 17 | 2,550 | 2,359 | 600 | 350 | 3,150 | 2,709 |
| | 20 | 2,359 | 2,168 | 750 | 500 | 3,109 | 2,668 |
| | 25 | 2,040 | 1,849 | 1,000 | 750 | 3,040 | 2,599 |
| 70 | 14 | 3,347 | 3,124 | 450 | 200 | 3,797 | 3,324 |
| | 17 | 3,156 | 2,932 | 600 | 350 | 3,756 | 3,282 |
| | 20 | 2,964 | 2,741 | 750 | 500 | 3,714 | 3,241 |
| | 25 | 2,646 | 2,422 | 1,000 | 750 | 3,646 | 3,172 |
| 80 | 14 | 3,952 | 3,698 | 450 | 200 | 4,402 | 3,898 |
| | 17 | 3,761 | 3,506 | 600 | 350 | 4,361 | 3,856 |
| | 20 | 3,570 | 3,315 | 750 | 500 | 4,320 | 3,815 |
| | 25 | 3,251 | 2,996 | 1,000 | 750 | 4,251 | 3,746 |
| 90 | 14 | 4,558 | 4,271 | 450 | 200 | 5,008 | 4,471 |
| | 17 | 4,367 | 4,080 | 600 | 350 | 4,967 | 4,430 |
| | 20 | 4,176 | 3,889 | 750 | 500 | 4,926 | 4,389 |
| | 25 | 3,857 | 3,570 | 1,000 | 750 | 4,857 | 4,320 |
| 100 | 14 | 5,164 | 4,845 | 450 | 200 | 5,614 | 5,045 |
| | 17 | 4,972 | 4,654 | 600 | 350 | 5,572 | 5,004 |
| | 20 | 4,781 | 4,462 | 750 | 500 | 5,531 | 4,962 |
| | 25 | 4,462 | 4,144 | 1,000 | 750 | 5,462 | 4,894 |
| 110 | 14 | 5,769 | 5,419 | 450 | 200 | 6,219 | 5,619 |
| | 17 | 5,578 | 5,228 | 600 | 350 | 6,178 | 5,578 |
| | 20 | 5,387 | 5,036 | 750 | 500 | 6,137 | 5,536 |
| | 25 | 5,068 | 4,718 | 1,000 | 750 | 6,068 | 5,468 |
| 120 | 14 | 6,375 | 5,992 | 450 | 200 | 6,825 | 6,192 |
| | 17 | 6,184 | 5,801 | 600 | 350 | 6,784 | 6,151 |
| | 20 | 5,992 | 5,610 | 750 | 500 | 6,742 | 6,110 |
| | 25 | 5,674 | 5,291 | 1,000 | 750 | 6,674 | 6,041 |

Note: The values are calculated from the pounds as shown in table 7.

TABLE 11—*Value of lambs and ewes sold from 1,000 breeding ewes when ewe lambs are saved to enter the flock at 2 years of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lambs sold at 8.5c per pound | | Value of ewes sold at 4c per pound | | Value of lambs plus ewes | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $2,091 | $1,874 | $ 450 | $200 | $2,541 | $2,074 |
| | 17 | 1,887 | 1,664 | 600 | 350 | 2,487 | 2,014 |
| | 20 | 1,689 | 1,454 | 750 | 500 | 2,439 | 1,954 |
| | 25 | 1,352 | 1,096 | 1,000 | 750 | 2,352 | 1,846 |
| 60 | 14 | 2,697 | 2,448 | 450 | 200 | 3,147 | 2,648 |
| | 17 | 2,493 | 2,238 | 600 | 350 | 3,093 | 2,588 |
| | 20 | 2,295 | 2,027 | 750 | 500 | 3,045 | 2,527 |
| | 25 | 1,957 | 1,670 | 1,000 | 750 | 2,957 | 2,420 |
| 70 | 14 | 3,302 | 3,022 | 450 | 200 | 3,752 | 3,222 |
| | 17 | 3,098 | 2,811 | 600 | 350 | 3,698 | 3,161 |
| | 20 | 2,901 | 2,601 | 750 | 500 | 3,651 | 3,101 |
| | 25 | 2,563 | 2,244 | 1,000 | 750 | 3,563 | 2,994 |
| 80 | 14 | 3,908 | 3,596 | 450 | 200 | 4,358 | 3,796 |
| | 17 | 3,704 | 3,385 | 600 | 350 | 4,304 | 3,735 |
| | 20 | 3,506 | 3,175 | 750 | 500 | 4,256 | 3,675 |
| | 25 | 3,168 | 2,818 | 1,000 | 750 | 4,168 | 3,568 |
| 90 | 14 | 4,514 | 4,169 | 450 | 200 | 4,964 | 4,369 |
| | 17 | 4,310 | 3,959 | 600 | 350 | 4,910 | 4,309 |
| | 20 | 4,112 | 3,748 | 750 | 500 | 4,862 | 4,248 |
| | 25 | 3,774 | 3,392 | 1,000 | 750 | 4,774 | 4,142 |
| 100 | 14 | 5,119 | 4,743 | 450 | 200 | 5,569 | 4,943 |
| | 17 | 4,915 | 4,533 | 600 | 350 | 5,515 | 4,883 |
| | 20 | 4,718 | 4,322 | 750 | 500 | 5,468 | 4,822 |
| | 25 | 4,380 | 3,965 | 1,000 | 750 | 5,380 | 4,715 |
| 110 | 14 | 5,725 | 5,317 | 450 | 200 | 6,175 | 5,517 |
| | 17 | 5,521 | 5,106 | 600 | 350 | 6,121 | 5,456 |
| | 20 | 5,323 | 4,896 | 750 | 500 | 6,073 | 5,396 |
| | 25 | 4,985 | 4,539 | 1,000 | 750 | 5,985 | 5,289 |
| 120 | 14 | 6,330 | 5,890 | 450 | 200 | 6,780 | 6,090 |
| | 17 | 6,126 | 5,680 | 600 | 350 | 6,726 | 6,030 |
| | 20 | 5,929 | 5,470 | 750 | 500 | 6,679 | 5,970 |
| | 25 | 5,591 | 5,113 | 1,000 | 750 | 6,591 | 5,863 |

Note: The values are calculated from the pounds as shown in table 8.

TABLE 12—*Pounds sold per head in the flock when all the lambs are sold in the fall (based on 1,030 head).*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales | | Pounds ewe sales | | Total pounds lamb and ewe sales[1] | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 35 | 33 | 11 | 5 | 46 | 38 |
|  | 17 | 35 | 33 | 15 | 8 | 49 | 41 |
|  | 20 | 35 | 33 | 18 | 12 | 53 | 45 |
|  | 25 | 35 | 33 | 24 | 18 | 59 | 51 |
| 60 | 14 | 41 | 39 | 11 | 5 | 52 | 44 |
|  | 17 | 41 | 39 | 15 | 8 | 56 | 48 |
|  | 20 | 41 | 39 | 18 | 12 | 60 | 51 |
|  | 25 | 41 | 39 | 24 | 18 | 66 | 58 |
| 70 | 14 | 48 | 46 | 11 | 5 | 59 | 51 |
|  | 17 | 48 | 46 | 15 | 8 | 63 | 54 |
|  | 20 | 48 | 46 | 18 | 12 | 67 | 58 |
|  | 25 | 48 | 46 | 24 | 18 | 73 | 64 |
| 80 | 14 | 55 | 52 | 11 | 5 | 66 | 57 |
|  | 17 | 55 | 52 | 15 | 8 | 70 | 61 |
|  | 20 | 55 | 52 | 18 | 12 | 74 | 65 |
|  | 25 | 55 | 52 | 24 | 18 | 80 | 71 |
| 90 | 14 | 62 | 59 | 11 | 5 | 73 | 64 |
|  | 17 | 62 | 59 | 15 | 8 | 77 | 67 |
|  | 20 | 62 | 59 | 18 | 12 | 80 | 71 |
|  | 25 | 62 | 59 | 24 | 18 | 87 | 77 |
| 100 | 14 | 69 | 66 | 11 | 5 | 80 | 70 |
|  | 17 | 69 | 66 | 15 | 8 | 84 | 74 |
|  | 20 | 69 | 66 | 18 | 12 | 87 | 78 |
|  | 25 | 69 | 66 | 24 | 18 | 93 | 84 |
| 110 | 14 | 76 | 72 | 11 | 5 | 87 | 77 |
|  | 17 | 76 | 72 | 15 | 8 | 91 | 81 |
|  | 20 | 76 | 72 | 18 | 12 | 94 | 84 |
|  | 25 | 76 | 72 | 24 | 18 | 100 | 90 |
| 120 | 14 | 83 | 79 | 11 | 5 | 94 | 83 |
|  | 17 | 83 | 79 | 15 | 8 | 98 | 87 |
|  | 20 | 83 | 79 | 18 | 12 | 104 | 91 |
|  | 25 | 83 | 79 | 24 | 18 | 107 | 97 |

[1]Variation in totals due to elimination of fractions.

Note: The average pounds of sales per head of all sheep are based upon the total pounds of sales as shown in table 6, and a flock of 1,030 head (1,000 ewes and 30 bucks). This represents the sales in pounds, if 75-pound lambs and 125-pound ewes are sold. For other average weights of lambs or ewes, use the percentages shown in table 4 to secure the correct sales per head. For example, table 12 shows lamb sales of 62 pounds per head in the flock with a 90-percent lamb crop and a 5-percent death loss. If lambs averaged 71 pounds instead of 75 pounds, table 4 shows 94.7 percent as the relationship. Then, 94.7 percent of 62 is 58.7 or the correct average sales of lambs per head under these conditions.

The pounds of lamb sales per head increase uniformly by 7 pounds for each 10-percent increase in lamb crop in the 5-percent death loss column and by 6½ pounds in the 10-percent death loss column. With these rates the pounds of sales can be calculated for lamb crops above 120 percent.

TABLE 13—*Pounds sold per head in the flock when ewe lambs are saved to enter flock at 1 year of age (based on 1,030 head).*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales | | Pounds ewe sales | | Total pounds lamb and ewe sales[1] | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 24 | 23 | 11 | 5 | 35 | 27 |
| | 17 | 22 | 20 | 15 | 8 | 37 | 29 |
| | 20 | 20 | 18 | 18 | 12 | 38 | 30 |
| | 25 | 16 | 15 | 24 | 18 | 41 | 33 |
| 60 | 14 | 31 | 29 | 11 | 5 | 42 | 34 |
| | 17 | 29 | 27 | 15 | 8 | 44 | 35 |
| | 20 | 27 | 25 | 18 | 12 | 45 | 37 |
| | 25 | 23 | 21 | 24 | 18 | 48 | 39 |
| 70 | 14 | 38 | 36 | 11 | 5 | 49 | 41 |
| | 17 | 36 | 33 | 15 | 8 | 51 | 42 |
| | 20 | 34 | 31 | 18 | 12 | 52 | 43 |
| | 25 | 30 | 28 | 24 | 18 | 54 | 46 |
| 80 | 14 | 45 | 42 | 11 | 5 | 56 | 47 |
| | 17 | 43 | 40 | 15 | 8 | 58 | 49 |
| | 20 | 41 | 38 | 18 | 12 | 59 | 50 |
| | 25 | 37 | 34 | 24 | 18 | 61 | 52 |
| 90 | 14 | 52 | 49 | 11 | 5 | 63 | 54 |
| | 17 | 50 | 47 | 15 | 8 | 64 | 55 |
| | 20 | 48 | 44 | 18 | 12 | 66 | 57 |
| | 25 | 44 | 41 | 24 | 18 | 68 | 59 |
| 100 | 14 | 59 | 55 | 11 | 5 | 70 | 60 |
| | 17 | 57 | 53 | 15 | 8 | 71 | 62 |
| | 20 | 55 | 51 | 18 | 12 | 73 | 63 |
| | 25 | 51 | 47 | 24 | 18 | 75 | 66 |
| 110 | 14 | 66 | 62 | 11 | 5 | 77 | 67 |
| | 17 | 64 | 60 | 15 | 8 | 78 | 68 |
| | 20 | 62 | 58 | 18 | 12 | 80 | 70 |
| | 25 | 58 | 54 | 24 | 18 | 82 | 72 |
| 120 | 14 | 73 | 68 | 11 | 5 | 84 | 73 |
| | 17 | 71 | 66 | 15 | 8 | 85 | 75 |
| | 20 | 68 | 64 | 18 | 12 | 87 | 76 |
| | 25 | 65 | 61 | 24 | 18 | 89 | 79 |

[1]Variations in totals due to elimination of fractions.
Note: The average pounds of sales per head of all sheep are based upon the total pounds of sales as shown in table 7. See further comment in note on table 12.

TABLE 14—*Size of flock when ewe lambs are held over to lamb at 2 years of age.*

| Percentage of ewes replaced | Death loss % | Lambs saved for replacement | Ewes | Bucks | Total flock |
|---|---|---|---|---|---|
| 14 | 5 | 147 | 1,000 | 30 | 1,177 |
|    | 10 | 156 | 1,000 | 30 | 1,186 |
| 17 | 5 | 179 | 1,000 | 30 | 1,209 |
|    | 10 | 189 | 1,000 | 30 | 1,219 |
| 20 | 5 | 210 | 1,000 | 30 | 1,240 |
|    | 10 | 222 | 1,000 | 30 | 1,252 |
| 25 | 5 | 263 | 1,000 | 30 | 1,293 |
|    | 10 | 278 | 1,000 | 30 | 1,308 |

Note: When yearling or other age ewes are purchased in the fall to replace sales and death loss of old ewes, the size of flock on January 1 remains constant at 1,030 for maintaining 1,000 breeding ewes. The same is true when ewe lambs are saved from one's own flock and bred to have their first lamb at 1 year of age. However, when one's own ewe lambs are reserved and held over to be bred to have their first lamb at 2 years of age, the problem of death loss enters the picture and these extra yearlings add to the total size of the flock as shown in table 14.

TABLE 15—*Pounds sold per head in the flock when ewe lambs are saved to enter the flock at 2 years of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Pounds lamb sales | | Pounds ewe sales | | Total pounds lamb and ewe sales[1] | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | 21 | 19 | 10 | 4 | 30 | 23 |
| | 17 | 18 | 16 | 12 | 7 | 31 | 23 |
| | 20 | 16 | 14 | 15 | 10 | 31 | 24 |
| | 25 | 12 | 10 | 13 | 11 | 32 | 24 |
| 60 | 14 | 27 | 24 | 10 | 4 | 37 | 28 |
| | 17 | 24 | 22 | 13 | 7 | 37 | 29 |
| | 20 | 22 | 19 | 15 | 10 | 37 | 29 |
| | 25 | 18 | 15 | 19 | 14 | 37 | 29 |
| 70 | 14 | 33 | 30 | 10 | 4 | 43 | 34 |
| | 17 | 30 | 27 | 12 | 7 | 43 | 34 |
| | 20 | 28 | 24 | 15 | 10 | 43 | 34 |
| | 25 | 23 | 20 | 19 | 14 | 43 | 35 |
| 80 | 14 | 39 | 36 | 10 | 4 | 49 | 40 |
| | 17 | 36 | 33 | 12 | 7 | 48 | 40 |
| | 20 | 33 | 30 | 15 | 10 | 48 | 40 |
| | 25 | 29 | 25 | 19 | 14 | 48 | 40 |
| 90 | 14 | 45 | 41 | 10 | 4 | 55 | 46 |
| | 17 | 42 | 38 | 12 | 7 | 54 | 45 |
| | 20 | 39 | 35 | 15 | 10 | 54 | 45 |
| | 25 | 34 | 31 | 19 | 14 | 54 | 45 |
| 100 | 14 | 51 | 47 | 10 | 4 | 61 | 51 |
| | 17 | 48 | 44 | 12 | 7 | 60 | 53 |
| | 20 | 45 | 41 | 15 | 10 | 60 | 51 |
| | 25 | 40 | 36 | 19 | 14 | 59 | 50 |
| 110 | 14 | 57 | 53 | 10 | 4 | 67 | 57 |
| | 17 | 54 | 49 | 12 | 7 | 66 | 56 |
| | 20 | 51 | 46 | 15 | 10 | 66 | 56 |
| | 25 | 45 | 41 | 19 | 14 | 65 | 55 |
| 120 | 14 | 63 | 58 | 10 | 4 | 73 | 63 |
| | 17 | 60 | 55 | 12 | 7 | 72 | 62 |
| | 20 | 56 | 51 | 15 | 10 | 71 | 61 |
| | 25 | 51 | 46 | 19 | 14 | 70 | 60 |

[1]Variation in totals due to elimination of fractions.
Note: These calculations are based upon the total number of pounds sold as shown in table 8 and the corresponding total size of flock as shown in table 14, which varies from 1,177 to 1,308 head in order to maintain 1,000 breeding ewes.

TABLE 16—*Value of pounds sold per head in the flock when all lambs are sold in the fall.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lamb sales at 8.5¢ per pound | | Value of ewe sales at 4c per pound | | Total value lamb and ewe sales | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $2.98 | $2.80 | $ .44 | $ .20 | $3.42 | $3.00 |
| | 17 | 2.98 | 2.80 | .60 | .32 | 3.58 | 3.12 |
| | 20 | 2.98 | 2.80 | .72 | .48 | 3.70 | 3.28 |
| | 25 | 2.98 | 2.80 | .96 | .72 | 3.94 | 3.52 |
| 60 | 14 | 3.48 | 3.32 | .44 | .20 | 3.92 | 3.52 |
| | 17 | 3.48 | 3.32 | .60 | .32 | 4.08 | 3.64 |
| | 20 | 3.48 | 3.32 | .72 | .48 | 4.20 | 3.80 |
| | 25 | 3.48 | 3.32 | .96 | .72 | 4.44 | 4.04 |
| 70 | 14 | 4.08 | 3.91 | .44 | .20 | 4.52 | 4.11 |
| | 17 | 4.08 | 3.91 | .60 | .32 | 4.68 | 4.23 |
| | 20 | 4.08 | 3.91 | .72 | .48 | 4.80 | 4.39 |
| | 25 | 4.08 | 3.91 | .96 | .72 | 5.04 | 4.63 |
| 80 | 14 | 4.68 | 4.42 | .44 | .20 | 5.12 | 4.62 |
| | 17 | 4.68 | 4.42 | .60 | .32 | 5.28 | 4.74 |
| | 20 | 4.68 | 4.42 | .72 | .48 | 5.40 | 4.90 |
| | 25 | 4.68 | 4.42 | .96 | .72 | 5.64 | 5.14 |
| 90 | 14 | 5.27 | 5.02 | .44 | .20 | 5.71 | 5.22 |
| | 17 | 5.27 | 5.02 | .60 | .32 | 5.87 | 5.34 |
| | 20 | 5.27 | 5.02 | .72 | .48 | 5.99 | 5.50 |
| | 25 | 5.27 | 5.02 | .96 | .72 | 6.23 | 5.74 |
| 100 | 14 | 5.86 | 5.61 | .44 | .20 | 6.30 | 5.81 |
| | 17 | 5.86 | 5.61 | .60 | .32 | 6.46 | 5.93 |
| | 20 | 5.86 | 5.61 | .72 | .48 | 6.58 | 6.09 |
| | 25 | 5.86 | 5.61 | .96 | .72 | 6.82 | 6.33 |
| 110 | 14 | 6.46 | 6.12 | .44 | .20 | 6.90 | 6.32 |
| | 17 | 6.46 | 6.12 | .60 | .32 | 7.06 | 6.44 |
| | 20 | 6.46 | 6.12 | .72 | .48 | 7.18 | 6.60 |
| | 25 | 6.46 | 6.12 | .96 | .72 | 7.42 | 6.84 |
| 120 | 14 | 7.06 | 6.72 | .44 | .20 | 7.50 | 6.92 |
| | 17 | 7.06 | 6.72 | .60 | .32 | 7.66 | 7.04 |
| | 20 | 7.06 | 6.72 | .72 | .48 | 7.78 | 7.20 |
| | 25 | 7.06 | 6.72 | .96 | .72 | 8.02 | 7.44 |

Note: The values in this table are based on the average pounds per head as shown in table 12 for 75-pound lambs and 125-pound ewes. For other weights, use the percentages shown in table 4. For other prices, use the percentages shown in table 19.

TABLE 17—*Value of pounds sold per head in the flock when ewe lambs are saved to enter flock at 1 year of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lamb sales at 8.5¢ per pound | | Value of ewe sales at 4¢ per pound | | Total value lamb and ewe sales | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $2.04 | $1.96 | $ .44 | $ .20 | $2.48 | $2.16 |
| | 17 | 1.87 | 1.70 | .60 | .32 | 2.47 | 2.02 |
| | 20 | 1.70 | 1.53 | .72 | .48 | 2.42 | 2.01 |
| | 25 | 1.36 | 1.28 | .96 | .72 | 2.32 | 2.00 |
| 60 | 14 | 2.64 | 2.46 | .44 | .20 | 3.08 | 2.66 |
| | 17 | 2.46 | 2.30 | .60 | .32 | 3.06 | 2.62 |
| | 20 | 2.30 | 2.12 | .72 | .48 | 3.02 | 2.60 |
| | 25 | 1.96 | 1.78 | .96 | .72 | 2.92 | 2.50 |
| 70 | 14 | 3.23 | 3.06 | .44 | .20 | 3.67 | 3.26 |
| | 17 | 3.06 | 2.80 | .60 | .32 | 3.66 | 3.12 |
| | 20 | 2.89 | 2.64 | .72 | .48 | 3.61 | 3.12 |
| | 25 | 2.55 | 2.38 | .96 | .72 | 3.51 | 3.10 |
| 80 | 14 | 3.82 | 3.57 | .44 | .20 | 4.26 | 3.77 |
| | 17 | 3.66 | 3.40 | .60 | .32 | 4.26 | 3.72 |
| | 20 | 3.48 | 3.23 | .72 | .48 | 4.20 | 3.71 |
| | 25 | 3.14 | 2.89 | .96 | .72 | 4.10 | 3.61 |
| 90 | 14 | 4.42 | 4.16 | .44 | .20 | 4.86 | 4.36 |
| | 17 | 4.25 | 4.00 | .60 | .32 | 4.85 | 4.32 |
| | 20 | 4.08 | 3.74 | .72 | .48 | 4.80 | 4.22 |
| | 25 | 3.74 | 3.48 | .96 | .72 | 4.70 | 4.20 |
| 100 | 14 | 5.02 | 4.68 | .44 | .20 | 5.46 | 4.88 |
| | 17 | 4.84 | 4.50 | .60 | .32 | 5.44 | 4.82 |
| | 20 | 4.68 | 4.34 | .72 | .48 | 5.40 | 4.82 |
| | 25 | 4.34 | 4.00 | .96 | .72 | 5.30 | 4.72 |
| 110 | 14 | 5.61 | 5.27 | .44 | .20 | 6.05 | 5.47 |
| | 17 | 5.44 | 5.10 | .60 | .32 | 6.04 | 5.42 |
| | 20 | 5.27 | 4.93 | .72 | .48 | 5.99 | 5.41 |
| | 25 | 4.93 | 4.59 | .96 | .72 | 5.89 | 5.31 |
| 120 | 14 | 6.20 | 5.78 | .44 | .20 | 6.64 | 5.98 |
| | 17 | 6.04 | 5.61 | .60 | .32 | 6.64 | 5.93 |
| | 20 | 5.78 | 5.44 | .72 | .48 | 6.50 | 5.92 |
| | 25 | 5.52 | 5.18 | .96 | .72 | 6.48 | 5.90 |

Note: The values in this table are based on the average pounds per head as shown in table 13. (See note, table 16, for added comment.)

TABLE 18—*Value of pounds sold per head in the flock when ewe lambs are saved to enter flock at 2 years of age.*

| Lamb Crop Percentage docked | Percentage of ewes replaced | Value of lamb sales at 8.5c per pound | | Value of ewe sales at 4c per pound | | Total value lamb and ewe sales | |
|---|---|---|---|---|---|---|---|
| Death loss | | 5% | 10% | 5% | 10% | 5% | 10% |
| 50 | 14 | $1.78 | $1.62 | $ .40 | $ .16 | $2.18 | $1.78 |
| | 17 | 1.53 | 1.36 | .48 | .28 | 2.01 | 1.64 |
| | 20 | 1.36 | 1.19 | .60 | .40 | 1.96 | 1.59 |
| | 25 | 1.02 | .85 | .76 | .56 | 1.78 | 1.41 |
| 60 | 14 | 2.30 | 2.04 | .40 | .16 | 2.70 | 2.20 |
| | 17 | 2.04 | 1.87 | .48 | .28 | 2.52 | 2.15 |
| | 20 | 1.87 | 1.62 | .60 | .40 | 2.47 | 2.02 |
| | 25 | 1.53 | 1.28 | .76 | .56 | 2.29 | 1.84 |
| 70 | 14 | 2.80 | 2.55 | .40 | .16 | 3.20 | 2.71 |
| | 17 | 2.55 | 2.30 | .48 | .28 | 3.03 | 2.58 |
| | 20 | 2.38 | 2.04 | .60 | .40 | 2.98 | 2.44 |
| | 25 | 1.96 | 1.70 | .76 | .56 | 2.72 | 2.26 |
| 80 | 14 | 3.32 | 3.06 | .40 | .16 | 3.72 | 3.22 |
| | 17 | 3.06 | 2.80 | .48 | .28 | 3.54 | 3.08 |
| | 20 | 2.80 | 2.55 | .60 | .40 | 3.40 | 2.95 |
| | 25 | 2.46 | 2.12 | .76 | .56 | 3.22 | 2.68 |
| 90 | 14 | 3.82 | 3.48 | .40 | .16 | 4.22 | 3.64 |
| | 17 | 3.57 | 3.23 | .48 | .28 | 4.05 | 3.51 |
| | 20 | 3.32 | 2.98 | .60 | .40 | 3.92 | 3.38 |
| | 25 | 2.89 | 2.64 | .76 | .56 | 3.65 | 3.20 |
| 100 | 14 | 4.34 | 4.00 | .40 | .16 | 4.74 | 4.16 |
| | 17 | 4.08 | 3.74 | .48 | .28 | 4.56 | 4.02 |
| | 20 | 3.82 | 3.48 | .60 | .40 | 4.42 | 3.88 |
| | 25 | 3.40 | 3.06 | .76 | .56 | 4.16 | 3.62 |
| 110 | 14 | 4.84 | 4.50 | .40 | .16 | 5.24 | 4.66 |
| | 17 | 4.59 | 4.16 | .48 | .28 | 5.07 | 4.44 |
| | 20 | 4.34 | 3.91 | .60 | .40 | 4.94 | 4.31 |
| | 25 | 3.82 | 3.48 | .76 | .56 | 4.58 | 4.04 |
| 120 | 14 | 5.36 | 4.93 | .40 | .16 | 5.76 | 5.09 |
| | 17 | 5.10 | 4.68 | .48 | .28 | 5.58 | 4.96 |
| | 20 | 4.76 | 4.34 | .60 | .40 | 5.36 | 4.74 |
| | 25 | 4.34 | 3.91 | .76 | .56 | 5.10 | 4.47 |

Note: The values in this table are based on the average pounds per head as shown in table 15. (See note, table 16, for added comment.)

TABLE 19—*Prices of lambs and ewes as a percentage of the 8.5-cent and 4-cent prices used uniformly in all preceding tables.*

| (a) Relative lamb prices | | | | | | (b) Relative ewe prices | | | |
|---|---|---|---|---|---|---|---|---|---|
| Price (cents per pound) | Percent | Price (cents per pound) | Percent | Price (cents per pound) | Percent | Price (cents per pound) | Percent | Price (cents per pound) | Percent |
| 4¼ | 50 | 7⅓ | 85.29 | 10¼ | 120.59 | 1½ | 37.5 | 4½ | 112.5 |
| 4½ | 52.94 | 7½ | 88.24 | 10½ | 123.53 | 1¾ | 43.75 | 4¾ | 118.75 |
| 4¾ | 55.88 | 7¾ | 91.18 | 10¾ | 126.47 | 2 | 50. | 5 | 125. |
| 5 | 58.82 | 8 | 94.12 | 11 | 129.41 | 2¼ | 56.25 | 5¼ | 131.25 |
| 5¼ | 61.76 | 8¼ | 97.06 | 11¼ | 132.35 | 2½ | 62.5 | 5½ | 137.5 |
| 5½ | 64.71 | 8½ | 100. | 11½ | 135.29 | 2¾ | 68.75 | 5¾ | 143.75 |
| 5¾ | 67.65 | 8¾ | 102.94 | 11¾ | 138.24 | 3 | 75. | 6 | 150. |
| 6 | 70.59 | 9 | 105.88 | 12 | 141.18 | 3¼ | 81.25 | 6¼ | 156.25 |
| 6¼ | 73.53 | 9¼ | 108.82 | | | 3½ | 87.5 | 6½ | 162.5 |
| 6½ | 76.47 | 9½ | 111.76 | | | 3¾ | 93.75 | 6¾ | 168.75 |
| 6¾ | 79.41 | 9¾ | 114.71 | | | 4 | 100. | 7 | 175. |
| 7 | 82.35 | 10 | 117.65 | | | 4¼ | 106.25 | | |

Note: This table can be used to find the values under prices other than the uniform ones used in the preceding tables. For example, if lambs were sold at an average price of 6 cents, then any lamb sale value in the preceding tables should be multiplied by 70.59 percent to find the effect of this lower price.

TABLE 20—*Cost per hundredweight mutton produced when yearly cost per head first of year varies from $2 to $6 and when yearly production per head first of year varies from 25 to 100 pounds.*

| Pounds produced per head | Yearly cost per head | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $2.00 | $2.20 | $2.40 | $2.60 | $2.80 | $3.00 | $3.20 | $3.40 | $3.60 | $3.80 | $4.00 |
| 25 | $8.00 | $8.80 | $9.60 | $10.40 | $11.20 | $12.00 | $12.80 | $13.60 | $14.40 | $15.20 | $16.00 |
| 30 | 6.67 | 7.34 | 8.00 | 8.67 | 9.34 | 10.00 | 10.67 | 11.34 | 12.01 | 12.67 | 13.33 |
| 35 | 5.71 | 6.28 | 6.85 | 7.42 | 7.99 | 8.57 | 9.14 | 9.71 | 10.28 | 10.85 | 11.43 |
| 40 | 5.00 | 5.50 | 6.00 | 6.50 | 7.00 | 7.50 | 8.00 | 8.50 | 9.00 | 9.50 | 10.00 |
| 45 | 4.44 | 4.88 | 5.33 | 5.77 | 6.22 | 6.67 | 7.10 | 7.55 | 7.99 | 8.44 | 8.89 |
| 50 | 4.00 | 4.40 | 4.80 | 5.20 | 5.60 | 6.00 | 6.40 | 6.80 | 7.20 | 7.60 | 8.00 |
| 55 | 3.64 | 4.00 | 4.37 | 4.73 | 5.10 | 5.45 | 5.82 | 6.19 | 6.55 | 6.92 | 7.27 |
| 60 | 3.33 | 3.66 | 4.00 | 4.33 | 4.66 | 5.00 | 5.33 | 5.66 | 5.99 | 6.33 | 6.67 |
| 65 | 3.08 | 3.39 | 3.70 | 4.00 | 4.31 | 4.62 | 4.93 | 5.24 | 5.54 | 5.85 | 6.15 |
| 70 | 2.86 | 3.15 | 3.43 | 3.72 | 4.00 | 4.29 | 4.58 | 4.86 | 5.15 | 5.43 | 5.71 |
| 75 | 2.67 | 2.94 | 3.20 | 3.47 | 3.74 | 4.00 | 4.27 | 4.54 | 4.81 | 5.07 | 5.33 |
| 80 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 |
| 85 | 2.35 | 2.58 | 2.82 | 3.06 | 3.29 | 3.53 | 3.76 | 4.00 | 4.23 | 4.46 | 4.71 |
| 90 | 2.22 | 2.44 | 2.66 | 2.89 | 3.11 | 3.33 | 3.55 | 3.77 | 4.00 | 4.22 | 4.44 |
| 95 | 2.11 | 2.32 | 2.53 | 2.74 | 2.95 | 3.16 | 3.38 | 3.59 | 3.80 | 4.01 | 4.21 |
| 100 | 2.00 | 2.20 | 2.40 | 2.60 | 2.80 | 3.00 | 3.20 | 3.40 | 3.60 | 3.80 | 4.00 |

TABLE 20—*(Cont.)*

| Pounds produced per head | Yearly cost per head | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $4.20 | $4.40 | $4.60 | $4.80 | $5.00 | $5.20 | $5.40 | $5.60 | $5.80 | $6.00 |
| 25 | $16.80 | $17.60 | $18.40 | $19.20 | $20.00 | $20.80 | $21.60 | $22.40 | $23.20 | $24.00 |
| 30 | 14.01 | 14.67 | 15.34 | 16.01 | 16.67 | 17.34 | 18.01 | 18.68 | 19.34 | 20.00 |
| 35 | 11.99 | 12.56 | 13.13 | 13.70 | 14.29 | 14.85 | 15.42 | 15.99 | 16.56 | 17.14 |
| 40 | 10.50 | 11.00 | 11.50 | 12.00 | 12.50 | 13.00 | 13.50 | 14.00 | 14.50 | 15.00 |
| 45 | 9.32 | 9.77 | 10.21 | 10.66 | 11.11 | 11.54 | 11.99 | 12.43 | 12.88 | 13.33 |
| 50 | 8.40 | 8.80 | 9.20 | 9.60 | 10.00 | 10.40 | 10.80 | 11.20 | 11.60 | 12.00 |
| 55 | 7.64 | 8.01 | 8.37 | 8.74 | 9.09 | 9.46 | 9.83 | 10.19 | 10.56 | 10.91 |
| 60 | 6.99 | 7.33 | 7.66 | 7.99 | 8.33 | 8.66 | 8.99 | 9.32 | 9.66 | 10.00 |
| 65 | 6.47 | 6.78 | 7.08 | 7.39 | 7.69 | 8.01 | 8.32 | 8.62 | 8.93 | 9.23 |
| 70 | 6.01 | 6.29 | 6.58 | 6.86 | 7.14 | 7.44 | 7.72 | 8.01 | 8.29 | 8.57 |
| 75 | 5.61 | 5.87 | 6.14 | 6.41 | 6.67 | 6.94 | 7.21 | 7.48 | 7.74 | 8.00 |
| 80 | 5.25 | 5.50 | 5.75 | 6.00 | 6.25 | 6.50 | 6.75 | 7.00 | 7.25 | 7.50 |
| 85 | 4.94 | 5.17 | 5.40 | 5.64 | 5.88 | 6.11 | 6.34 | 6.58 | 6.82 | 7.06 |
| 90 | 4.66 | 4.88 | 5.11 | 5.33 | 5.56 | 5.77 | 5.99 | 6.22 | 6.44 | 6.67 |
| 95 | 4.43 | 4.64 | 4.85 | 5.06 | 5.26 | 5.49 | 5.70 | 5.91 | 6.12 | 6.32 |
| 100 | 4.20 | 4.40 | 4.60 | 4.80 | 5.00 | 5.20 | 5.40 | 5.60 | 5.80 | 6.00 |

Note: As shown in tables 12, 13, and 15, the number of pounds of mutton produced varies widely because of many influences. It is sometimes difficult to ascertain exactly what are the annual costs of operation. The problem is complicated also by the fact that wool sales may be used as an offset against ranch expenses to calculate a "net ranch expense" which must be met by the sale of lambs or old ewes. This table has been prepared to show for selected "mutton production per head of all sheep" and for arbitrary "yearly costs per head" the corresponding average sale price of all sales (lamb and ewe) to cover these costs. The table can be used in another way. For example, if the net ranch expense after deducting wool sales amounts to $3.80 per head and the average sales of all lambs and ewes amount to 70 pounds per head, then an average price of $5.43 must be obtained from total sales to cover these expenses. Or, with average sales at 8 cents, it is possible to find from the table what production is needed or what expense will be possible without exceeding the 8-cent income.

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