

**SHEEP RECORDS**  
**FOR**  
*Greater Profits*



Agricultural Experiment Station  
Oregon State College  
Corvallis

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## FOREWORD

Lamb and wool sales grossed the Oregon farmer approximately \$12,000,000 in 1948. The trend is to smaller flocks on more farms. Sheep numbers in the nation are at an all time low, but on January 1, 1949 Oregon showed 738,000 sheep on hand or a 5,000 head increase over a year ago. It remains now for the sheep to become more efficient as a means of marketing our grass—a chief resource.

Keeping records can help the stockman spot those animals that are making him money and those losing him money. This publication tells of a simple record system that can be used in any flock.

A workable set of records will net the grower more dollars each year and help him build his flock into a more profitable enterprise.

*Wm. A. Schoenfeld*

Dean and Director

# Sheep Records for Greater Profits

By

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**T**O MEET effectively the growing competition from other classes of livestock and to maintain a favorable economic position in the face of falling prices, the sheep producer must select and maintain breeding animals which will return a satisfactory profit. Animals which do no more than pay their way must be eliminated from the flock.

Far too often the sheep breeder tends to single out a few outstanding ewes or rams and rate his flock on the basis of these few individuals. He overlooks those ewes and rams which are not productive and which represent a net loss in the long run. The overall efficiency of the flock is held down and so are the profits.

## Record Keeping Speeds Stock Improvement

Progress in improving livestock is slow at best when selection of animals is made on appearance alone. Many factors which affect productivity—such as fertility—seldom can be evaluated by judging an animal on appearance or type. It has been demonstrated that it takes 20 to 30 times as long to attain a unit of improvement in livestock by selection on appearance alone as compared to selection on appearance coupled with selection on the basis of production or progeny testing. Because progeny and production performance cannot be measured without the help of adequate and accurate records, it is essential that record forms be devised which will answer the needs of the sheepman.

Adequate demonstration as to what can be done in improving livestock efficiency has been provided by dairy and poultry producers through the use of their R. O. P. and sire-index programs. The sheep producer may also use records in building more efficient and more profitable flocks.

Records presented here are easy to use and require a minimum of time to keep but still provide for the recording of adequate basic information which will serve as a guide to the intelligent selection of

*Without Records,  
You Might Keep  
the Wrong Ewe . . . . .*

Ewe B42-41, *top*, never produced a lamb even though bred to a different ram each year for four different seasons. In six seasons, Ewe A42, *bottom*, produced 10 lambs with average lambing date of Feb. 16. ▶

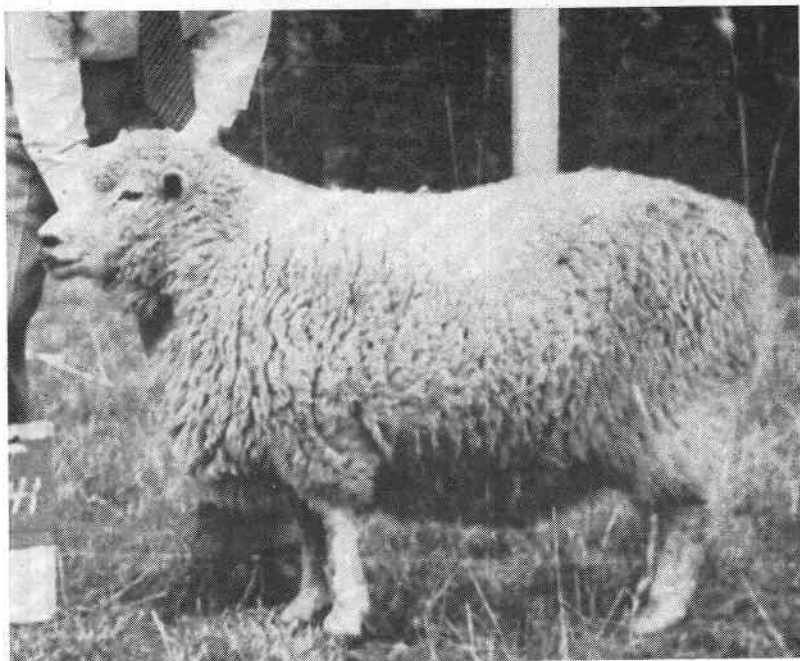
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breeding animals. It is felt that these record forms are flexible to such a degree that they can be used advantageously with different breeds and with the various types of sheep management commonly found on the farms of this state.

The four ewes pictured on pages 5 and 6 are from a group of 14 aged ewes which were selected for study from purebred flocks in the Willamette Valley. This group of ewes was selected on the basis of past production performance as determined by available lambing records. Although records were being kept in these flocks, they were arranged in a manner which made individual analysis tedious and difficult. Because of this, several individuals with poor productive performance records had been retained as breeding ewes. Of the 14 ewes, six had an average lifetime lambing rate of 122 per cent with an average lambing date of February 11. Eight of the ewes had an average lifetime lambing rate of 47 per cent with an average lambing date of March 22.

Ewes pictured represent two classes which have been and can be found in many farm flocks. They help to illustrate the point that selection of breeding stock cannot be made merely on the basis of appearance. It is not our purpose to minimize or condemn selection by appearance, but merely to emphasize that supplemental records are a necessary aid for even the most critical and competent livestock judge.

In flocks which may not contain low-producing individuals at the present time, the sheepman is faced with the problem of culling the less profitable individuals from the flock. The cash saving resulting from the timely elimination of one or two non-producers from the average farm flock each year will more than pay for the time devoted to keeping complete records.





**T**HERE'S more than meets the eye" in selecting the ewes to keep in your breeding flock. The ewes pictured together here appear to be nearly the same type and under normal methods of selection both would probably be kept in the breeding flock. Their production records show some interesting and important differences, however.

◀ An example of a net loss for the sheepman is Ewe B58-41, *top*, which produced only one lamb in four seasons. Ewe A50, *bottom*, on the other hand produced seven lambs in six seasons with average lambing date of February 9.

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## Rams Differ in Breeding Capacity

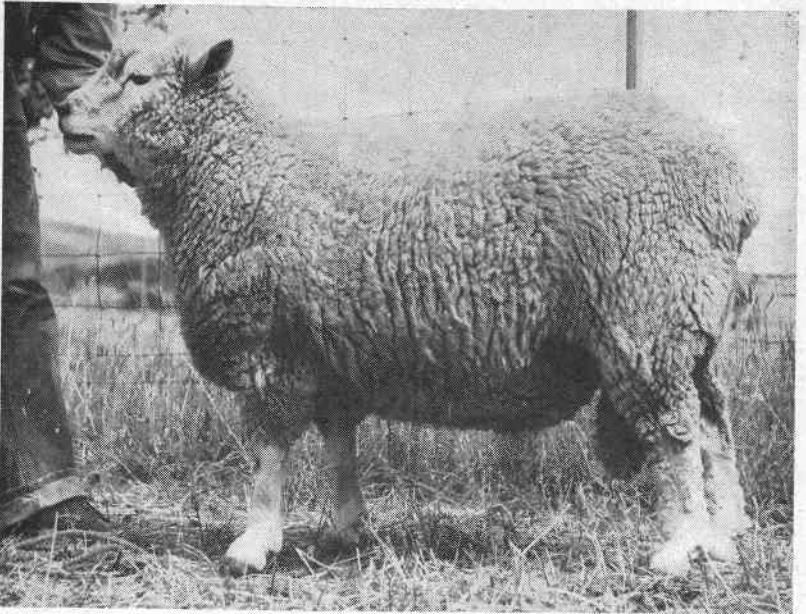
Rams, as well as ewes, differ greatly in breeding capacities and ability to produce desirable offspring. In 1946 a group of rams was selected by the department of animal husbandry to investigate their semen-producing abilities. Twelve rams were in the group—two from each of six breeders. The semen production and quality of semen from each ram was studied for a period of two years. During this time the rams were all maintained under identical conditions. Results of this study definitely indicated individual differences between these rams both as to capacity of semen production and ability to produce semen of good quality.

The difference in breeding capacities of rams is illustrated in the record of the rams shown on pages 8 and 9.

There is no question as to which ram is the most desirable for the sheepman to use when producing either market lambs or replacement stock. Anyone could make the mistake of introducing a ram like the one on page 8 into his flock, but there is no excuse or reason for not discarding such an animal after one year's trial. On the other hand, perhaps a ram such as the one on page 9 should be retained in the flock for the duration of its productive life.

## Record-Keeping Systems

To date, several record-keeping systems have been proposed for use in flock improvement. Unfortunately, most of these systems are more adaptable to experiment station use than to use by private operators. Systems utilizing conversion factors which sometimes are difficult to understand and apply are not adapted to the require-



This ram was scored 81 on body conformation by three judges. Semen collections from this ram were watery in appearance although the average volume produced at each ejaculate was normal. Only 35 per cent of the sperm showed motility and the rate of motility given the sperm was four out of a possible ten. It required an average of 2.6 services to settle ewes mated to this ram. Lambs from this ram were given an average body score of 70 and weighed an average of 55.31 pounds on June 22.

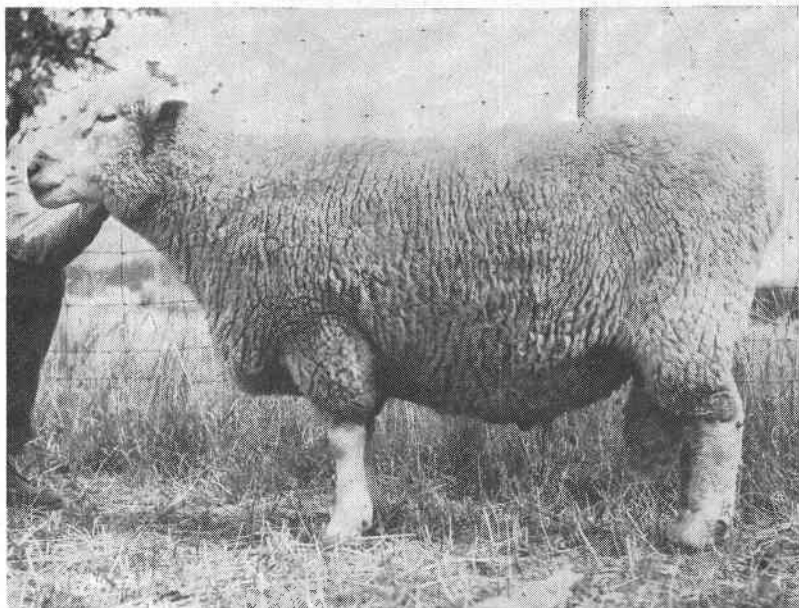
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ments of the commercial sheepman. Another undesirable feature found in some forms is the necessity of taking certain measurements which are difficult and time consuming to obtain.

#### **Systems should be uniform**

A great variety of record systems for sheep have been devised by farmers, but too often these systems have no continuity and are changed from year to year. In many instances, such records are a source of disappointment since they prove too cumbersome to use efficiently in spite of the hours spent in compiling them. One of the points which must be stressed in regard to any type of livestock record is that in order to be of greatest value, a uniform set of information gathered in a uniform manner must be obtained over a period of several years.





This ram was scored 82.5 on body conformation by the same three judges who scored the ram on the left on the same day. Normal semen volume was produced by this ram and 85 per cent of the sperm produced was motile. The motility rating was nine out of a possible ten. Ewes mated to this ram settled with an average of 1.36 services, or almost exactly half the number of services required from the ram on the left. Lambs from these matings were scored 82 and weighed an average of 74.37 pounds on June 22.

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Sheep record forms based largely on the results of recent experimental work have been designed by the department of animal husbandry at Oregon State College. In designing these forms it has been kept in mind that the average producer is interested in records which require a minimum of time to keep and yet contain necessary information which is relatively easy to interpret. A minimum of easily obtainable information or data is required. All measurements are simple, and no conversion factors are needed. The entire record of each animal is kept on one card (white card for ewes, yellow card for rams) so that the lifetime of an individual may be seen at a glance. Standard file boxes 5 inches by 8 inches may be obtained at most bookstores for the convenient handling of records for large flocks. Those producers who so desire may use the reverse side of the card for recording an extended pedigree of the animal concerned.

RAM

(7) Sire *Ore. 16* ..... (3) Birth date *Jan. 28, 1948* ..... (1) No. *Ore. 50* .....  
 (8) Dam *Ore. 37* ..... (4) Twin  (5) Birth weight *8.9* ..... (2) Reg. No. *13471* .....  
 (4) Single  (6) Weaning weight *9.2* .....

Shearing date (9a) *4/25/49* .....  
 Fleece weight (9b) *14.2* ..... (13)

(10) YEAR	(11) EWES BREEDING DATES	(12) NO. EWES BRED	*RAM DAYS TO LAMBING				AVERAGE WEANING WEIGHT		AVERAGE YEARLING FLEECE WEIGHT		(18) GENERAL REMARKS RELATIVE TO LAMBS OR EWES
			165 OR LESS	166 TO 182	183 TO 200	OVER 200	(14) DAMS	(15) LAMBS	(16) DAMS	(17) LAMBS	
1949	<i>9/1 10/15</i>	30	16	12	2	-	81	82.1	12.8	12.6	<i>Weaning average includes 4 sets twins</i>

\* Number of days from time ram turned in until lamb dropped

REMARKS: (pertaining to ram such as spinning count of fleece, staple length, black kempy, or medullated fibers, disposal, raised singly, etc.)

(19) *yearling fleece 46's moderate amount of medullation in lower britch.*

For purposes of explanation here, this sample card has been marked with key numbers in circles at the spaces where specific information is to be recorded and assumed data are recorded:

- (1) Flock number of ram.
- (2) Purebred-association registry number.
- (3) Birth date of the ram (month, day, year).
- (4) Indicate if ram was born a twin or single by checking proper square.
- (5) Birth weight of ram (record weights in pounds and tenths of pounds).
- (6) Ram's weight at time he was weaned. (Weaning date optional.)
- (7) Record in this space the name or number of the sire of the ram.
- (8) Dam of the ram.
- (9) a. Shearing date.  
b. Weight of fleece.
- (10) Record each year that this ram is used for breeding.
- (11) Breeding dates for each year such as 9/1/49 to 10/15/49.
- (12) Total number of ewes bred each year.
- (13) Record in the proper column the total number of ewes which lambled in the specified number of days. As an example, suppose a ram was turned in with thirty ewes on September 1. Sixteen ewes lamb by February 12, which is 165 days from September 1; twelve more ewes lamb by March 1, which is 182 days from September 1; and the remaining two ewes lamb by March 15, which is 196 days from September 1. From these lambing results we would record 16 under the column "165 or less," 12 under the column "166 to 182" and 2 under the column "183 to 200."

(14) To get this figure we must go back to the weaning records of the ewes being bred and determine what the average weaning weight of these ewes was. As an example, we have assumed that the average weaning weight of the 30 ewes being bred in 1949 was 81 pounds.

(15) Average the weaning weights of the lambs sired by this ram. Let us assume that the average was 82.1 pounds. If a large number of twins are included in this average, a notation to that effect should be made under item (18).

\* (16) Here take the average yearling fleece weights of the ewes *whose lambs are saved* to yearling age. Do *not* include ewes whose lambs have not been shorn as yearlings. It is optional to indicate in brackets the number of ewes involved. In this hypothetical case lambs from seventeen ewes were saved and the average yearling fleece weight of these had been 12.8 pounds.

\* (17) Average the yearling fleece weights of those lambs saved. Here again it is optional to indicate in brackets the number of individuals involved. We will assume that 19 lambs have been saved from the 17 ewes and these 19 lambs shear an average of 12.6 pounds as yearlings.

(18) In this column record remarks relative to lambs or ewes, such as lamb grade, number of twins, etc.

(19) Remarks relative to ram.

If (18) and (19) do not afford sufficient space for remarks, the back of the card may be utilized or an additional small card may be stapled or clipped to the master card.

\* Some sheepmen shear all lambs in the late summer. In such cases it may be desirable to use *lamb* fleece-weights rather than yearling fleece-weights.

EWE

(7) Sire Ore. 16 (3) Birth date Feb. 2, 1947 (1) No. Ore. 102  
 (8) Dam Ore. 44 Twin  (5) Birth weight 9.1 (2) Reg. No. 20464  
 (4) Single  (6) Weaning weight 90

Shearing date (9a) 4/29/48  
 Fleece weight (9b) 13.9

(10) YEAR	(11) DATE	(12) SEX	(13) FLOCK NUMBER	(14) BIRTH WEIGHT	(15) SIRE	(16) RAM* DAYS	(17) WEANING		(18) REMARKS (DISPOSAL OF LAMB, ETC.)
							WEIGHT	DATE	
1949	2/16	Ram	142	8.2	5-45	169	84	6/25	Marketed as wether

\* Number of days from time ram turned in until lamb dropped

REMARKS: (pertaining to ewe such as spinning count of fleece, staple length, black, kempy, or medullated fibers, milking quality, raised singly etc)

(19) 44's combing, no objectionable fibers in fleece

This card has been marked with key numbers in circles similar to those on the ram card. Assumed data are recorded also as an aid in following the explanation.

- (1) Flock number of ewe.
- (2) Purebred association registry number.
- (3) Birth date of the ewe (month, day, year).
- (4) Indicate if ewe was born a twin or single by checking proper square.
- (5) Birth weight of ewe (record weights in pounds and tenths of pounds).
- (6) Ewe's weight at time she was weaned. (Date of weaning optional.)
- (7) Record in this space the name or number of the sire of the ewe.
- (8) Dam of the ewe.
- (9) a. Shearing date.  
b. Weight of fleece.

- (10) The year of lambing.
- (11) Month and date of lambing.
- (12) Sex of lamb (if twins, use a line for each lamb).
- (13) Flock number of lamb.
- (14) Birth weight.
- (15) Sire of lamb. (May not be practical in some commercial flocks).
- (16) Number of days from time ram turned in until lamb dropped.
- (17) Weaning weight and weaning date of lamb.
- (18) and (19) Spaces for remarks on ewe and lamb (lamb grade, etc.).

It is felt that these cards will provide a concise and readily available record of the performance of each animal in the flock. Such records will not only act as valuable aids during culling time but can be used to an advantage during both private and public sales.

These record cards can well be adopted for use by both the commercial and purebred sheepman. An immediate return from record keeping in both types of enterprise can be obtained by more efficient culling. If the purebred breeder can demonstrate through an adequate record system that his animals are outstanding in reproduction and production, he has at his disposal an additional selling feature which can be used to justify asking a premium price.

Purebred breeders quite frequently complain that commercial producers are unwilling to pay adequate prices for purebred sires. Such a situation may be attributed to the fact that some purebred producers are not doing the job they are expected to do, that is, supplying a "concentrated dose" of desirable hereditary factors in their sale rams. There is no doubt that most livestock men will pay adequately for a good producer.

Under present production and sale conditions the selection of a good ram which will actually improve the flock is often a matter of guess work with the result that many outstanding breeding sires are sold for little more, or in some instances even less than are those which are potentially undesirable breeders and producers.

By developing a system of production records it will be possible for purebred breeders to offer for sale rams which are backed up by accurate records of their own or of their dam and sire. Such a system will help eliminate some of the guess work in ram selection and will give the breeder who has records available a distinct advantage in the sale of his stock.

At the present time show-ring standards call for a short-bodied, compact, blocky type of animal. Unfortunately, this type of body conformation is not generally correlated with high fertility, especially in the case of ewes. Thus, record keeping is essential.

### **Information to Be Recorded**

In order to keep these proposed record forms accurately it will be necessary to weigh the lambs at birth and at weaning and to weigh and record the individual fleeces at shearing time. Also, the lambs should be identified at birth by metal ear tags. Completeness and accuracy in keeping these forms are essential. Incomplete or inaccurate records may be worse than no record at all since they will tend to distort certain points and omit others. Remember that these forms are merely a tool to aid the breeder; the returns from their use will depend entirely on how well they are kept and interpreted.

By referring to the sample record cards reproduced on pages 10 and 12 the entries on the ram and ewe cards will be explained. A more detailed discussion of the application and importance of each of these items follows.

## Discussion and Application of Data

### Birth Weights

Statistical studies of birth-weight and weaning-weight records of purebred and crossbred sheep at Oregon State College indicate that, other things being equal, heavy birth-weight lambs will weigh more at weaning time than will light birth-weight lambs. In addition, heavier lambs at birth tend to survive better than the light lambs. Our studies indicate that, depending on the breed, each pound of birth-weight above 8 pounds will mean between 2.5 and 3.5 pounds at 20 weeks of age. As an example, if a lamb weighing 8 pounds at birth weighs 85 pounds at 20 weeks, we could expect a lamb weighing 10 pounds at birth to weigh 90 to 92 pounds at 20 weeks of age (2 times 2.5-3.5 pounds over the 85 pounds).

To translate this into dollars-return: If we consider current lamb prices (June, 1949), 100 lambs averaging 10 pounds at birth are potentially worth \$140 to \$195 more than 100 lambs averaging 8 pounds at birth. This is enough to buy three to four tons of barley which would feed 100 ewes and would creep-feed their lambs for one season.

While it is true that factors such as nutrition will tend to influence birth weights, we can still select ewes for heavy lambs if the selection is done on a flock basis. Weight of lamb at birth is generally an individual characteristic maintained by ewes. In other words, if a ewe drops a heavy lamb this year, she will quite probably do so again next year.

In all breeds studied, the most favorable birth weight for heavy weaning-weight was 12 pounds. However, in some small breeds, such as Southdowns, modification of the above weight standards will have to be made since no studies have as yet been made with lambs weighing less than 7 pounds at birth. Lambs heavier than 12 pounds at birth are usually undesirable because of parturition difficulties. The most desirable birth weight for lambs will vary not only with the breed but also with management practices. In most cases, an average birth weight of at least 10 pounds will be quite satisfactory.

### Ram Days

It has always been desirable in western Oregon to have the lambs come early so that the bulk of them will be about 30 days ahead of the grass. Also, it is desirable to have all ewes complete lambing within a period of 35 days or less. A lambing period of this length not only requires less labor than a long one, but since the lambs are nearly the same age, the marketing of fewer and more uniform lots is made possible.

To have the lambs born in this fashion it is not only necessary that all ewes come into heat early in the fall and settle with a minimum of two services, but the ram must be fertile at the time it is desired to settle the ewes. By checking the "ram days" on both the ewe and ram cards, it is possible to select those individuals which are reproducing satisfactorily. To properly evaluate the information indicated by the "ram days" it is necessary to consider both the ram- and ewe-record cards at the same time. In selecting for *fertility* the following points should be kept in mind:

- ▶ High or low fertility is as much an individual characteristic in either rams or ewes as is wool production. Unless disease or some other environmental factor is involved, individuals can be selected for fertility with a fair degree of accuracy on the basis of one or two year's records.
- ▶ Late lambing ewes tend to have fewer lambs and more barren seasons than do early lambing ewes which are maintained under the same conditions.
- ▶ Ewes maintain their relative order of lambing within a flock to a significantly high degree; that is, a ewe that lambs with the last quarter of her age group in the flock the first year will tend to lamb late in each succeeding year. On this basis, records for one lambing season might be used to cull late lambing individuals from the flock.

Heat occurs an average of every 17 days in ewes and the average gestation period is 146 to 147 days for medium- and long-wool breeds (150 to 152 days for fine-wool breeds). Therefore, if we allow two heat-periods for conception, the normal ewe should lamb within at least 182 days from the time the ram is turned in. There are three main reasons why ewes may not lamb within this designated time: (1) The ewe may not be coming into heat and ovulating. (2) Reproductive efficiency of the ewe may be so low as to require several services per conception. (3) The ram may be either overworked or of low fertility. Since the failure of early conception may be the fault of either sex, proper evaluation of "ram days" recorded on the cards is essential.

As an example of this point, consider some sample entries taken from the ewe and ram cards.

In 1942, six of the ewes (20 per cent) bred to the ram with record-card shown on page 17 lambed after 183 days. If such results were due to the ram, he should be culled since this indicates that theoretically these six ewes required three or more services to settle. If, however, by referring to the records of these same six ewes we



# RAM CARD

YEAR	EWES BRED		*RAM DAYS TO LAMBING			
	BREEDING DATES	NO EWES BRED	165 OR LESS	166 TO 182	183 TO 200	OVER 200
1942	8/30 10/30	30	18	6	4	2
1943	8/29 10/25	42	31	9	2	
1944	9/2 10/30	38	29	8	1	
1945	9/1 10/28	43	33	10		

*In this case check back on the previous performance of these six ewes!*

find they have lambed late in previous years when bred to other rams, then the ewes should be culled. In this example it has been assumed that the ewes were at fault and the subsequent breeding record of the ram confirms this. The records are typical of those obtained from rams of outstanding fertility when bred to ewes which also have satisfactory breeding records. The examples on page 18 demonstrate an extremely undesirable record for ewe "A" and a very desirable record for ewe "B."

## Lamb and Wool Production

Lamb and wool production, as influenced by the sire, can best be indicated by comparing the weaning weights and yearling fleece weights of the lambs with those of their dams. Since environmental factors which may vary from year to year also influence the body and fleeceweight of lambs, such comparisons become more truly indicative if the combined results of several years are interpreted. Sex and type of birth (twin or single) also influence these characteristics to a certain extent. Due to these environmental influences

## EWE "A"

YEAR	HT	SIRE	RAM* DAYS
1939		A 50	210
1940		A 50	206
1941		B 29	213
1942		B 67	198
1943		A 53	NO LAMB
1944		A 53	218

*→ This ewe should be culled here!*

## EWE "B"

YEAR	DATE	HT	SIRE	RAM* DAYS
1939			A 50	151
1940			A 50	154
1941			B 29	160
1942			B 67	158
1943			A 53	164
1944			A 53	149

*→ This is the type of ewe record to select for!*

it would be necessary to adjust weaning and fleece weights by the use of conversion factors *if* the data from these records were to be used in statistical genetic studies. However, it is felt that straight comparisons as afforded by these record forms will be indicative of a ram's worth in a simplified and practical manner which will aid the sheepman in his selection.

The weaning weights of lambs on the ewe card are indicative of the ewe's milking ability and whether or not the ewe mothers her lambs well. On the ewe cards, one should be careful not to emphasize individual lamb weaning weights at the expense of those ewes producing twins. It is quite obvious that a ewe weaning two 80-pound twins is doing a much better job of producing than is a ewe weaning a single lamb weighing 95 pounds.

The proper interpretation and evaluation of lamb- and wool-production data is extremely important. The sheep breeder must keep in mind that he must select for high milk production in his ewes if selection is being made for large numbers of twins. If this is not done, many of the twins may be small and thin at weaning time.

### **Records as an Aid to Selection**

In developing a breeding program for the improvement of his animals the sheepman is faced with a more complex problem than are producers of other classes of livestock. Among the several factors to be selected for are: fertility, mutton production, conformation, fleece weight, fleece staple, and many others. While some of these factors such as lamb weaning weight and milking ability of the ewe are complementary, other factors such as thick natural fleshing in the ewe and heavy milk production in that ewe tend to be antagonistic.

For these reasons, it is easy to see that some compromises must be made in any sheep improvement program. It is up to the individual sheepman to decide upon his goals before initiating a breeding program.

Depending on the breed, markets, area of operation, feed available, and other considerations, some breeders will emphasize wool production in their program while others will tend to develop their flock for lamb production and regard the wool-clip as incidental. At the same time the man who is mainly interested in wool should endeavor to produce acceptable market lambs and the breeder who emphasizes lamb production should not neglect wool production entirely.

From a genetic standpoint it is doubtful if a type of sheep can be developed which will produce a fleece like the Merino, milk like a Dorset, and have the mutton qualities of a Southdown! It is ex-

tremely important that the breeder adhere to the goals of his breeding program once they are established. In any event, the primary consideration in developing a flock is to obtain the largest net return possible per breeding unit maintained.

These record forms do not provide space for tabulation of condition or conformation scores. Such information can be obtained at the time of selection and considered along with the information contained on the record cards at that time. Another point to be considered is to select animals for longevity. If the productive life of ewes can be increased the sheepman can afford to select replacements more critically and the annual death loss and replacement costs will be reduced.

### *Suggestions for Kind of the Animals to Cull*

- (1) Ewes which consistently drop light-weight lambs.
- (2) Ewes which consistently drop lambs after 182 ram days.
- (3) Ewes consistently weaning light-weight lambs or lambs in poor condition.
- (4) Rams which breed otherwise early lambing ewes to lamb later than 182 ram-days.
- (5) Rams which sire lambs that wean lighter than the average weaning weight of the dams of these lambs.
- (6) Rams which *lower* yearling fleece-weights of lambs as compared to the yearling fleece-weights of dams of these same lambs.
- (7) Light-shearing ewes and rams if wool is an important feature of the breed.

### *Suggestions for Kind of the Animals to Keep*

- (1) Ewes dropping large singles or twins.
- (2) Ewes consistently dropping lambs under 182 ram days.
- (3) Ewes consistently weaning heavy lambs in good condition.
- (4) Rams which breed the majority of the ewes to lamb earlier than 182 ram-days.
- (5) Rams which sire lambs that wean heavier and shear heavier as yearlings than did the dams of the same lambs.
- (6) Heavy shearing rams and ewes.

Record cards will be supplied at cost upon request to the Department of Animal Husbandry, Oregon State College, Corvallis, Oregon.

Any questions in regard to the recommended way of keeping and interpretation of these records, and any suggestions for improvements in the cards will be welcomed by the College.