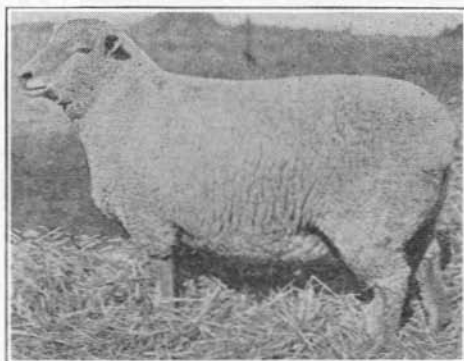


UNIVERSITY OF IDAHO
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF ANIMAL HUSBANDRY

THE MANAGEMENT OF FARM FLOCKS IN IDAHO

By
E. J. IDDINGS



Southdown Wether Grand Champion Northwest Livestock Show, 1916. Bred and Exhibited by University of Idaho.

BULLETIN NO. 96

JANUARY, 1917

Published by the University of Idaho. Moscow.

UNIVERSITY OF IDAHO

Agricultural Experiment Station

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INTRODUCTORY

There are many opportunities in Idaho for the economical and profitable handling of small flocks of sheep. An average climate for the state, neither extremely cold in winter nor excessively hot in summer, simplifies the problem of winter maintenance and makes for the growth of lambs in summer. Forage and feeds of all sorts, adapted to sheep, are produced in abundance at reasonable cost. On many farms sheep are needed as scavengers to clean up brush patches and take care of summer fallow and other forage waste material in lanes and fields.

A profitable future for Idaho agriculture is largely dependent upon diversification of farm practice. Livestock should be kept on many farms that have until now scarcely known the imprint of a hoof other than of work animals. Vast quantities of feed material had far better be fed to animals than hauled to market in the form of bulky crops. Average yields and net farm returns would be enhanced by animal production and the use of the manures in fertilization. Sheep are quite easily handled, are highly efficient in handling feeding stuffs, leave in their droppings one of our most highly valued fertilizers, and could be introduced in small flocks to advantage on hundreds of farms of our state. A flock of sheep may be started at small expense; shelter is not expensive and there is a double income from the mutton and the wool.

There are additional reasons why our western farmers should take up the farm-flock idea. As a range state, Idaho is probably at present the principal producer of mutton. The whole business, however, has been revolutionized. The range has been curtailed, early lambing has come to stay, more feed must be used in winter maintenance and, because of an increasing nationwide demand for mutton with no corresponding increase in production, high prices are probably a permanent condition. Ewes worth from \$3.00 to \$4.50 per head a decade ago, now cost from \$9.00 to \$13.00 per head.

There is room for extension and further development of an industry which is apparently on a firm and stable basis with remunerative prices to reward the producer. Because of curtailment of ranges there is little chance for increased production on them. On account of such handicaps as a surprisingly large number of cur dogs and the prevalence of internal parasites among sheep kept on the same pastures year after year, the corn belt is not disposed to take strongly to an increase in farm flocks. Why not then the farm flock on the cut-over districts of the north, on the fertile lands of the Palouse section, on the splendid farms of Nez Perce and Camas Prairie, and on the irrigated farms of the south where mixed pasture can be kept green and nutritious during every month of the growing season? Why not sheep in

all sections of the state to give the farmer an additional source of income, to enable him to market a part, at least, of his crop thru livestock, assist in rebuilding soil fertility, and to aid in freeing the farm of weeds, eighty-five percent of which sheep will readily consume? That sheep can be successfully and profitably handled on the farm is not a question for discussion since many reports of good returns from small flocks of sheep have come to the Department of Animal Husbandry of the University from many different sections. The primary purpose of this bulletin then, is not to argue especially for the establishment of flocks, but to offer such information and suggestions as will enable the beginner to avoid certain mistakes commonly made and to guide those now handling flocks on the farm toward better practice in sheep husbandry.

THE FOUNDATION

Those who have never handled sheep or have had but limited experience should use grade ewes for the foundation flock. Ewes suitable for starting a flock may be had from other farmers in some sections. In other parts of the state, good grade ewes can ordinarily be bought from range flocks at a reasonable price. Our range flocks in Idaho as a rule show the predominance of either fine or long-wool blood. In either case a good, pure-bred ram, of one of the breeds that combines a well developed mutton form with heavy fleece, should be selected to head the flock. The ewe lambs may be saved to increase the flock or replace those sold because of age or unsatisfactory performance. The continued discriminating use of good rams of the same breed, and rebuilding of the flock by retention of ewe lambs, result in rapid improvement, flock uniformity, and a group of animals entirely suitable to the farm.

Care should be used in selecting ewes for the foundation. Many that can be obtained very cheaply are later found to be useless for a breeding flock. Common defects are broken mouths, infertility, spoiled bags, and inferior conformation. Ewes are at their best at from 3 to 5 years of age altho many retain their teeth and breeding powers until from 9 to 12 years of age. From year to year ewes with broken mouths, of inferior conformation, or of unsatisfactory qualities as breeders, should go to the butcher and be replaced with ewes from the lamb crop or with drafts from other flocks. Unless ewe lambs are dropped in early spring and are unusually growthy, they are not bred to advantage until they are yearlings. Ewes for a breeding flock should have deep, low-set bodies; wide, level, straight backs; fine fleeces of considerable length covering the body evenly; strong legs; and neat heads of breedy appearance. They should also be vigorous and good milkers.

The pure-bred flock appeals to many farmers and offers an attractive field for those of some experience. Range sheep

men call for a large number of pure-bred rams each year and as the advantages of sheep on the farm are more widely understood and thoroly appreciated there will be calls for pure-bred rams and ewes for use in building up farm flocks. As compared with grade flocks, greater experience is called for in establishing and managing the pure-bred flock. For the best success with pure-breds, the flock master should be well informed on the problems of animal breeding and have some knowledge of salesmanship of pure-bred livestock.

The sire, as in building other livestock nerds, is more than "one-half the flock." He should be a pure-bred and an excellent individual. One can effect flock improvement by purchasing and paying well for carefully selected ewes. To secure marked excellence thru the ewes, the entire flock must be chosen with that end in view and the ram must at least measure up to the average excellence of the ewes. The quicker and cheaper method of improvement, however, is thru an unusually good sire, even tho he costs three or four times ordinary prices for rams. With reasonably good ewes the sire, if he is of the highest type, exerts a distinctly improving influence on all the offspring.

The farmer who is a flock master should look to heavy fleeces of quality, improvement in size, (unless he be fortunate in selecting foundation stock), desirable conformation, early maturity, and good feeding qualities. Mutton is now the more important side of the sheep industry and one must look toward lambs that get size and condition early for the butcher. Marketing in spring or early summer not only enables one to turn invested money more quickly, but secures in addition a price much more satisfactory as a rule than can be obtained late in summer or fall. In looking thus well to the mutton side, wool must not be neglected, since ewe lambs are kept to supply losses or sales from the flock and since the wool crop on farms where a great deal of feed is available and good management prevails, pays the cost of a year's keep of a ewe and leaves the lamb for net profit.

The desirable ram selected with the view of meeting the above suggestions, should be of medium length, deep, thick, low-set, with a straight, strong back. He should be well developed in all details of mutton conformation and have an excellent fleece. In addition he should have style, vigor, masculine bearing, and should conform as closely as possible to the standard set for his particular breed.

TYPES AND BREEDS

The Fine-Wooled Breeds.

MERINOS, more especially adapted for wool production, form one of the two main divisions of sheep. Another class comprising both the Downs, or medium-wools, and the long-wools, has been

bred especially for mutton or for a combination of large mutton frame and for a heavy weighing fleece of long wool.

The Merinos in general are rather long legged, shallow in body, flat in the rib, sharp at the shoulder, and narrow of back. They have comparatively long necks, lack in loin and leg of mutton, and in entire body conformation fall short of the ideals of the mutton type. Body deficiencies, however, are compensated for by weight and quality of wool. The fleece is very dense and compact, of extremely fine fiber, is from two to four inches in length, and, is for many commercial purposes, the finest and best wool that can be obtained. The grease or yolk exuded by the skin of these sheep preserves the luster and quality of the wool fiber and assists in keeping rain and snow from the skin. Merinos are hardy, flock well together, make wonderfully good use of scanty feed, and are as a rule good mothers.

The common Merino breeds are the Spanish, the American, the Delaine, and the Rambouillet. In pure-bred flocks and for flock headers, Rambouillet rams are of much importance in Idaho.



A (C TYPE) RAMBOUILLET RAM.
Champion at San Francisco. (1915.)
Courtesy American Sheep Breeder.

The *Rambouillet* takes its name from the Royal Farm at Rambouillet, France, where this strain, started in 1783 from old Spanish Merino stock and has been bred for size and mutton form, for weight of fleece, and for length and fineness of wool fiber. Grade ewes, and in many cases, unregistered pure-breds are popular on Idaho ranges because of size, and of grazing and flocking qualities. Pure-bred Rambouillet rams

are bred to grade ewes in order to retain in the offspring of the flocks the ability to do well in large bands on ordinary range pasture. This flocking instinct and ability to look out for themselves is characteristic of all Merino strains. Pure-bred Rambouillets do well on the farm and the male offspring find a rather steady demand from the range flock master. The Idaho Experiment Station flock-management studies indicate that the Rambouillet is one of the most cheaply maintained of our well-known breeds.



A (B TYPE) RAMBOUILLET EWES.

Courtesy American Sheep Breeder.

The popular Rambouillet of to-day is smooth-bodied, with the exception of a few folds on the neck, and has an excellent mutton conformation. The frame is large, the bone heavy, the body deep, the back, loin, and leg of mutton well developed. The legs are a little long and the mutton form hardly to be compared with some of the special mutton breeds. Rambouillet ewes are prolific and good mothers. The rams weigh from 185 to 200 pounds; larger ones sometimes are from 75 to 100 pounds heavier. The ewes average from 150 to 160 pounds. The rams have large horns with spiral curves; the ewes are polled. The wool of the breed is of medium length and fineness. The rams shear from 15 to 20 pounds of wool and the ewes from 10 to 14 pounds.

It is only recently that America has heard of the *Corriedale*. This is a new type, so well established in New Zealand that it is designated as a distinct breed, produced by continuous selection from the cross of the Lincoln and Merino.

Despite the intricate problems of heredity which are involved, the type has become well established and is transmitted quite faithfully from generation to generation. In conformation the *Corriedale* is quite thick and deep and well fleshed. The wool partakes of the fineness and density of fleece of the Merino and

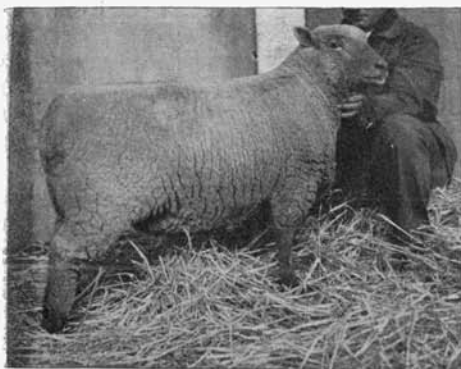
gets a considerably increased length of staple from its long-wool inheritance. The range men are taking much interest in this new breed, and it may in time find a place on the farm.

The Medium Wools or Down Breeds

The term "mutton sheep" is a common designation for what we call the Down or medium-wool breeds and the long wool breeds. The Downs are dark-faced; they take their name from chalk hills called Downs over which they graze in Kent, Hampshire, and other counties in England.

The medium-wooled breeds are low-set, deep, thick, compact sheep, with broad heads, short faces, short necks, deep shoulders, wide-sprung ribs, thick loins, full rumps, full legs and deep twists. The vigorous, thick-meated sheep with little evidence of roughness and waste, adapted to yielding the highest percentage of high-priced cuts is the type sought for in the mutton breeds both for the market and for the show ring. Wool is an important consideration, but less important than meat.

Five mutton breeds are quite popular in Idaho and are commonly found in many sections of the state. They are the Shropshire, the Hampshire, and the Oxford, which are medium wools or Downs, and the Cotswold and Lincoln, which belong to the long-wool type. Other breeds found in some sections are the Southdown and the Dorset Horn.



SOUTHDOWN WETHER.

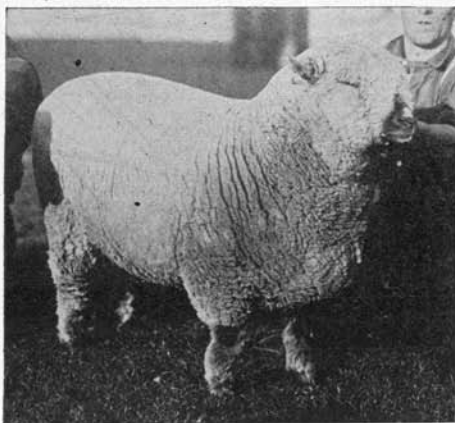
Grand Champion of the Northwest Livestock Show 1915, Bred and Fitted by the University of Idaho.

Courtesy American Sheep Breeder.

The Southdown has hardly sufficient ruggedness, prolificacy, and the ability to thrive under the rather severe conditions quite often demanded of sheep on western ranges and farms, to give it a place on the average western farm. It has a place, however, where special attention can be given it and a fancy mutton product is desired. In mutton form this breed is on the average the lowest-set, thickest, and most

compact of all our well known breeds. The ewes have been found

at the Idaho Station to be easy to keep. The lambs mature **early** and yield wonderfully fine carcasses.



**KNOLLIN AND FINCH'S
SHROPSHIRE EWE.**

Champion at the Panama-Pacific
Exposition.

Courtesy American Sheep Breeder.

The *Shropshire* comes from the Midland counties of England, and is descended from an old, very hardy type known as the Morfe Common. The breed is widely distributed over the world and does so well under such a variety of conditions that it has been designated as the "cosmopolitan breed." Next to the Southdown the Shropshire most nearly meets the ideals of the mutton type. Sheep of this breed are medium in size, the rams averaging 225 and the ewes 150 to 160

pounds. The body should be long and deep and squarely set on short legs. The head is wide, the ears small, and in the ewes the face is refined. The neck is short, blending smoothly into the shoulders. The back and loins are wide and well covered and the leg of mutton is thick and plump. Well-bred specimens are well woolled over the legs and face and the fleece is compact and of considerable length. The rams shear from twelve to fifteen pounds and the ewes from eight to twelve pounds. The face and legs are brown and the fleece clear white. Well covered faces and legs are preferred by breeders of pure-breds but are not popular with range men.

The Shropshire has a wide reputation as a farmer's sheep. This is due to the excellent combination of mutton form, fleece, prolificacy (the ewes averaging at least one and one-half lambs), and to early maturity. Gains are not so great as with some breeds, but both frame and flesh grow together bringing the lambs to marketable size and condition at an early age. The farmer can hardly go wrong in selecting Shropshire sheep.



HAMPSHIRE RAM AND EWE
Champions of the Panama-Pacific Exposition
Exhibited by the Butterfield Livestock Co.
Courtesy American Sheep Breeder.

The *Hampshire* is descended from an old type of the same name that existed in Hampshire, England, and has been improved by feeding and selection and by the infusion of Southdown blood. The Hampshire is larger than the Shropshire by from 25 to 50 pounds. It is more rugged of frame, a little less compact, and more upstanding. The ears and face have a characteristic blackish brown color. The face is longer than that of the Shropshire. The nose inclines to be Roman and the ears are heavy, are carried to the side, and face forward. The neck is a trifle longer than the ideal mutton standard would require and the shoulder blades are usually rather high and prominent. The body is deep, the back strong and broad, the rump long, the leg well developed, the bone heavy. In fact, the entire sheep is vigorous and rugged in build. The fleece is lacking in length, density, and quality as compared with that of the Shropshire. The average ewe shears from 6 to 9 pounds and the ram 9 to 12.

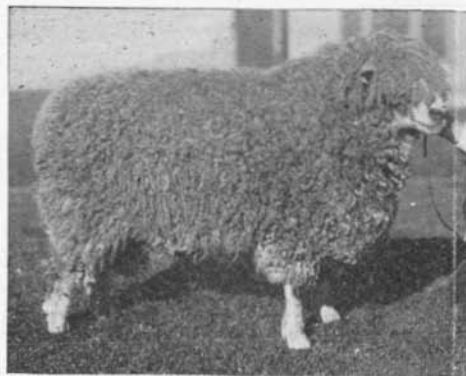
The Hampshire is now one of our most desirable farm breeds. It has popular size and in prolificacy compares well with the Shropshire. The ewes are good mothers, excelling the Shropshire. Idaho Experiment Station results show that the lambs of this breed make more rapid gains than do the lambs of any of the breeds under investigation. Records for three years of relative gains of lambs, comparing five of our leading and more popular breeds, show that Hampshire lambs make daily gains approximately twenty per cent greater than the gains of any of the other breeds in the test. Either as pure-bred or grades, Hampshire lambs make the most desirable kind of feeders. In Idaho Hampshire rams are selling more readily than those of any other breed.

The *Oxford Down* sheep comes from Oxford county in central England and is the result of a Hampshire-Cotswold cross. In some characteristics the Oxford, as might be inferred from its ancestry, resembles the Hampshire. The Oxford, however, is larger; the rams average 275 pounds and the ewes 200 pounds. The breed is more rangy and bigger-framed in every way, the face a lighter brown, the nose with less tendency to be Roman, and ears are smaller and more erect. The fleece is the longest of the Down breeds, and covers the body well with a characteristic fore-top on the poll of the head.

The Oxford is larger than the breeds just described, ranks with them in prolificacy, and stands a little above the Shropshire in average weight of fleece. The lambs are good feeders, but hardly rank with Hampshire lambs in growth and with the Shropshire in early maturity. The breed makes an excellent sheep for the farm but is not as popular in Idaho as the other five mentioned above.

The Long Wools

The long wools bring size and length and weight of fleece to the farm flock. They are somewhat more leggy and rangy and are larger-framed than the Down breeds. On account of their size and conformation they are a little later in maturing. The matured animals tend to lay on external fat, and on account of this tendency the carcass is not so highly regarded by meat specialists. The wool is long, strong, and rather coarse in fiber. It grades as coarse combing and for two years has been in great demand at good prices for army clothing and other cloth of coarse texture. Present conditions indicate a continued popularity for the long wools.



A Typical Cotswold Ram.

Koser's Champion of the Panama-Pacific Exposition.

Courtesy American Sheep Breeder.

smoothly turned. The face is white or gray and the legs of the

One of the most popular long-wool breeds and one of our oldest breeds of sheep is the *Cotswold*. It was so named from "cots" or small houses used to shelter sheep and "wold" or rolling upland pasture. The improving blood was Leicester.

The modern Cotswold is a massive sheep of impressive bearing. The body is long and deep and the back broad and level. The head is carried stylishly and notwithstanding the size of the sheep the body is smoothly turned. The face is white or gray and the legs of the

same color. The wool is long, finer than that carried by most breeds of this type, and covers the body well. A marked characteristic is a foretop of spirals, which in well-bred specimens hangs almost to the tip of the nose.

This breed ranks high among long-wool breeds in grazing, but individuals in it are sometimes found none too vigorous. They stand especially high as milkers and are consequently good mothers. Some of the Idaho sheepmen claim that Cotswolds are the best mothers of all the breeds. On account of these qualities Cotswold blood is especially desired in the ewes. In prolificacy the breed is average. Good flocks should shear an average of from twelve to fourteen pounds per head.



LINCOLN RAM.

Prominent in the Showring at the
Panama-Pacific Exposition.
Courtesy American Sheep Breeder.

The *Lincoln* came from the north of England and is considered by many authorities to be our largest breed of sheep. Improvement was brought about by selection and by the use of Leicester blood. The breed is larger and more rugged of frame, the head somewhat coarser, the back broader, and the bone heavier than that of the Cotswold. Likewise the fleece is longer, not infrequently reaching from 15 to 18

inches in length after a year or more of growth, and the fiber is coarser. The rams occasionally weigh 400 pounds and the ewes 300. Good average weights are from 275 to 300 pounds for mature rams and from 230 to 275 for mature ewes. Ram fleeces run from sixteen to twenty-two pounds and ewe fleeces from twelve to fifteen pounds. This breed lacks the spirals hanging from the forehead but has in their place a tuft of wool.

Lincolns bring weight and substance and ruggedness to a flock, and are especially well adapted to the farm where plenty of feed is available. They also bring increased weight of fleece and length of staple. The annual increase from average ewes is from 125 per cent to 135 per cent.

Both Cotswolds and Lincolns are later in maturing than the Downs. Both, however, are very popular with Idaho sheepmen and have been of great value in giving size, substance, length, and weight of fleece to range flocks. Both breeds do well on the farm, the Lincoln excelling in size and weight and length of fleece, and Cotswold standing first as mothers and in quality of fleece.

Pasture is the foundation of successful flock husbandry. Pasture makes for reasonable cost of ewe keep, adequate milk flow from the ewes, and more vigorous growth of lambs. The kind of pasture is not so material since it may be in the form of permanent grasses like the native pastures of Idaho, or seeded pastures as found in different sections of the state, or it may consist of special forage crops seeded annually.

In some of the Idaho irrigated districts blue grass and white clover, watered at intervals of from ten days to three weeks have been found to yield a wealth of feed. On the Gooding Station Superintendent J. S. Welch has found that 15 to 25 head of sheep can be carried on one acre of mixed irrigated pasture. He has used there a mixture of Kentucky blue grass, orchard grass, smooth brome grass, meadow fescue, timothy and white clover. Irrigation water is used every ten days. On the University Farm at Moscow, a mixture of timothy, orchard grass, blue grass, clover and alfalfa has been found successful for sheep pasture. But little alfalfa should be seeded in a mixture intended for sheep in any section of the state and alfalfa, even in a very small amount, is not safe in working under irrigation.

Special forages may be used entirely to sustain the flock or may be sowed only for the purpose of supplementing permanent pastures. For early spring pasture fall-seeded rye and wheat are well adapted. Peas and oats, peas and barley, rape and kale, seeded rather early in the spring, yield abundant late spring and summer feed. Where summer moisture for germinating the seed and starting the growth of the plants can be depended upon, rape, kale, or peas and oats may be seeded in late spring or early summer for late summer and fall forage. This plan is followed by some sheep men. If moisture conditions are satisfactory, one may arrange a series of forage crops for sheep as is the practice in England. Crops are seeded according to their adaptation to season and are seeded at such times as will bring on a succession of green forage from early spring until late fall. The last crop of the fall under the English system is roots.

In addition to grazing on permanent or annual pastures especially provided according to the above suggestions, the flock may feed on underbrush and other growth in lanes and other uncultivated areas. They do well on the aftermath of meadows and in general will save for the farmer forage that is either of no value for other livestock or that could in no other way be so well utilized. If the flock is of much size, however, it can not be entirely maintained by utilizing waste material. Sheep make very good use of rough forage and poor pasture, but too heavy dependence on the flock in this direction often results in abuse of it. "Forcing the flock to rustle" is a practice that sometimes brings it near to starvation. In general the cost of keeping the flock in summer is comparatively light. Enough pasture must be provided to maintain the ewes in thrifty condition, keep them

milking well, and give opportunity for the lambs to supplement their milk with grass.

In many sections of the state pastures get short and dry in midsummer. There the specially sowed crops before mentioned can be used to advantage to tide over this period. In using pastures containing alfalfa or clover to any extent the animals should not be turned to pasture when extremely hungry. It is also safer to keep them off legumes directly after rains or heavy dews. In non-irrigated sections mixtures, with clover and alfalfa as prominent ingredients are safe for sheep if the precautions mentioned above are observed.

Sheep need water and should have it at frequent intervals. Clean and, if possible, fresh water is most advisable. As spring days become warmer and summer is at hand, the flock prefers to graze in early morning and late afternoon and evening. If permitted a choice in the matter, sheep spend the heated portions of the day quietly in a shady place. Shade trees or special structures permitting free circulation of air suffice for this purpose. Protection from the sun in summer during the middle hours of the day is necessary if the flock is to do well.

The rams should be kept separate from the ewes in summer. Otherwise, under Idaho conditions, the sheep man may later find himself possessed of some fall lambs.

THE BREEDING SEASON

The first business of the sheep man on the approach of the breeding season is the elimination of undesirable ewes. Some ewes plainly indicate by their appearance that there is a probability of their not surviving the winter. Others have been found barren, have developed spoiled bags, or in other ways are no longer a source of profit to their owner. Barren ewes are nearly always in good condition and easily distinguished from those that have suckled lambs.

Ewe lambs are saved by many to replace ewes that are weeded out, but are not generally bred until yearlings. In late summer good ewes may often be had from those who are changing stock or reducing their holdings. It is one of the essentials of good flock husbandry that a number of uniform, vigorous, fertile, and sound ewes, whether large or small, should be selected as the first step in the plans for a good lamb crop the following spring.

Ewes come in heat with the cooler weather of late summer and fall. The Dorset Horn is an exception. Ewes of this breed take the ram in spring and drop their lambs in early fall. On one occasion on the University Farm, several fall lambs were dropped by Rambouillet ewes. In England and some parts of America "flushing" of the ewes is practiced to prepare them for mating with the best results. Many ewes are in thin flesh and low in vitality after their lambs have been weaned. "Flushing" is a system of good feeding to get the ewe in vigorous con-

dition before conception. Rape, roots, or rich pasture is used quite widely as a feed for this purpose and is sufficient without grain. If grain is used a small feed of oats or bran and oats will be found to give satisfactory results.

Choice of time for breeding should depend on shelter and facilities for lambing, kinds of feed available in spring, and conditions under which the lambs are to be marketed. Lambing in February or March in most parts of Idaho requires shelter and adequate means of taking care of the lambs and protecting both ewes and lambs from storms. If the ewes suckle their lambs properly they must have grass or other stimulus to milk production within two weeks after lambing. In case of winter lambing grains and root crops, or silage, must be made to take the place of grass. If ram lambs are to be sold for fall service they must come early to be big enough for service. In some communities winter or early spring lambs that can be made to weigh fifty or sixty pounds in May find ready sale to the packer at especially good prices. The ewe's average period of gestation is 147 days. The rams, then, should be first used twenty-one weeks previous to the time when first lambs are wanted.

The ordinary method of breeding is to permit the ram to run with the ewes during the breeding season. This results in favoritism to particular ewes and in unnecessary service. It is better to keep the ram separate and turn him with the flock for a short time at night and in the morning. As each ewe is served she may be removed from the flock. By this system a single ram may be made to successfully breed eighty or even one hundred ewes. Attention must still be paid to ewes served and separated. Some ewes pass through several periods of heat before conceiving. When the rams run at large with the flock not more than forty or fifty ewes should be allowed to each ram. A ram can be depended upon for best service if given some grain in addition to pasture.

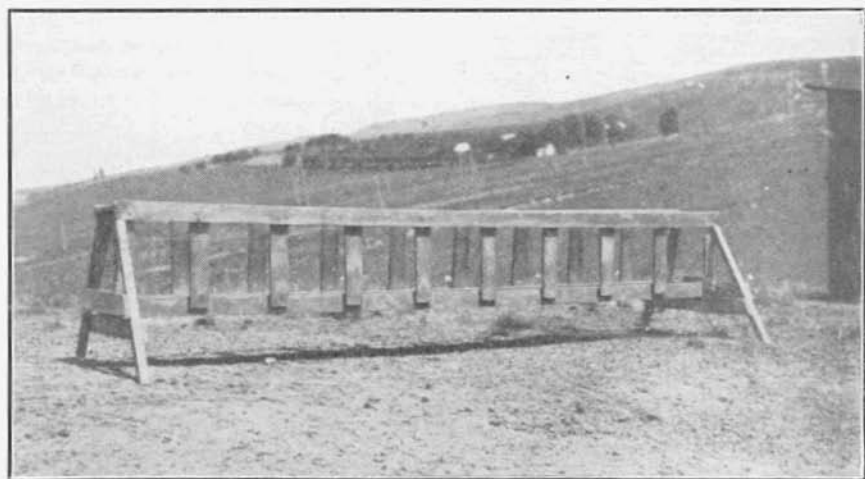
THE FLOCK IN WINTER

The first problem in winter feeding is to start the ewes into the winter period in moderate flesh and vigorous condition. If this is done hay and various other fodders are sufficient for the greater part of the time. In some sections where corn is one of the leading crops, corn fodder with the ears removed has given quite good results, without grain in addition. Clover, alfalfa or other legume hays are very palatable for sheep and are sufficient feed for the greater portion of the period of pregnancy. Root crops and silage free from mold, both in moderate amounts, give splendid results along with clover or alfalfa hay. Heavy feeding of root crops previous to lambing, it is claimed by some sheep men, results in flabby lambs of low vitality.

One of the problems of the flock master is to have his ewes give sufficient milk for the new lambs. Ewes fed the entire winter on dry feed, (particularly is thus true of young ewes,) frequently have no milk after lambing and refuse to own their

lambs. Old ewes take care of their lambs but have an insufficient milk flow. This difficulty can be almost entirely overcome by light grain feeding beginning from four to six weeks previous to lambing. Root crops, silage, or other succulent feed in addition are very desirable. Oats, or bran and oats, are to be preferred among the grains and the daily allowance per head need not exceed one-half pound. The proportion used in handling pure-bred ewes at the University of Idaho is two parts of oats to one of bran. Range sheep men in Idaho are having success in feeding to their range ewes before lambing time a small daily allowance per head of from two to four ounces of cottonseed meal.

Tightly enclosed shelters for sheep in winter are neither necessary nor advisable. The sheds or barns need first of all to be kept dry underfoot and there should be sufficient room under shelter or in outside yards for exercise. If weather permits, a good plan is to compel the ewes to walk a reasonable distance to a field or another yard for their hay. For shed room some authorities recommend fifteen square feet per sheep. The fleece keeps the body warm and the overhead protection needed is such as will keep off storms and prevent drafts. In quite cold weather, if the nights are dry, sheep are found to prefer the open air to enclosed sheds. A feed rack, used at the University for feeding both grain and hay and found quite satisfactory, is illustrated on this page.



A Feed Rack for Grain and Hay

Where the flock varies as to size, and some are much more timid than others, good results are secured by dividing it into uniform bunches. The rams must be kept separate and kept in no more than good condition. Legume hay and from one-quarter to one-half pound of bran and oats daily per ram is ordinarily sufficient.

LAMBING

Management at lambing time generally determines the measure of success with the flock for the year. The percentage saved is all-important and runs from 40 per cent to 150 per cent, depending on feeding and management of the flock previous to lambing, time of year of lambing, equipment for taking care of the ewes and lambs, and faithfulness of the work of the shepherd. In winter or early spring some shelter for night and conveniences for warming chilled and weakened lambs are required.

Some ewes, especially young ones, need to be placed by themselves for from two to four days until ewe and lamb learn to know and be able to find each other. Some lambs are born very weak and need to be rubbed to start the circulation and given warm milk and stimulants to give them a start in life. Saving of such lambs often does much to help the percentage. Orphans are common and must be placed on another ewe or raised by hand. Often by placing the skin of a dead lamb on an orphan, the mother of the former can be induced to take the latter. Other simple devices are made to serve the same end.

Many fail in raising orphans by hand. The principal reason is overfeeding. The best method of feeding is with a bottle and rubber nipple. The first two or three days the cow's milk should be given every two hours, at first only two or three tablespoonfuls at a feed. Milk from a high-testing cow is best. The average for a 78-day butterfat test on ten ewes representing five breeds in the University of Idaho flock, was 8.62 per cent. One ewe, a Cotswold, averaged 9.46 per cent over a period of 76 days. The butterfat percentage for the average cow is approximately 3.75 per cent. The bottle and nipple must be kept clean and sanitary and the milk warmed for each feeding to about 92 degrees Fahrenheit.

After lambing the ewes should have feed ample for making a strong milk flow. The feeding of some grain, or grain and root crops for a few days, and then grass is the common and entirely satisfactory method taken to secure that end.

If the lambs are expected to make rapid growth they should be taught to eat grain early. After grazing becomes good the ewes need no grain. Feeding the lambs grain is solved by making them a creep. In a separate enclosure are placed low troughs for the lambs and entrance to this place is gained by openings that admit the lambs but not the ewes. Crushed oats and bran or crushed oats and corn meal are grain combinations suited for offering lambs in a creep.

The average weaning time is four months of age. Good pasture for the lambs at this time enables them to grow fast and miss their mothers' milk but little. If the market offers inducements in order to secure spring lambs and lambs are large, they may be sent directly from the ewes to the butcher.

DOCKING AND CASTRATING

Docked lambs keep cleaner and, as fat lambs, bring a higher price on the market. Docking should be done at from seven to fourteen days of age. The tail should be severed with a knife or docking pincers at a point about one and one-half inches from the body. The pincers are used hot to prevent bleeding and are favored by many shepherds of both the central and western states.

Many sheep men are using the docking iron, finding the pincers slow to operate. One of the most successful of Idaho's sheepmen conducted a careful test with twin lambs, docking one of each pair of twins with a sharp knife and the other with a hot iron. At the end of four weeks, the lambs docked with the hot iron had made greater gains by from $\frac{1}{2}$ to $1\frac{1}{2}$ pounds than the lambs docked with the knife.

No ram lambs except pure-bred intended for breeding should be permitted to escape castration. Ram lambs gain slowly and in addition annoy other lambs in the feedlot. A good time for this work is on a bright day when the lambs are ten or fourteen days of age. The lower third of the scrotum is cut off and the testicles pulled out. At the age mentioned the cords break easily and but little blood is lost. The use of one of the many common disinfectants in connection with this operation makes it safer.

DIPPING

Dipping for ticks is advisable once or twice a year and, at any rate, soon after shearing. A second dipping two weeks after the first destroys ticks that may have escaped the first or may have hatched in the meantime. Ticks become troublesome when fleeces are long and as soon as the wool is removed, go upon the lambs. Dipping of the whole flock at this time means little trouble from the ticks until the next spring. Scab has troubled in Idaho, but is now under control. Any of the standard powder or coal-tar dips if used according to directions, are effective for ticks.

A dipping vat suitable for a small flock is 10 to 12 feet long, 4 feet deep, and 16 or 18 inches wide. It may be made of galvanized iron or concrete. One end of the vat should be perpendicular. The other end should have a cleated slope or incline so that the animals may walk or at least climb out of the vat. A draining platform will result in a considerable saving of liquid.

SHEARING AND HANDLING THE WOOL

Shearing may be done with hand shears or with one of the simple forms of shearing machines. In some parts of the state experienced shearers go from farm to farm and clip the farm flocks for a reasonable compensation. If the farmer is to shear his own flock and is inexperienced, he will shear at a more rapid rate and do better work with a machine. A machine suitable for shearing a farm flock can be purchased from \$10.00 to \$15.00. A combination shearer and horse clipper can be

had at a moderate increase of cost over the shearer alone.

Sheep should be sheared as soon in the spring as danger of hard storms is past. They should be shorn on a clean floor and the fleece kept free from dirt and foreign matter of all kinds. The tags on wool taken from the rear part of the legs and twist, when holding balls of manure, should be removed separately. The fleece should be rolled into a neat, firm roll with the shorn ends on the outside.

Many twines, among which are sisal, are not suitable for tying wool since they will not take the dye. Even a small portion of such twine remaining with the wool in the cloth after weaving will fail to take the dye and result in a much lower grade of cloth. Sheep men are now using twines and among the most satisfactory are twines made of paper. These twines are dissolved and eliminated in the process of scouring.

Wool is most handily stored in wool sacks. These sacks may be ordered through a local merchant and, under farm facilities for packing, can be made to hold from 200 to 250 pounds of wool.

FITTING FOR SHOW

The modern livestock show is primarily an educational institution. Farm animals of all kinds are assembled and competent judges selected to arrange them in order of merit according as they approach closely to, or diverge from certain well defined ideals of type. Livestock shows help toward uniformity of type and harmony of effort in animal breeding and are the meeting places of those who are producing or selling livestock.

The exhibitor learns much in the show ring that is of value to him in his breeding operation but the principal benefit comes in the way of advertising. Hence the advantage of specially preparing and fitting animals for show. There is certainly nothing to be gained educationally in driving sheep from a pasture and showing them to visitors without any attempt to clean or prepare them for critical inspection. Some fitting is necessary even for our smaller fairs and livestock shows.

The first effort should be made in selecting animals of such conformation as are fit to properly represent their type and breed. In most breeds of sheep the choice for the show ring should fall on a reasonably low-set, thick, strong-backed, and vigorous individual which shows to a considerable degree the particular characteristics of the breed to which it belongs. Additional flesh as compared with pasture condition, will result from a little especially good pasture for the cooler hours of the day, shade during the midday hours, and a grain ration of bran and oats. If the animals are quite thin and need to be fattened more rapidly they may be left on pasture but one hour daily and given a heavier grain ration and clover or alfalfa hay in addition to the grain.

The feet should be trimmed and the sheep taught to stand squarely on the legs. The fleece should be freed from straw or other coarse material and blocked out with a pair of hand shears. In the blocking-out process the wool over the back is cut down and leveled, the side lines straightened, and the entire form as represented by the wool is made more shapely. The wool surface is then evened by careful trimming until the entire outline is regular and attractive to the eye. A dampened brush is used in brushing the fleece. Brushing straightens the fibres so that when once trimmed, the fleece keeps the form given it with the shears. A card, secured from one of the sheep supply companies is very useful in straightening the wool fibers.

Some experience must be had in order to get good results in trimming. A little preliminary instruction and some practice on sheep not intended for show often enable a beginner to improve materially the appearance of animals destined for the show ring.

FURTHER INFORMATION

The University flock consists of a breeding flock, made up of ewes representing seven of the leading breeds, and a show flock of fat wethers. The breeding flock is used in flock-management investigations dealing with cost of maintenance, weight of lambs at birth, daily gains of lambs, weight of fleeces, amount of daily milk flow, butterfat percentage, and chemical composition of the milk, comparing in all of these things the Southdown, the Shropshire, the Hampshire, the Cotswold, the Lincoln, and the Rambouillet.

The fat wethers are fitted for class work and after judging by classes of students are exhibited every year at the leading livestock shows of the Northwest. The wethers are the product of the ewe flock mentioned above and that they rank well as individuals is indicated by their show ring record. Six of the eight awards for the Grand Champion Wether made at the Lewiston and Portland Live Stock Shows during the past four years, which were open to competition by Agricultural Colleges, have been won over all competitors by the University of Idaho with wethers of its own breeding.

For further information or suggestions in regard to the problems of farm-flock husbandry, write the Department of Animal Husbandry, University of Idaho, Moscow, Idaho.