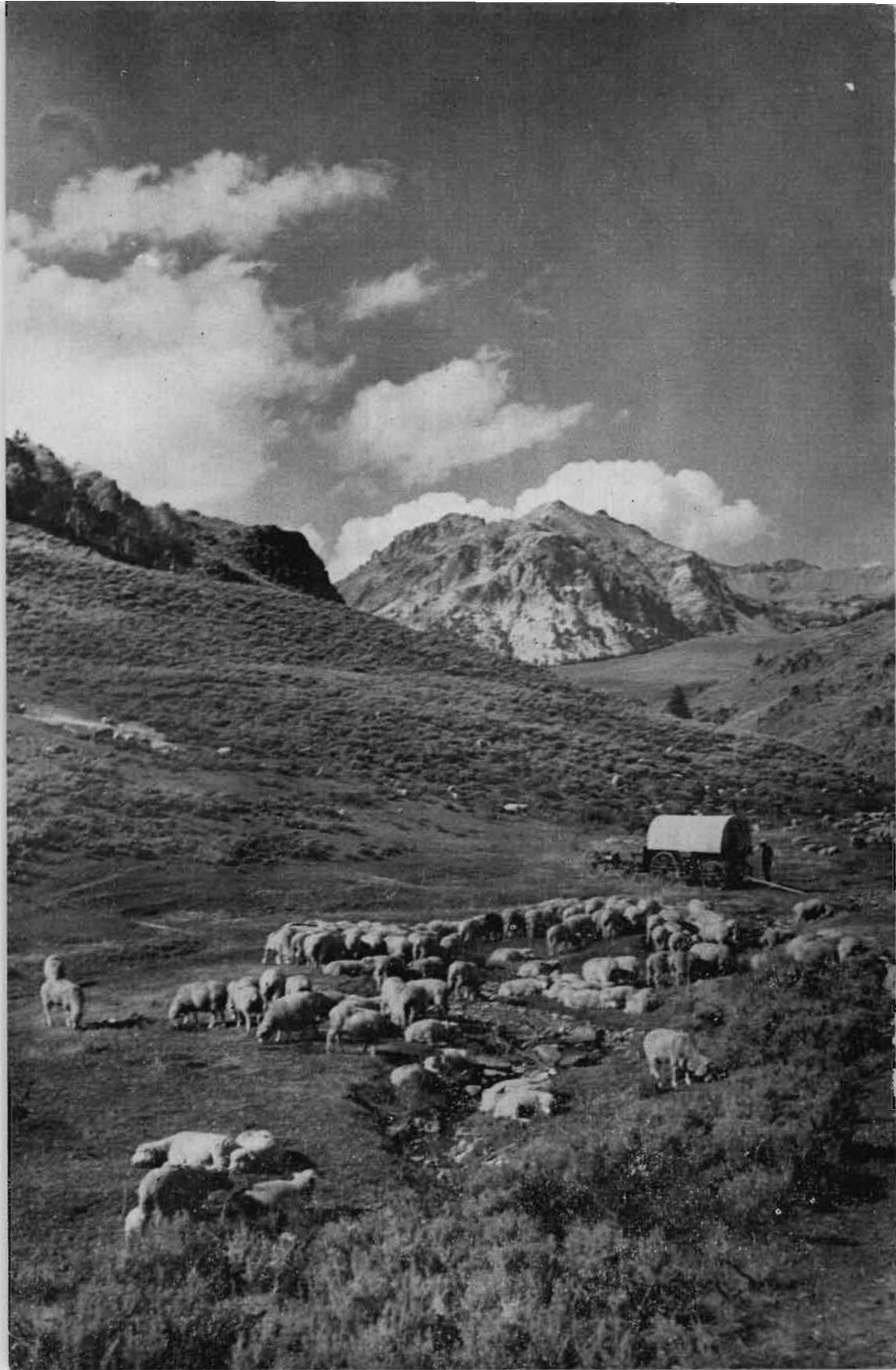


Range Flocks in Wyoming

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WYOMING'S HIGH PLATEAUS, rolling plains, and picturesque mountains are covered with nutritious grasses, herbs, and browse plants. They furnish excellent feed for livestock. In 1953, livestock produced 72 percent of the state's agricultural income, which in turn amounted to 34 percent of the total income. Sheep, lambs, and wool brought in 17 percent of the agricultural income, compared with 44 percent for cattle and calves, the major livestock industry.

The livestock industry offers a way to harvest the native crop of grasses, herbs, and browse plants that otherwise would be wasted. These products of the soil are replaceable with proper management. Mineral resources, which make up a large part of the other 66 percent of Wyoming's 1953 income, are exhaustible.

Successful range sheep businesses have been built on sound business principles. Necessary factors are enough land to grow suitable feed for an economical number of sheep, and a willingness to learn how to know, and grow an amount of lamb and wool to give maximum return per animal each year.

The sheep raiser must not only know but also grow a superior product. He must sell it at its proper and inherent value. He can do this through organizations of growers who let the buying public know what he has to sell and

how they can benefit from buying his product.

Range lands and ranches are usually located west of the 100th meridian in the intermountain country or so-called Rocky Mountain Empire. The range lands form a large part of the 11 western states. The vegetation, for the most part, is sparse. A square mile or section of land will furnish only enough pasture for 80 to 100 ewes and their lambs for year-round grazing. Some of the better land will supply feed for twice as many, but the desert sections will support only 30 to 40 sheep for a full year. Most ranchers tend to produce sheep on the land with the most sparse vegetation—especially that which is fairly free of snow in the winter—and on the high-elevation lands, near and above timberline, which lie mostly in the National Forests.

FENCING OF PASTURES FOR SHEEP has been successful for a number of years in areas with milder winter climates, as in Texas and Australia. In Wyoming some fenced pastures have been in use, but the practice has not been widespread because of the fear of winter storms and the problem of land control.

Wyoming sheepmen list the following advantages and disadvantages of fenced pastures. They are, of course, in many cases altered by local conditions.

Cover photo by Chas. J. Belden

Inside cover photo by U. S. Forest Service

Advantages:

1. Allow more sheep to be run per acre.
2. Result in heavier lambs weighing 5 to 8 pounds more than average lambs run with herds on open range.
3. Improve the feed cover, increasing the grazing capacity as recorded in sheep days of feed.
4. Require less help and reduce overhead expense. Each summer band on the forest requires two men but only one is required per band on the plains. Lambing help also is reduced by half. The fence pays for itself in 3 to 5 years by the saving in labor alone. Every man saved per month would provide funds to build 1/3 mile of fence per month.
5. Reduce scattering and strays. Reduce loss because fewer men, who are higher paid, are more efficient and give the sheep better care.

Disadvantages:

1. Require control of land through purchase or lease.
2. Bring up the problem of game management in pastures and the effect of enclosing antelope in sheep-tight fences.
3. Increase loss in storms. The elevation and existing climate become prime factors. Loss in pastures is reduced by artificial or natural shelter and rotation of pastures, using bleak pastures in summer and sheltered pastures in winter. Artificial shelter or sheds must be located to provide protection from prevailing winds. Then the sheep drift to shelter in blizzards.
4. Intensify the coyote problem. Immediate action to kill coyotes is necessary in pastures. Locating coyote pups in dens is effective as is trapping and hunting from an airplane.
5. Increase the investment in fences and water improvements.



Good range ewes are big and smooth-bodied. They have dense, heavy-shearing fleeces.

Sheep Type and Ewe Selection

Probably the most logical time to obtain ewes for a range-sheep enterprise is in late summer or fall before breeding season starts. In choosing the type of ewes for the foundation of a range sheep flock, the main consideration is adaptability to range conditions.

Ewes must be hardy enough to maintain themselves and reproduce under the conditions prevailing; they should have an inherent flocking tendency. Rambouillets have proved to be well adapted to Wyoming range conditions. Corriedales and Columbias or ewes of a crossbred wool type resembling those two breeds also have proved themselves well adapted to range conditions. Other breeds, in particular the down breeds and long-wool breeds, do not normally have the flocking instinct. They are not able to withstand adverse conditions as well as fine-wool sheep or fine-wool crossbreeds. Likewise, fleeces from down breeds or long-wool breeds are less desirable because their wool is less valuable and does not provide as much protection from the weather.

When you select ewes, uniformity in the flock is an important consideration, since uniform crops of wool or lambs sell higher. Size should be emphasized, as large ewes will produce more than small ones. It is best not only to discriminate against small ewes but also to avoid those that are rough, low-backed, shallow, or in any way undesirable from a carcass standpoint. An alert operator also will reject any ewes that have obvious defects—such as malformed mouths in which the teeth in the lower jaw don't meet the dental pad properly, broken mouths that usually indicate old age, loose or open fleeces, black fibers in the wool, weak or crooked legs, or any unsoundness of the

teats and udder. Open-faced ewes are better than those with woolly faces; the latter tend to cause wool blindness.

You'll do better with young ewes instead of old ewes if you are starting an enterprise. Young ewes have their entire productive life ahead and will not have to be replaced so soon as older ewes. Under range conditions it is not advisable to breed ewe lambs, because these lambs are not big enough at 7 or 8 months of age. The most common practice is to have ewes produce their first lamb at 2 years of age. Ewes should be in good condition and appear thrifty but should not be exceedingly fat.

Selection of Rams:

Select rams on the same basis as ewes, as far as body conformation, fleece characteristics, and defects are concerned. The importance of using good rams cannot be stressed too strongly. It is wiser to spend more money to buy good rams than to pick up any rams just because they are cheap. If the rams are in heavy fleece before the breeding season, shear them before turning them in with the ewes. Yearling rams are usually preferred to rams of other ages, although well-grown lambs and 3- or 4-year-old rams are just as satisfactory.

If you plan to raise your own replacements, rams should be of the same general type and breeding as the ewes. If you plan to market all your lambs, however, and buy ewes for replacement, it may be to your advantage to use rams of one of the down breeds. (Hampshires and Suffolks are the most common to this area.) Lambs from such a cross usually are preferred to white-faced lambs by both feeders and packers.

SEASONAL MANAGEMENT PRACTICES

Because of the wide variation in climate, topography, amount of rainfall, types of forage and other environmental factors in the western range area, there is a wide variation also in management practices. Certain practices that are sound and economical for some operators may not work at all for others. There are certain general methods and practices, though, that have proved to be effective. They will apply with little variation to most of the range sheep enterprises in the West. We can separate the sheep year into rather clearcut seasonal phases. Let's start with a discussion of the breeding season, since that is the beginning of the sheep year.

THE BREEDING SEASON varies as to exact time, depending on range and weather conditions at lambing time, but the principles involved are similar everywhere. The average gestation period for ewes is 147 days.

It is essential that a high percentage of the ewes conceive and that they are bred early in the breeding period. That way lambs can come reasonably close together and do not string out through the summer. Most operators remove the rams after they have been with the ewes for 35 to 45 days. Ewes not bred in that length of time will go into the dry band in the spring.

Have plenty of feed available on the breeding range to insure that a high percentage of ewes are bred and that they will conceive early in the breeding period. Good sheepmen set aside their best fall or early winter ranges for the breeding season.

Flushing—giving extra feed at breeding time—seems to be essential in obtaining a good lamb crop. You can give ewes this extra feed in the form of

excellent range or in the form of concentrate, fed in supplement to the range feed. Usually no supplement is needed when breeding for February or March lambs. Still, if fall range, high in protein, is not available, it usually is wise to feed some concentrate to the ewes when breeding for April and May lambs. Whole corn, protein supplements, or mixed grain and protein pellets fed at the rate of 1/10 to 1/4 pound per day—depending upon the condition of the ewes—have given excellent results. Any system that has the ewes gaining weight when bred seems to be effective.

If the rams are in good condition before breeding time they will need no extra feed. If they are thin going into the breeding season, condition them with grain for about 3 weeks before you turn them in with the ewes. A pound of whole oats each day plus 1/10 pound of a protein supplement should be adequate. If the breeding range is rather poor, it will be necessary to continue feeding grain throughout the breeding season.

You can use various methods of handling rams in the breeding bands. Many operators take the rams out after a few days and put in fresh ones—alternating throughout the breeding season. Others remove the rams at night, feed them, and put them back during the day. Still others feed the rams during the day and turn them with the ewes at night.

Many operators object to cutting the rams out each day and many do not have facilities available for doing it on their breeding range. If feed conditions are normal and the rams are in good flesh at the beginning of the season, they should be able to maintain

their fertility if they are left with the ewes. The common practice is to allot three rams for each 100 ewes, although some sheepmen believe that four rams per hundred will insure a better lamb crop that will more than pay for the extra ram.

WINTER SEASON MANAGEMENT in Wyoming and comparable areas in the West is based on the practice of utilizing range grasses and browse. Many areas are particularly suited to winter grazing and are reserved for that purpose. Three essentials to a good winter range are plenty of feed, adequate water supply, and shelter for stormy periods.

The type of forage varies considerably with different areas. Research at the Utah Experiment Station shows that the amount of each kind of forage in the sheep diet on winter range was in direct proportion to the amount of each class of forage available. It also shows that the chemical content of forage plants changed little as the winter season progressed.

While the major portion of the winter feed comes from the range, most sheepmen believe that some supplementary feed must be fed in addition, especially as lambing time approaches. Experience in range operations proves the value of the practice, which is confirmed by range research work at the Wyoming, Montana, and Utah Stations.

The Montana Station reports that in 1950-51 trials, ewes receiving no supplementary winter concentrates lost 6.5 pounds during the pregnancy period. Ewes receiving supplementary concentrate gained 5.3 pounds during that period. The fed ewes received 1/3 pound of concentrate pellets a day from January 2 to April 11 and 1/2 pound of pellets plus alfalfa hay from April 11 to April 21, when lambing started. The percentage of lamb crop was 20 to 30 percent greater for the ewes receiving supplementary feed.

The big problems in supplementary winter feeding are how much to feed and how high a level of protein to give them.

The amount to feed will vary ac-



Proper utilization of winter range is essential.

ording to the amount and kind of winter range you have and upon the condition of your ewes when they go into the winter period. With ewes in normal condition, 1/5 to 1/4 pound of grain or concentrate for the 4 to 6 weeks before lambing seems to be the most economical amount to use. If ewes are thin, it may take 1/2 pound a day to get them into condition to lamb.

The best level of protein to feed is a problem that needs a good deal more study before any definite answers can be given. Opinions of sheepmen vary considerably on this subject. Some have had excellent results from feeding high-level protein; others have had just as good results with lower-protein feeds and have been able to feed much cheaper. Some believe they have had detrimental effects from feeding too much protein; others have fed the same way and have not noticed any bad effects.

The logical assumption is that the amount of supplementary protein to feed will vary considerably in different areas and will vary in the same area from year to year. We know that the chemical composition of range grasses and browse varies with different areas; the same grasses and browse also will vary from one year to the next, depending on the season.

The first answer to the problem is to determine the protein content of your winter range and to supplement this range as necessary. In general we can say that range largely made up of grasses will be high in energy constituents but low in protein. Range containing a good deal of browse will be higher in protein and phosphorus.

Experimental work on protein levels for winter feeding on the range indicates that in areas where tests have been made, feeds containing 18 to 20 percent protein are satisfactory for winter

rations. In tests at the Wyoming Station different range feeds containing protein at that level proved ample for wintering ewes. This was indicated by gain in weight of ewes during the pregnancy period and by lambing percentage and birth weights of lambs.

Progress reports from Montana State College covering 3 years of work show that ewes receiving higher protein levels (above 10 percent crude protein) made more gain in body weight during the wintering period than ewes on lower levels of protein. This weight gain was not reflected in the higher production of wool or lambs. Ewes were fed on rations containing 10, 20, 30, and 40 percent crude protein.

Some of the more successful sheepmen in Wyoming use the following general plan for winter feeding—with slight variations during periods of extremely good or extremely poor fall and winter range:

Sixty to 90 days before lambing, start the ewes on about 1/10 pound per day of soybean oil cake or its equivalent and gradually increase to 1/5 pound. Two or 3 weeks before lambing, change to 3/5 pound of a 20 percent protein mixed feed and what alfalfa hay they will clean up. Continue this ration to lambing and afterward until green grass is available.

In periods of extremely cold weather or in storms, increase the amount until the sheep are able to go back to normal grazing. Make provisions to have plenty of hay available to feed during storms. Good sheepmen now have hay supplies and grain or pellet supplies in several areas on their winter range so that they can supply feed to their sheep whenever and wherever needed.

Remember that supplementary winter feed is not a substitute for proper utilization of winter range. Grazing studies



A Wyoming lambing shed. The drop band is at the left, and ewes with young lambs are grouped in the small pens at the right.

at the USDA Desert Experimental Range show that sheep fed supplements on heavily grazed land made $1\frac{1}{2}$ pounds less gain per head than unsupplemented sheep on moderately grazed range.

An adequate winter water supply is very important. Many sheepmen who formerly relied on snow have now put in wells to insure plenty of clean, non-mineralized water at all times. They believe they have received the cost of the wells many times in increased weights, healthier sheep, and better utilization of feed. Department of Agriculture studies show that sheep on winter range drank an average of 0.72 gallon per head per day. On mild winter days they often drank 1.5 gallons. If they were confined to dry forage—shadscale, winterfat, or saltbush—they sometimes used as much as 2.2 gallons per head per day.

On the Desert Experimental Range,

sheep that received ample fresh water every day gained 3.4 pounds per head in 40 days, while those receiving water only every third day lost 6.0 pounds per head.

LAMBING TIME and practices vary because of differences in topography, range conditions, natural feed, distance to summer range, and various other factors. Roughly two types of lambing operations are used in Wyoming—early or shed lambing in March and April, and range lambing. The latter method usually starts early in May after the worst danger from late spring storms is past.

In the shed lambing operations, most successful sheepmen feed the winter ration right up to lambing time. They increase the amount of supplementary feed during the last 2 or 3 weeks of gestation if the condition of the ewes war-



Interior of a modern lambing shed. Note that there are no sides on the shed so that sunlight can reach the center pen at some time of the day. Canvas walls are put up for protection during bad weather.

rants it. Many sheepmen have found that adding 1/10 to 1/5 pound of dehydrated alfalfa pellets to the ration a couple of weeks before lambing will increase the milk flow of the ewes and give the lambs a good send-off. Some operators keep these pellets in racks in the lambing jugs so that ewes put into the jugs before lambing or ewes with young lambs can have all they want.

Plenty of clean water is especially necessary when you feed alfalfa pellets.

After you move the ewes out of the jugs into groups of 5 or 10, continue the supplementary feed. Increase it as the ewe needs it to supply milk for the lamb. Place ewes with singles in one group, and ewes with twins in a separate band so that they can receive more feed.

As you gradually combine the small groups, continue to feed the ewes liberally until grass appears and you make up the summer bands. The native grasses should furnish the necessary

roughage if the lambing range is good. If the range is rather poor or if snow covers it, feed hay in addition to the supplementary concentrate.

Some operators feed alfalfa hay or alfalfa pellets to the ewes with lambs to stimulate a good flow of milk.

If the ewes are to lamb on the range, they are bred so as to start lambing about the time green grass is available. Reserve the most sheltered areas with good pasture for lambing range and feed supplements until new grass is adequate to carry the ewes.

Many sheepmen have turned to such a lambing operation because of the scarcity of good lambing help. It works well, especially in areas that you can fence. Sheep can scatter out in fenced areas and ewes can handle their lambs well. More lambs are bummed in this kind of operation and there is more lambing loss, but much is saved in equipment and labor.

There are many different methods of

handling bands of ewes at lambing time. Although elaborate lambing sheds are not necessary, you do need to provide some form of protection from wind. Usually the ewes that you expect to lamb soon should be separated into a group called a drop band. You can keep this drop band in lambing corrals at night and herd it on a good grazing area during the day. When ewes graze some distance from the corrals or sheds, you can bring them in with drop wagons after they lamb. If sheds are available for lambing, the drop band is kept at the sheds at night and grazed on nearby lands during the day.

In order to keep down the chance of separation, pen ewes with newborn lambs in small groups or in some cases in individual pens or jugs. As the lambs get older, you can place more ewes with lambs together until you've formed an entire band of 1000 or whatever size of band you want.

Usually it is best not to disturb a ewe while lambing unless it is apparent that she needs assistance. If she needs help, first check to see if the lamb is in normal position for delivery—with its head laid between its front legs. Then the only help you need to give the ewe is to pull outward and downward toward the hocks as the ewe strains. If the position is not normal, it is necessary to get the lamb straightened out. Before doing so, be sure to clean your hands—disinfect them and trim your fingernails.

In case a ewe won't own and suckle her lamb, it may help to encourage adoption of her own or another lamb, to pen the ewe and lamb together or to smear the lamb with its mother's milk. The skins of dead lambs are put on foster lambs to encourage adoption. This involves extra time and labor, but

should result in a greater number of lambs being raised. Also it may result in less udder trouble among the ewes. Both advantages could more than pay for the extra time and labor.

Docking and Castration:

Several methods are used for both docking and castrating. According to work in Australia and at the Range Sheep Experiment Station at Dubois, Idaho, there is no difference in lamb performance between those docked or castrated with a knife and those on which elastrator bands are used. Probably the strongest objection to the use of elastrator bands is the time required in docking and castration. Burdizzos are sometimes used for castrating lambs, but are slower than a knife and also less reliable. Hot irons can be used for docking to reduce blood loss, but are slower than the knife. All-in-one castrators are often used for both docking and castrating, as well as for ear-notching.

SHEARING THE SHEEP

Effective shearing and preparation of wool for market depend upon well-planned equipment and proper handling of the sheep. You'll want to follow the points listed below:

1. Sometime before lambing, crutch or trim sheep around udder and rump. This will help the lambs to suckle and reduce the amount of tags in the fleece.
2. Whenever sheep are marked with branding paint, after shearing or during the year, use a scourable branding paint.
3. Provide suitable corrals for effective handling of the sheep during shearing.



A Wyoming shearing shed.

—Union Pacific Railroad Photo.

4. When possible, separate sheep by grade with a dodge gate before shearing. Then you can sack the wool by grade or type.
5. Provide a suitable place for shearing, with clean board, canvas, or concrete floors, and shed space to protect the sheep from the weather. Provide a dry, clean place for both the shearing and sacking of the clip. Many outfits shear in large sheds, employing 15 to 30 shearers. They use shearing machines rather than hand shears, because quality of shearing and speed of work are improved. Caution the shearers to avoid second cuts. Test the dampness of the fleece on the belly and flank as well as on the back. Never shear wet sheep. Caution the shearers to keep the fleece intact during shearing and not break it by kicking out of the way when they finish shearing each sheep.
6. After each fleece is shorn it should be tied separately with paper twine. The tags, dead wool, black wool, and other off-sorts should be kept separate and bagged separately with proper identification. Shear black sheep separately. The main kinds of wool—such as that from ewes, rams, and yearlings—should be kept separate and each bag identified. When the wool is graded, put the name of the grade and the kind of wool on each bag. Store the bags in a dry place until the market is right for sale.

Summer grazing period:

Most of Wyoming's range sheep are summered in the mountains in bands under the care of herders. Some ranchers have been able to fence most of their range, however, and turn their sheep loose within the fences during the summer months.

Range studies made by Utah Agri-

cultural College indicate that sheep had a marked preference for individual species of plants in summer grazing. The work shows that an abundance of certain plants on the range is not important unless they are readily eaten by the sheep. Seasonal changes in chemical content of range plants were greater than differences between species. Grass showed more seasonal fluctuation than did browse. Increased grass consumption over browse reduced the protein and phosphorus content of the ration but increased the energy content; therefore a diversified plant cover is highly desirable.

Chemical analysis of summer ranges showed a satisfactory nutrient content except late in the fall, and even then no serious deficiencies were found.

Where the summer range is a considerable distance from the lambing range, many operators have found that it pays to truck the lambs and ewes rather than trail them. It is expensive to handle them in this manner, but the saving in weight on the lambs more than pays for it.

After the lambs are weaned, put the

ewes on fall range. Save some choice range for this purpose in order to get the ewes into condition for breeding. At this time cull the ewe band and dispose of the cull ewes.

Some ranchers place the replacement ewe lambs from one band with ewes from another. This weans the lambs and avoids the problem of trying to herd the lambs by themselves. When the ranchers make up breeding bands, they separate the ewe lambs into a separate band and keep them that way throughout the winter so that they can receive extra feed.

Culling:

There are obvious differences in producing ability among the various ewes in a band. Thus, it is definitely an advantage if you can cull out your poor producers and replace them with productive ewes. Cull the ewes that wean small lambs, have loose or light shearing fleeces, or have broken mouths. Then you can improve the average production of the flock while the cost of production remains about the same.

There is no point in keeping unproductive ewes. It costs nearly as much



Sheep should be dusted for ticks as they leave the shearing pens.

to keep them as to keep productive ewes. Therefore, design some method of marketing to identify dry ewes or those which are below average on fleece weight.

The system used by Warren Livestock Company seems to be satisfactory. If a ewe is dry, they put a notch in her ear. If a ewe shears a very light fleece, they notch her too. Then they cull any ewe with two ear notches—either for being dry, for shearing a light fleece, or both.

A good time to cull is in the fall when the lambs are weaned, then you can pick out the ewes with small lambs. Since the sheep are being handled anyway, you can send the cull ewes to market at the same time as the lambs.

If you keep ewe lambs for replacement, you can select them at the same time. Usually it is wise to keep more than you need for replacement. Cull them again as yearlings: better yet, wait till they have lambed and then cull partially for production.

Feeding replacement ewe lambs:

It pays to feed ewe lambs during the first winter. Lambs that are well grown out the first year will make bigger, stronger, heavier shearing breeding ewes. The practice pays off in a higher percentage of lambs raised as 2-year-olds.

In some areas only about 40 to 50 percent of the yearling ewes conceive. Studies of this problem suggest that the cause of this condition is largely nutritional; extra development and growth during the first year would correct the situation.

While the amount of supplementary feed needed will vary with yearly range conditions for a normal year, the following practice is recommended: When you put ewe lambs on winter range, start them on 1/10 pound of a 20 percent protein/grain feed and gradually work them up to about 1/3 pound. Continue this until green grass starts and ewes are ready to go onto spring range.



Good summer range supplies all the necessary nutrients except salt.

—U. S. Forest Service Photo.



Culling ewes by the touch system.

Except for the supplement above, depend on range grass. If snow covers the range, feed hay until range is open.

Many sheepmen send their replacement ewe lambs to farming areas to get "growthier" ewes, since it is difficult to grow out ewe lambs on winter ranges.

Growing the Wool:

The general character and grade of wool depend upon breed and not on feed.

A fine-wool sheep is born that way. It will not change into a medium-wool sheep by increased feed although the fiber may, in extreme cases, become a grade coarser.

A medium-wool sheep of crossbred type may become a grade coarser when a rich ration is fed, but the fleece still has the general appearance of a medium-wool fleece even though the fiber is a grade coarser.

The length, soundness or strength, and weight of wool are dependent largely upon feed but you, as a grower, will need sheep with a good breeding foundation. Wool is made up of protein. Hence, protein is important in the ration. You can furnish it with supplemental feeds such as cottonseed and soybean products. In some areas where the natural forage is high in protein, sheepmen use corn as a supplement.

Wool improvement through selection and culling is important. In carrying out this improvement the primary factors are the length and density of the fleeces according to grade. Careful selection by chute culling with the "touch system" has increased greasy fleece weight by as much as 2 pounds. It evaluates body size, uniformity of fleece, and the length and density of fleece by grade.



Select ewe lambs like these for replacement ewes.

Individual clips in the state, through a selection program, have reached an average clean fleece weight of 5 pounds. That's an increase of $1\frac{1}{2}$ pounds over the state average and a forceful illustration of the effectiveness and value of a culling program. Individual outfits in the state, through a selection program and favorable summer range, often produce lambs weighing around 95 pounds at shipping time. This compares to an average of 80 pounds in other regions of the state. The high clean fleece weights are produced in the same flocks as the heavy lamb weights. Wool and lamb production can be and is being combined in the same flocks.

Marketing the Wool:

One of the most important phases of the wool-growing industry concerns marketing. Listed below are some of the factors a grower should know before he can market his wool effectively.

Several factors determine the value of wool:

1. THE GRADE OF WOOL is determined by the fineness or thick-



Portable pen and chutes for handling sheep can be set up on the range.



Grading a Wyoming clip at the shearing pen.

ness of the individual fibers in the fleece. The relative fineness of these fibers, and their length, determine the spinning quality of the wool. Bradford and International grade terms are based on this property. The finer the wool, the higher the count, and the longer length of yarn a manufacturer can spin from a pound of clean wool. Wool graded "36s" is the coarsest grade; "80s" wool is the finest.

In the early days of this country, the sheep industry was based on the Merino breed of sheep. Grade terms were based on the fact that "Merino" or "Fine" showed the finest fiber, and the so-called "Blood" terms denoted the amount of Merino blood in the sheep. As years passed, the grade terms gradually lost their meaning as to the amount of Merino blood. Today the crossbred sheep, half long wool and half fine wool, will not produce a majority of 1/2

Blood wool but will yield a predominance of 3/8 Blood wool. The grades of wool used in the United States—where both the "Blood" and the "Count" terms are common—are shown in the following compilation:

<i>Blood System United States</i>	<i>"Count" System Bradford and International</i>	
Fine	64s	70s 80s
1/2 Blood		60s 62s
3/8 Blood	56s	58s
1/4 Blood		50s 54s
Low 1/4 Blood ..	46s	48s
Common.....	44s	
Braid.....	36s	40s

Each breed of sheep produces different grades of wool from different individual sheep. The breeds of sheep commonly found in Wyoming produce the following grades of wool: Rambouillet—Fine and 1/2 Blood; Lincoln or Cotswold—Braid; Corriedale, Columbia, and Panama—1/2 Blood, 3/8 Blood, and 1/4 Blood; Targhee—1/2

Blood; Hampshire and Suffolk—
1/2 Blood, 3/8 Blood and
1/4 Blood; Fine Crossbreds—1/2
Blood; Medium Crossbreds—3/8
Blood and 1/4 Blood; Coarse
Crossbreds—Low 1/4 Blood and
Common and Braid.

2. THE LENGTH OF WOOL is easy

to measure. Wool becomes longer,
in general, as the grade becomes
coarser. Thus a staple wool is
much longer in a Common and
Braid grade than in a Fine grade.
The USDA recently published a
suggested standard of lengths for
grease wools:

Commercial length class	Staple length designation by grade (inches) unstretched staple length and minimum length for majority of staples in a sample					
	Fine	1/2 Blood	3/8 Blood	1/4 Blood	Low 1/4 Blood	Common and Braid
Staple	2.5 and longer	3.0 and longer	3.5 and longer	4 and longer	4.5 and longer	5 and longer
Good Fr. Comb.	2.0	2.5	3.0	3.5
Av. French	1.5	2.0	2.0	2.5
Short French.....	1.0	1.5
Clothing and Stubby	Under 1.0	Under 1.5	Under 2.0	Under 2.5	Under 4.5	Under 5.0

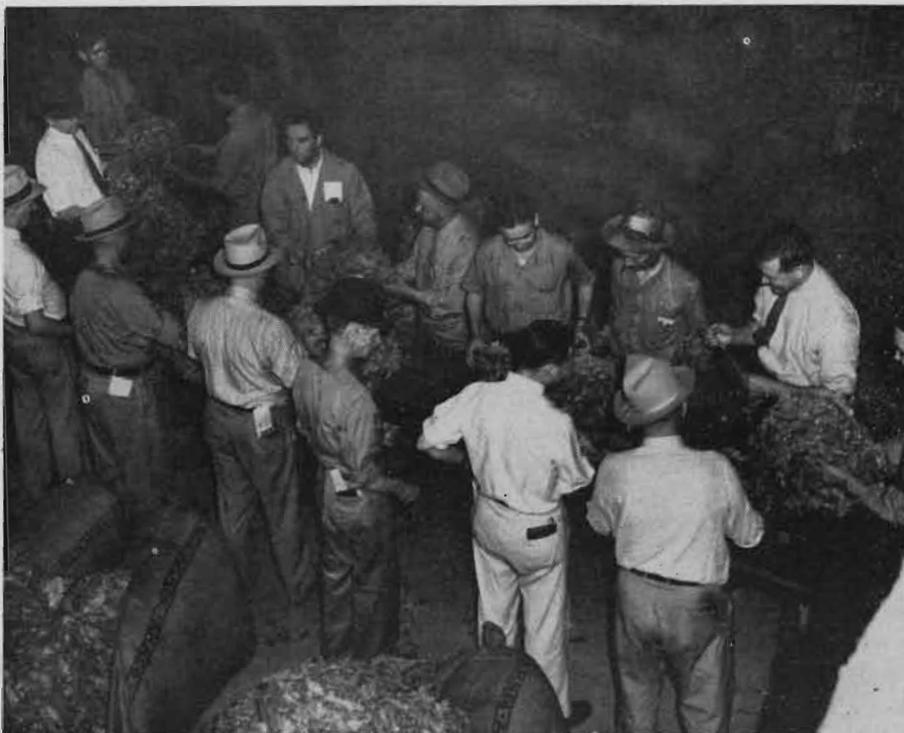
These length classes, as you can
see, are different for each grade
of wool. In the coarser grades
there are fewer length classes.
Length of wool is important as it
is a major factor in determining
the spinning properties of the wool.

3. THE UNIFORMITY OF THE
WOOL is quite important. The
more all fibers in a fleece of wool
or the fleeces in a clip of wool are
alike in thickness, length and gen-
eral appearance, the more uniform-
ity they have. In examining wool,
there are several kinds of uniform-
ity: First, there is the trueness of
a fiber from its base to its tip;
then there is the uniformity be-
tween fibres in one sample or body
area (this is called hairiness where
coarse fibers protrude from the
fleece); next there is the uniform-
ity of fibers grown on different
parts of the body, and finally,

flock uniformity between different
sheep and bands making up a flock.

4. THE YIELD OF CLEAN WOOL
in a clip is very important.
Trained observers can estimate the
yield of clean wool. It can also be
determined effectively by objective
tests—both by scouring core sam-
ples and by scouring numbers of
sample bags. The yield is the
amount of clean fiber in the wool
with a minimum allowable quan-
tity of residual dirt, grease, and
vegetable matter and a set mois-
ture content of 12 percent. All
market quotations are given on
the clean pound of wool. There-
fore it is important to know the
yield of clean wool in a clip.

Once the yield is known or esti-
mated, one needs only to multiply
the yield by the clean price and
obtain the grease price of the wool
at Boston, the market center.



Group of wool buyers examining clips at Casper, Wyo., warehouse.

Marketing costs which apply, generally freight and possibly commission, are then deducted to get the grease price at the ranch.

5. THE CHARACTER OF WOOL includes crimp, brightness, purity, and softness. These factors make up an attractive product with class and they catch the eye and delight the hand immediately. Character is unmeasurable and merely means the wool has eye and sales appeal.
6. The SOUNDNESS or STRENGTH OF WOOL is self-explanatory, but a wool fiber can be strong and still be flexible.

Marketing Wool:

Now that you know something about

the raw wool characteristics that determine its market value, you need to know what affects the wool market. Then you will know when is a good time to sell. Markets are affected by the supply of wool available in the world as well as in the United States, the worldwide demand for wool and part-wool fabrics, the labor costs and living standards which enter into the fabric prices; the availability of money and cost of sustaining all phases of the wool industry—from the sheep's back to the consumer's back, defense programs and war production programs in which wool is a strategic material. Other factors include the production, consumption, and promotion of competing fibers—both natural and man-made.

Briefly, you can compare the building

stones of a successful range-flock operation with a triangle. The base is made up of fundamental considerations like suitable range in a size sufficient to set up a going sheep business. The sides of the triangle are selection, breeding, and feeding. They are better lumped together in two items of management and nutrition. All help in setting up an efficient unit to raise wool and lambs.

After the wool and lambs are produced, you **MUST** sell them for their full market price according to their inherent quality. Most **EFFICIENT MARKETING** requires a knowledge of the markets as well as the products to be sold. The final "pay-off" is in a business and trading "know-how" which you, the grower, may have yourself, or better yet, have available in your marketing organization.

The future of the wool industry depends largely upon the improvements which growers make in organizing effective marketing organizations. In them, growers will have something to say about the prices they obtain for the wool they have *improved in grade, type, and preparation*. They must help themselves through effective organization and mutual help, for no one else will help them. Everyone must put his shoulder to the wheel.

Marketing Lambs:

Range lambs usually are marketed in a group at weaning time in the fall, after coming off summer pasture. A fairly high proportion of lambs in this region are not fat enough for slaughter at weaning time. They need to go to feedlots for fattening. Feeders often contract for lambs at the ranch, but many lambs also go directly to a central market, where the fat lambs and the feeder lambs are separated.

If the price of feeders is about the same as that for fats, there is no point in trying to sort them before shipping. If the price spread between the two is very great, it may be of some advantage to sort the lambs into two groups before sending them to market. If you are not experienced in such sorting, the lambs may have to be re-sorted at the market. Then all advantage would be lost.

Early contracting of both lamb and wool indicates an anticipation of an active market in the fall. The contract price is often lower than the market price in the fall. However, if the grower can sell his lambs at the ranch, he can save about 2c per lb. in freight, handling costs, and shrinkage and can well afford to take a little below market price.

SHEEP DISEASES AND PARASITES

You can obtain information on these subjects by asking your county agent for copies of these publications:

Internal Parasites of Sheep—Wyoming Agricultural Experiment Station Circular 42.

Control Livestock Pests—Wyoming Agricultural Experiment Station Bulletin 327.