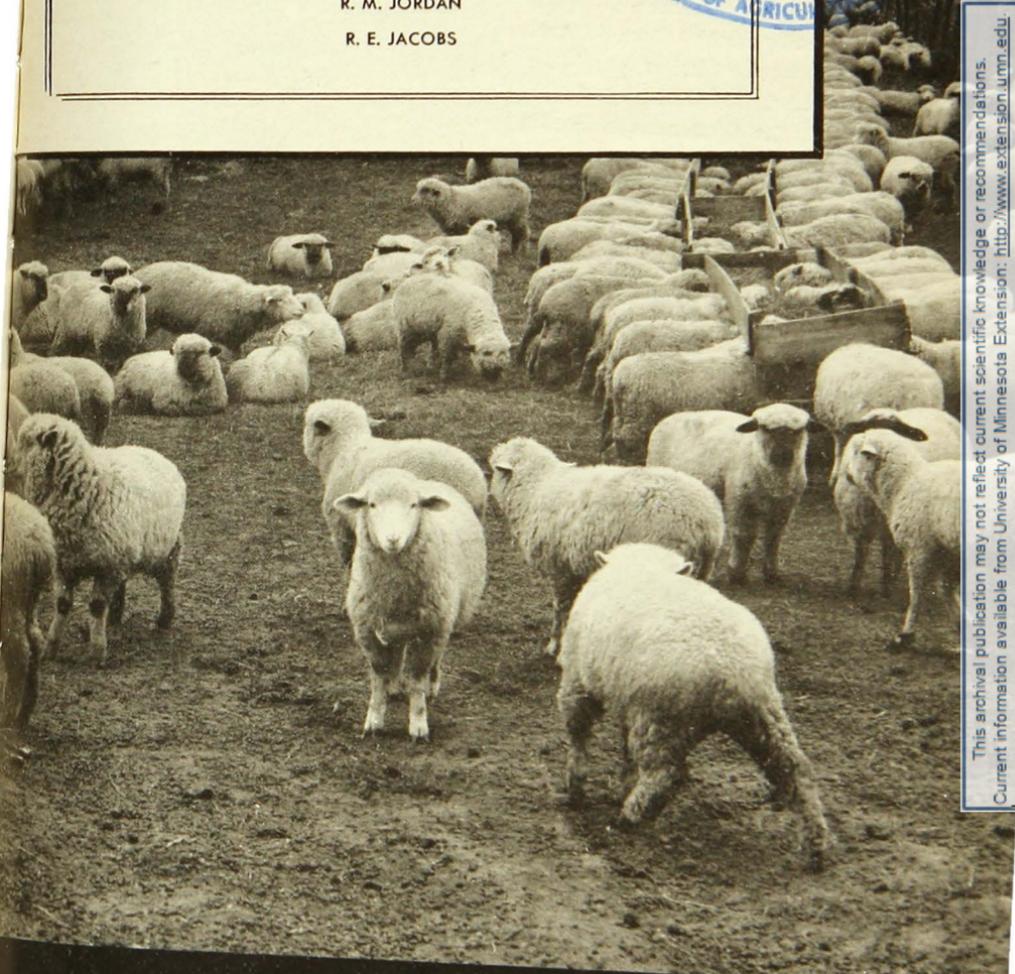


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FATTENING WESTERN and NATIVE LAMBS

R. M. JORDAN
R. E. JACOBS

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Fattening

WESTERN and NATIVE LAMBS

R. M. Jordan and R. E. Jacobs¹

MINNESOTA FARMERS grain feed about 250,000 lambs annually. These feeder lambs are either shipped in from western states (known as western lambs) or produced in Minnesota and the Dakotas (known as native lambs). About 25 to 30 percent of all the lambs in the United States and 15 to 20 percent of Minnesota native lambs are fattened in dry lot.

Poor management, feeding, and marketing of feeder lambs too often have meant poor returns for labor and capital. High interest rates, transportation charges, and labor and feed costs have left little spread in price between feeder

lambs and fat lambs. All this makes it more necessary than ever to feed and manage your lambs to get the best and most economical gains and to cut down death losses.

During the past 30 years the University of Minnesota's West Central Experiment Station at Morris has conducted over 50 feeding trials in fattening lambs for market. The trials have involved different types of lambs, combinations of feeds, and methods of feeding. The basic rules for successful and profitable lamb feeding given in this bulletin are based, in part, on results of these trials.

● **Select the Right Lambs**

Healthy, thrifty, and rugged feeder lambs are essential for rapid and efficient gains. Select lambs that have considerable bone and substance, short necks, and wide shoulders and backs. Pay particular attention to the depth of body and feed capacity. Fine-boned, shallow-bodied lambs with loose, unthrifty appearing fleeces are usually inefficient, slow gainers.

The preferred weight of feeder lambs is 65 to 75 pounds. Select 65-pound feeder lambs if you plan to feed a lot of roughage, or if you're pasturing the lambs on crop aftermath or stalk fields

for part of the feeding period. If you have plenty of grain or prefer to feed several different sets of lambs during the year, select lambs weighing about 75 pounds.

Health, ruggedness, and depth of body are far more important than the color of the lamb's face. Black face, white face, native, or western lambs have performed equally well in our feed lots. Your order buyer or lamb dealer will be a big help in buying thrifty, healthy, rugged lambs from ranchers whose lambs have performed well in Minnesota in the past.

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● Give Lambs Special Care on Arrival

Regain the Shrink

The buyer always pays for the weight of the lambs at the shipping point. Lambs normally shrink 4 to 8 pounds per head when shipped from a central market and 6 to 10 pounds from a western range area. The amount will depend on shipping conditions, distance, and particularly weighing conditions. It is important to regain lost weight rapidly. So don't semi-starve lambs for a week or two but get them on feed rapidly. Lambs need a source of protein and energy to ward off illness and put them into the proper condition to go on full feed.

When the lambs arrive at your feed lot, feed only high-quality mixed grass and legume hay and water the first day.

On the second day feed about one-fifth pound of 40 percent protein supplement per lamb. By the third or fourth day all of the lambs should be eating. Then add one-fifth pound of grain each day to the protein supplement until the lambs are eating about a pound of grain per head daily. From that point on, increase the grain about one-tenth pound per lamb daily until the lambs are on full feed.

A full grain feed is about 1½ to 2 pounds per lamb or what the lambs will clean up in about 15 to 20 minutes. During this period, provide all of the high-quality hay the lambs can clean up (alfalfa or alfalfa-brome). After the lambs are on full feed, the protein supplement may be cut out entirely or reduced to one-tenth pound per lamb

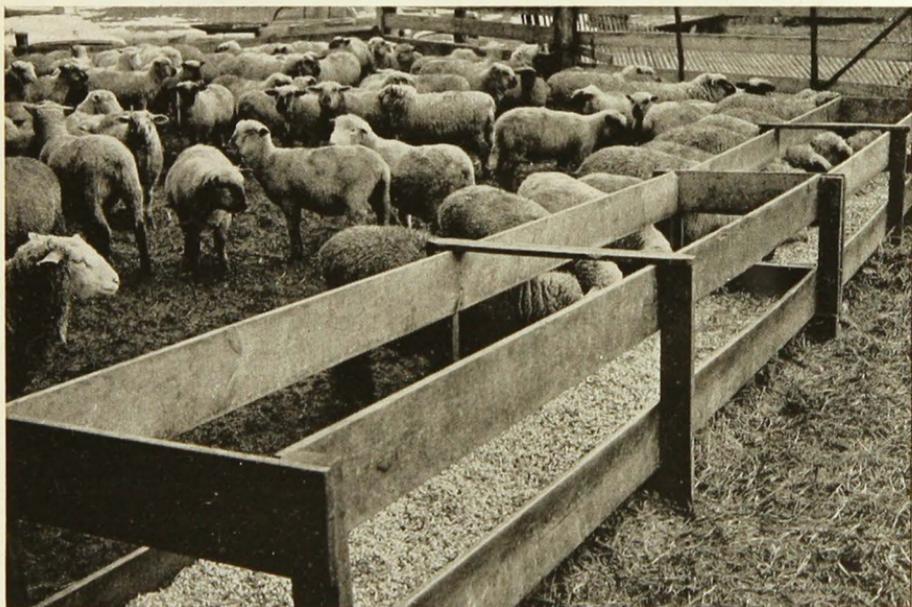


Fig. 1. Lambs self-fed protein and corn out of a flat-bottom feeder. This type of feeder is easy and economical to build, and it lends itself well to mechanized handling of feed (see fig. 5). General construction details can be judged from the photograph—the bottom of the feeder sets 8 inches off the ground, 9-inch spacing between the 1 x 8 sideboards gives the lambs ample headroom, and the well-spaced 2 x 4 bracing gives adequate strength without excess weight. Feeders shown here are 12 feet in length.

daily, provided high-quality legume hay is fed.

Self-feeding a mixture of grain and hay reduces labor costs. If a self-feeding program is used, the lambs may be turned onto self-feeders on the second or third day after arriving. A feed mixture consisting of 75 percent to 80 percent chopped alfalfa; 20 percent to 25 percent barley, cracked corn, or ground ear corn; and 5 to 10 percent protein supplement has worked well as a starting feed. Gradually reduce the amount of hay and increase the amount of grain by adding cracked corn until the lambs are on a full feed consisting of at least 50 percent corn or its equivalent. This change from a high-roughage ration to a ration of about equal parts of grain and roughage requires about 2 weeks. The protein supplement is not essential if you use good quality hay.

Control Parasites

Native and Dakota feeder lambs usually carry internal parasites. When the lambs are well started on feed (usually the second or third week), worm them with phenothiazine. You can do this by drenching each lamb with three-fourths to one ounce of phenothiazine or by mixing three-fourths to one ounce of phenothiazine in the amount of ground grain that the lambs will eat at one feeding. Mixing with grain will take less labor.

An abnormally heavy infestation of ticks can reduce rate of gain. Spray with a recommended insecticide only if the weather is warm (August or September). Ticks will leave the lambs if they are sheared during cold weather. Don't spray during the winter months; use dust instead.

● Consider the Economics of Feeding

Weight Gains

Lambs on a full feed of legume hay and corn will gain .35 to .40 pound per day. Eighty to 100 days is the usual feeding period. The total gain should be about 30 to 40 pounds per lamb, depending upon the initial weight of the lamb and the rate of gain.

Feed Requirements

The average daily feed consumption in an 80- to 90-day feeding period is approximately 1½ pounds hay and 1½ pounds of grain. The average feeder lamb can be finished on about 125 to 150 pounds of hay and 2 to 2½ bushels of corn. If a protein supplement is fed, about 15 to 20 pounds will be required per lamb.

Death Loss

The major cause of death in fattening lambs is over-eating disease (entero-

toxemia). Death loss from all causes (over-eating disease, pneumonia, coccidiosis, etc.) averages 1 to 4 percent. Vaccination for over-eating disease or feeding recommended antibiotics (20-30 milligrams per lamb daily) will cut down losses materially. Feeding and management are equally important. Controlling the amount of concentrate eaten per lamb daily and/or the proportion of concentrate to roughage is essential. The higher the proportion of concentrate in the ration the greater the difficulty with over-eating disease.

Expected Profits

Profits from lamb feeding come from:

1. **Margins** or selling the fat lambs for more per 100 pounds than they cost as feeder lambs.
2. **Gains** or selling the increase in weight for more per 100 pounds than it costs to put it on.

Abundant feed supplies in the corn belt and abundant wheat pasture in Kansas, Colorado, and Oklahoma cause feeder lamb prices to increase. In many cases the price for feeder lambs is out of proportion to what the future fat lamb price merits.

Lamb prices go down as well as up. The sound lamb feeder protects himself from radical price fluctuations by not selling all his lambs on the low market. You can do this by:

1. Topping out the lambs as they become fat (a fat lamb gains slowly and takes far more feed to put on additional gain than a lamb in moderate flesh).

2. Feeding more than one set of lambs in a feeding year. You can do this either by replacing the fat lambs sold with an equal number of feeder lambs or by replacing the entire group of fat lambs when they are sold with a new set of feeder lambs. Thus you may lose on lambs finished and sold in December but make a profit on lambs sold in March or April. Lambs fed at the Morris Station and sold during January have shown little profit the last few years. However, lambs finished for the April and May market during the same years have shown a large margin.

Market Demands

Lambs weighing more than 105 pounds generally sell for \$.50 to \$3.00 less per 100 pounds than those of the same grade weighing 105 pounds or less. Lambs normally shrink 3 to 6 pounds from the feed lot to market. Therefore, you can, if necessary, feed your lambs to 108 to 110 pounds. But don't feed them until overfat merely to reach that weight. Choice lamb with a minimum of waste fat is what the housewife wants. Condition is the major factor in determining the grade of lambs. Ordinarily lambs grading "choice" bring a much better price than those grading only "utility" or lower.

Lamb Feeding Costs

Feed makes up about 65 to 75 percent of the total cost of finishing the lamb. Other costs include shrinkage to and from the feed lot, transportation, interest, yardage, commission costs, death loss, etc. These additional costs constitute a larger percentage of the total cost when lamb or feed prices are low. These miscellaneous costs have a real bearing on your chance for profit so take them into account when contracting for feeder lambs.

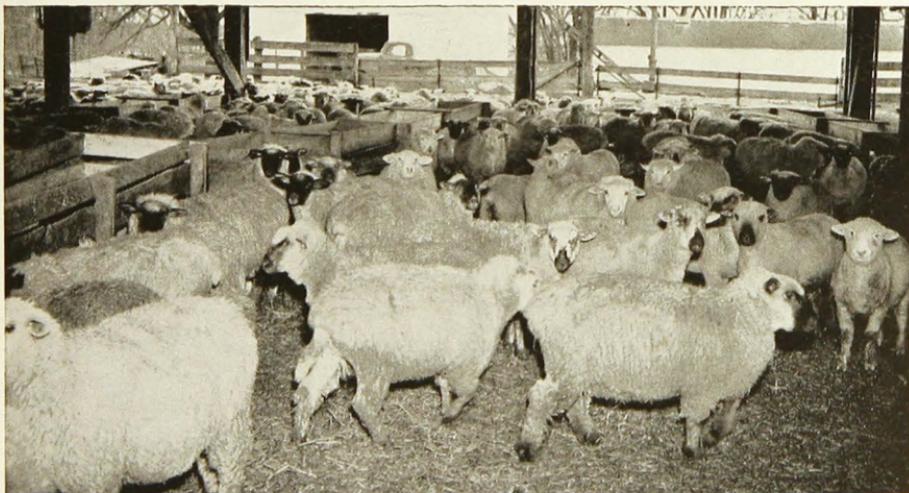


Fig. 2. Faced and crutched native lambs on a western Minnesota farm.

● Pay Attention to Management

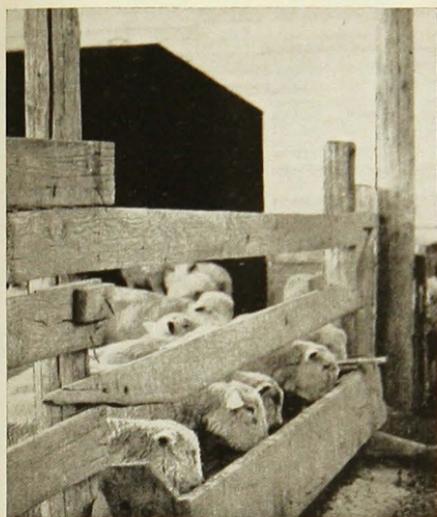


Fig. 3. Lambs must be provided with a sufficient supply of clean water at all times. Where running water is available, a trough with an overflow is satisfactory—but the water should be kept running fast enough to stay ice-free in winter.

Follow Sound Practices

There are many management practices you need to watch in addition to feeding, of course. These include regularity of feeding, preventing lambs from going off feed, full feeding, bedding, and many others. Two other important factors are shearing and watering.

Shearing Is Important

Shearing the face and crutch of feeder lambs results in quieter, cleaner, and better doing lambs. Shearing the entire lamb may be advantageous for lambs placed on feed in the fall, depending on the weather and relative value of the shearling pelt compared to the full fleece pelt.

Shearing with a high comb leaves one-fourth to three-eighths inches of

wool on the sheep and provides protection against bad weather. Shear the entire lamb with a high comb before the spring thaws. During warm weather fattening lambs in full fleece usually cut back on their feed consumption, and therefore make poor gains.

Provide Enough Water

A constant supply of clean water is essential. During winter be sure to plan "ice-free" water for your lambs. Electrical or gas heating devices will keep water from freezing. Some feeders provide troughs with an overflow where running water is available.

Adequate water will help insure good feed intake and help to cut down on water belly (urinary calculi).

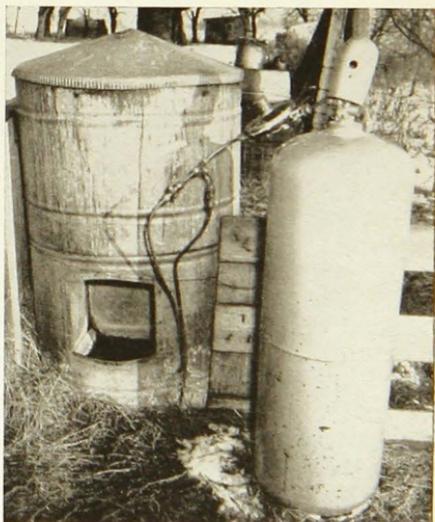


Fig. 4. Heating attachments can keep field waterers ice-free in the winter. In this unit, the one bottle of gas also heats a second waterer not in the picture. Approved electric heating units are also on the market and give good service.

● Prepare and Select Feeds Carefully

There is no one best ration for fattening lambs. Corn and alfalfa hay are the backbone of the cheapest and most productive lamb fattening rations in Minnesota. If you have neither corn nor alfalfa you can feed wheat, rye, barley, sorghum, or millet in conjunction with silages or nonlegume hay with good results. However, feed them in proper proportion and correct their lack of various nutrients. If lambs are fed without legume hay, give them one-fifth to one-fourth pound of 40 percent protein supplement or its equivalent daily plus a free-choice source of calcium. The calcium can be provided by a mixture of equal parts dicalcium phosphate or bonemeal, feeding-grade limestone, and trace-mineralized salt. This mixture also provides phosphorus, which is considered essential.

FEED PREPARATION

1. Grinding—Sheep do an excellent job of chewing their food. Grinding corn, oats, wheat, rye, or barley results in lower feed consumption and slower gains. Proso millet and screening are exceptions to this general rule. Always grind these two feeds. Sorghum grains may or may not be ground. Considerable sorghum will pass through the lambs undigested. However, grinding sorghum grains will not increase the rate of gain, and the feed saved frequently will not pay for the grinding.

2. Chopping—Chopping hay facilitates self-feeding of hay and grain. Lambs will waste less of the chopped hay (particularly if it is coarse and stemmy), but chopping will not increase consumption or rate of gain.

3. Pelleting—Pelleting the complete ration reduces labor and death loss. It also makes it easy to incorporate various feed additives into the ration and to feed otherwise unpalatable feeds.

When feeds of low quality are being fed, pelleting will increase feed consumption and rate of gain and will reduce the amount of feed required to produce a pound of gain.

On the other hand, little increase in feed consumption occurs from pelleting good-quality feed. Pelleting good-quality feed usually increases rate of gain 8 to 10 percent. However, in Minnesota feeding trials this increase in gain was not sufficient to offset the increased cost. Pelleting the complete ration has cost \$8 to \$12 per ton.

Pelleting ground ear corn has not increased feed consumption or rates of gain. Shelled corn was far superior as a grain to either ground ear corn or pelleted ear corn.

4. Ensiling—High-moisture ground ear corn silage and alfalfa, oats, or corn silage are excellent feeds for lambs. However, feeding alfalfa, oats, or corn silage as the only roughage is decidedly inferior to the same silage fed in conjunction with as little as one-half pound of dry alfalfa hay per lamb daily. High moisture (30 to 35 percent) ground ear corn silage may be substituted for other grain feeds.

FEED CHOICE

Grains

Shelled corn tops the list of grains for fattening lambs. Ground ear corn is a safer feed than shelled corn, but the rate of gain is usually slower. Ear corn may be fed with excellent results. However, with bunk-feeding the cobs are a nuisance and increase labor.

Whole barley is worth about 85 to 90 percent as much per pound as shelled corn. The market price dictates whether barley or corn is used.

Wheat and rye must sell for about 85 percent of the price of corn per pound before they are economical in lamb ra-



Fig. 5. "Mechanized" feeding can give an operator great flexibility in handling lambs on feedlot. This Minnesota farmer is using a self-unloading and mixing wagon, drawn by a tractor. The system is also practical in smaller-scale operations.

tions. The low palatability of rye is less a problem with sheep than with other livestock. Weathered and damaged wheat, rye, or barley, purchased at bargain prices, can be used satisfactorily as the entire grain ration for fattening lambs. Their relative values will depend on their test weight per bushel.

Whole sorghum is equal pound for pound to shelled corn.

Ground proso or hog millet has about 80 to 85 percent the value of shelled corn. If it is fed as whole grain, its value drops to about 40 percent of the value of shelled corn.

Oats fed in combination with corn, barley, or wheat can be used in a lamb fattening ration. However, the fattening period will be too long and the lambs will get too heavy before they are fat if the grain ration contains more than half oats. Oats is a palatable but

bulky feed and is used widely as a grain to start lambs on feed.

Screenings

The value of screenings has a direct relationship to the test weight per bushel. Their value may run from 20 to 80 percent the value of corn depending upon the quality of screening. Without exception grind them before feeding. A mixture of screenings and some other palatable feed, such as corn or barley ground and pelleted, often make a palatable, economical fattening ration.

Molasses

Molasses has about 65 to 70 percent as much digestible nutrient content as shelled corn. It is most valuable when fed in small amounts as a means of increasing feed consumption in otherwise unpalatable feeds. Usually it is too costly to be included in large amounts in lamb rations. Self-feeding molasses is wasteful and inefficient.

Protein Supplement

Soybean oilmeal, because of its favorable price relationship to linseed, cottonseed, or corn gluten meal, is generally the standard protein supplement for fattening lambs. Whole soybeans may be used as protein supplement if no more than one-fourth pound per lamb daily is fed. The price relationship between the seed and the meal dictates which to use.

Commercial protein feeds are usually supplemented with additional minerals, antibiotics, and other growth promoting additives. Usually the supplement that furnishes the greatest amount of protein per dollar is the best buy. Sources of nonprotein nitrogen (urea and diacyandamide) have not provided as great an increase in lamb gain as the same amount of nitrogen fed as a protein supplement such as soybean oilmeal. For this reason we do not recommend nonprotein nitrogen supplements.

When large amounts of corn, sorghum, oat silage, nonlegume hay, or

low-quality legume hay are used, a protein supplement is absolutely essential. Protein speeds up the gains, thereby finishing the lambs before they are too heavy. However, when good-quality legume is fed with corn or the small grains, a protein supplement, while increasing the rate of gain, is not essential and may not be economical.

Dry Roughages

Alfalfa is the best roughage for lamb feeding. It is easy to grow, the hay cures easily, and its high protein and calcium content correct the deficiencies of farm grown grains. Clover hays, including red, alsike, and sweet clovers, depending on quality, rate from fair to very good as lamb feeds. However, they are usually more stemmy, resulting in greater waste. Timothy, bromegrass, bluegrass, prairie grass, and other grasses and hays are satisfactory for lamb feeding but are low in protein and calcium. When used, supplement them with additional protein and a self-fed,



Fig. 6. Native lambs just out of the wool on winter feedlot in Minnesota, self-fed on shelled corn and crimped hay. Lambs should be vaccinated or fed antibiotics to prevent overeating disease when hay and corn are fed free-choice in separate bunks.

free-choice mineral mixture containing calcium.

In spite of these additional supplements, lamb gains are usually less with nonlegume roughages than with alfalfa hay.

Pastures

Feeder lambs received during August and September will make excellent gains on rape or other palatable pasture forage. Rape is particularly well suited since it will normally provide forage into late October and early November. Rape is usually sown with oats. It will make rapid growth after the oats have been harvested. Such a management system will cheapen the cost of gains considerably.

Lambing Off

"Lambing-off" corn is not normally an economical way of harvesting corn. Too much corn is wasted, particularly if the weather is wet and the fields muddy. But if "lambing-off" is practiced, turn ewes or stocker cattle into the field and remove the lambs when about 75 percent of the corn has been eaten. Also be sure to provide good-quality hay and a protein supplement to lambs "lambing-off" corn.

Silage

Grass, oats, or corn silage are palatable to sheep and appear to stimulate appetite and rate of gain. Three pounds of silage will replace approximately 1

pound of hay. However, our experiments indicate that a combination of silage and hay will give the best feeding results.

Fattening lambs may be fed from 2½ to 4 pounds of either corn, oats, or grass silage per lamb daily in conjunction with a full feed of corn. With this ration feed at least one-half pound of alfalfa hay per lamb daily. When oats or corn silage is fed provide one-fourth pound of protein supplement and a source of calcium. Alfalfa silage, on the other hand, has enough protein and calcium. Because of the lower carbohydrate content of alfalfa silage, more corn is needed daily for satisfactory gains.

Minerals

Calcium content is usually low in nonlegume roughages. Phosphorus may be low if the forages are grown on phosphorus-low soils. You can correct both of these deficiencies by feeding bone-meal or dicalcium phosphate. These minerals may be mixed with equal parts of stock salt and fed free choice plus free choice trace-mineralized salt.

Trace minerals are not always a necessary addition to lamb-fattening rations. Cobalt is the trace mineral most likely to be lacking. Currently, trace mineralized salts are selling for little more than iodized salt and are usually offered free choice by progressive lamb feeders. However, mineral mixtures costing \$8 to \$10 per hundred pounds are too costly for the added results that can be expected.

● Know the Limitations of 'Additives'

Additives are special additions to feed—such as hormones, antibiotics, growth stimulants, and the like. You will hear and read even more about them from now on. Whether they have a place in your program will depend on the particular conditions.

Keep informed about additives. But also keep two facts in mind:

1. All have definite limitations and must be used correctly.
2. No additive exists that will make up for a failure to follow sound management practices.



Fig. 7. This portable dodge gate, farm-built, speeds up "topping out" lambs that are already fat enough for market.

Hormones

Our research indicates that 2 to 6 milligrams of stilbestrol, as implants, stimulate rate of gain in fattening lambs considerably. However, the use of stilbestrol implants is not permitted by the Pure Food Drug Administration. We do not recommend their use because of a severe increase in blockage of the urinary tract (water belly) which may cause death losses of 5 to 25 percent. New hormone preparations that will assure uniform absorption or contain a combination of hormones that will prevent this cause of death loss may be forthcoming.

Our research suggests that feeding 2 milligrams of stilbestrol per lamb daily will increase average daily gain of wether lambs 10 to 15 percent. No urinary blockage or lowering in carcass

grade has occurred. Increases in rate of gain or feed efficiency do not usually occur among ewe lambs fed 2 milligrams of stilbestrol. Therefore, you can expect little, if any, advantage by feeding stilbestrol to a mixed flock of wether and ewe lambs.

Antibiotics

Research has shown that feeding antibiotics to fattening lambs reduces the incidence of enterotoxemia (over-eating disease). You cannot count on antibiotics to increase the rate of gain or to reduce the amount of feed needed to produce a pound of gain. These reductions will not occur consistently with every lamb feeder or every set of lambs.

Antibiotics have their greatest value when fed to unthrifty lambs, and/or when poor feeding and management conditions cause a high death loss. You can incorporate antibiotics into the protein supplement or mix it with the entire ration. A simple way of including antibiotics in your rations is to purchase special antibiotic feed.

Economical, but well-balanced rations that will give top gain plus attention to the details necessary to minimize death loss are still important ingredients in successful lamb feeding. Do not expect the addition of antibiotics, hormones, trace minerals, or growth stimulants to compensate for slipshod buying, feeding, or selling.

Tranquilizers and Thyroid Depressants

The use of these materials is in the experimental stage today. These materials may become valuable feed additives for fattening lambs, at some time in the future.