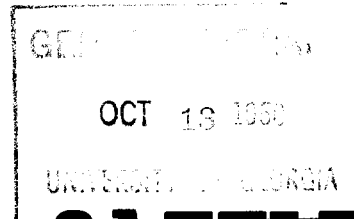


MARCH 1950

CIRCULAR A-145



FEEDING CATTLE and SHEEP

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EXTENSION SERVICE

NORTH DAKOTA AGRICULTURAL COLLEGE AND U.S. DEPARTMENT OF
AGRICULTURE COOPERATING

E. J. Haslerud, Director, Fargo, North Dakota

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FEEDING CATTLE AND SHEEP

Cost of the feed is a big part of the expense in a feedlot. You can save feed and increase the gain you put on fattening livestock by using properly balanced rations.

Energy (or total digestible nutrients) must be provided in feed, to keep the animal and to produce growth and fat. Any of this type of feed eaten above the amount needed to maintain the animal is used for growth and fattening. Grains are high in energy. Hays are much lower.

Protein is another very important element in feed. All the muscle, or meat, of an animal is protein. You can easily see why protein is so necessary in feed.

Protein usually is the most expensive part of a fattening ration. For good results in feeding, some protein must be provided.

For example, when you feed protein in only such amounts as are necessary to balance the ration for fattening cattle, 1 pound of protein will save or replace 2-1/2 to 3 pounds of grain. But, if you feed more protein than is needed, it may be worth no more than the grain.

Here is a simple way to figure the comparative values of protein supplements for cattle and sheep. It is done on a per unit of protein basis.

For example, if soybean oilmeal having 41 percent total protein is selling at \$65.00 per ton and linseed oilmeal having 37 percent total protein sells at \$62.00 per ton, the soybean oilmeal is cheaper per unit of protein. One ton of soybean oilmeal contains 820 pounds of protein (41 percent of 2,000 lbs.). Figuring the same way, the 37 percent linseed oilmeal contains 740 pounds of protein. In this comparison soybean oilmeal costs 7.9 cents per pound of protein and linseed oilmeal costs 8.3 cents per pound of protein, even though the linseed meal was cheaper per ton.

The comparative values of these high protein supplements may be figured in this way because quantity is more important than quality in cattle and sheep rations.

Minerals needed in the feedlot are salt, calcium and phosphorus.

When you feed alfalfa as a large part of the roughage side of the ration, your stock usually gets the calcium needed. But, if you use non-legume roughages (like grass hay) it will pay you to add calcium.

If you feed soybean oilmeal, linseed meal or cottonseed meal with plenty of grain, enough phosphorus will be supplied.

Always provide salt free choice. When it is doubtful that your cattle and sheep are getting enough phosphorus, mix steamed bonemeal with salt 50-50 by weight and feed this mixture free choice.

If calcium is short in the ration, make a simple mineral mixture of 40 parts steamed bonemeal, 40 parts ground limestone and 20 parts salt. Feed this free choice, with salt also provided separately.

Commercial mineral mixtures can be used if they are cheap enough. But, do not use a commercial mixture which has less than 7 percent phosphorus and more than 30 percent calcium to boost the phosphorus in the ration. Steamed bonemeal can be used as a guide to price. Bonemeal provides 12 to 15 percent phosphorus at 28 to 31 percent calcium. Phosphorus usually is the most expensive part in mineral mixes, so many times too little phosphorus is contained in commercial mineral mixtures.

Vitamins A and D are the only ones you need to consider in cattle or sheep feeding. If you feed sun-cured hay, or if your stock gets a few minutes a day of sunlight, you won't need to add vitamin D. Vitamin A need not be considered, unless your roughage is of poor quality and lacks green color. If the cattle or sheep you are feeding come from an area where pasture was very poor and dry, it will be well to provide some green, well-cured alfalfa. Such alfalfa is a good supply of vitamin A.

The dry matter, total digestible nutrients and digestible protein contents of a few common feeds are presented in the following table.

TABLE I DRY MATTER, TOTAL DIGESTIBLE NUTRIENTS, AND DIGESTIBLE PROTEIN OF A FEW COMMON NORTH DAKOTA FEEDS.

FEED STUFF	Dry Matter %	Total Digestible Nutrients %	Digestible Protein %
Corn, #2	85	80.1	6.6
Barley	89	77.7	10.0
Oats	90	70.1	9.4
Soybean oilmeal (41%)	91	78.5	37.1
Linseed oilmeal (37%)	91	77.2	30.8
Cottonseed meal (41%)	93	70.6	32.8
Alfalfa Hay	90	50.3	10.5
Sweet clover (good)	91	47.3	9.4
Prairie Hay (good)	91	49.6	2.1
Prairie Hay (poor-mature)	92	46.7	0.6
Beet Pulp (dry)	90	67.8	4.3
Beet Tops	18	10.4	1.7
Alfalfa Silage	36	21.3	4.1
Corn Silage	27	18.1	1.2
Grass Silage	27	16.7	1.6

SHEEP FEEDING

Many different systems are used in fattening sheep for market. Sheep feeding is primarily one of fattening lambs, as usually 90 to 95 percent of the sheep sold on the central markets are under one year of age.

Of the numerous systems of feeding lambs, there is no one best method or ration. The system of feeding and the ration you use should be based on the type of feed and equipment you have, the price and availability of the various weights and grades of feeder lambs, and the relative prices of any feeds that need to be purchased.

SHIPPING WEAKENS LAMBS

A successful lamb feeding project may depend largely upon getting the purchased lambs safely on feed. Feeder lambs usually come from the range areas. By the time they reach the feed lot they may have been driven considerable distances and shipped for many miles. These conditions are very strange to range lambs and they may not eat well enroute even though feed is offered them. As a result the lambs reach the feeder's yards in a more or less weakened, hungry condition. Feed such lambs only hay and water the first day or two and handle them as little as possible. As soon as the lambs have rested and are familiar with their surroundings, start them on the fattening ration that is to be used.

START FEEDING SLOWLY

Most feeder lambs do not know what grain is and should be started slowly. Feed only a little of some light grain until all lambs are used to eating their share. Oats is a very useful and popular grain for this purpose. As the lambs learn to eat, the oats can be increased and later gradually replaced by the grain that is to be fed during the fattening process. (If the lambs are fed cautiously it is not necessary to start them on oats and most any grain can be used.)

AMPLE ROUGHAGE NEEDED

When lambs are hand-fed they should be on full feed in four to five weeks. By full feed is meant all the grain the lambs will clean up within 10 to 15 minutes after feeding. Hay or other roughage should be full-fed at all times as there is considerable danger of digestive troubles and overeating disease in lambs fed too much grain and a limited amount of roughage.

When lambs are self-fed, the grain is ground and mixed with ground or finely chopped hay. With this method lambs can be started on grain more readily than when hand-fed. Lambs can be started

immediately on a mixture by weight of 25 percent grain and 75 percent roughage. The amount of grain is then slowly increased until the mixture is composed of 45-50 percent concentrates and 50-55 percent hay. Some feeders may increase the grain to a higher proportion than this but it is doubtful if it will pay with the usual relative prices of hay and grain.

NO "BEST" RATION

Any number of available feeds can be used and the price of supplements you buy should always be considered.

Fattening lambs will eat from 3.5 to 4 percent of their body weight in air dry feed daily, with the higher proportion eaten by lighter lambs. This ration should contain approximately 7 to 8 percent of digestible protein and consist of about equal parts of grain and dry roughage. When fed to fattening lambs 2 pounds of corn silage will replace about 1 pound of good hay.

One of the simplest and most satisfactory rations for fattening lambs is a combination of corn grain and alfalfa hay. Such a ration is adequate in protein, calcium, phosphorus and vitamin A. Using the digestible protein content of alfalfa hay (10.5 percent) and corn grain (6.6 percent) as presented in the previous table a ration of equal parts alfalfa and corn contains 8.5 percent digestible protein ($\frac{6.6 + 10.5}{2} = 8.5$ percent). This amount of protein is fully adequate for all weights of lambs. On the other hand, a ration of corn (6.6 percent) and prairie hay (2.1 percent) does not contain a sufficient amount of digestible protein ($\frac{6.6 + 2.1}{2} = 4.4$ percent). Such a ration would need the addition of one of the oilmeals listed.

LEGUMES SUPPLY MINERALS

As a general rule if a legume roughage of good quality is fed along with a full feed of grain the ration will be adequate in calcium and phosphorus. If grass hay of only medium to poor quality or silage is fed the lambs should be given one of the mineral mixtures discussed under general feeding recommendations.

Protect your lambs from severe weather. This protection need not be elaborate nor expensive. Lambs should also have access to salt and clean, fresh water at all times.

CATTLE FEEDING

Fattening cattle can be expected to eat the equivalent of 2.5 to 3 percent of their body weight as a day's feed. For example, a 400-pound calf will eat about 12 pounds (3 percent of body weight) of dry feed daily. Older and larger cattle will consume somewhat less in proportion to their live weight. For best and most efficient results

at least 25 percent and preferably 33 percent of the daily ration should be roughage, such as alfalfa hay or a mixture of legume and nonlegume hay. If silage is available 3 pounds of silage may be substituted for each pound of hay.

SUPPLY NEEDED PROTEIN

Cattle in the feedlot require from 6.3 to 9.5 percent digestible protein. Younger lighter cattle require the larger amounts. Table I presents the approximate amounts of digestible protein in a few feeds common to eastern North Dakota. It is impossible to give the amount of digestible protein for commercial feed mixtures. About 75 to 80 percent of the total protein in these commercial mixtures is digestible. For example, the label of a commercial feed mixture claims a protein content of 35 percent ($.80 \times .35 = .28$). Thus, this mixture would contain about 28 percent digestible protein.

The proteins in hays and other roughages are used to a less extent. The protein content of mature and weathered prairie hay might be only 3 to 4 percent of which only 10 to 20 percent would be digestible. From this information it is possible to figure the amount of protein necessary to include in a ration.

For example, a ration of barley (10.0 percent digestible protein) and alfalfa hay (10.5 percent digestible protein) will provide sufficient protein in the ration without any additional supplement, whereas a ration of corn and alfalfa will require additional protein supplement for best results.

CATTLE NEED REST

When cattle are delivered into the feed lot they need rest. Feed only hay for the first few days until the cattle are acquainted. It is often well to provide a bonemeal and salt mixture at this time. After the feeders have become acquainted start them slowly on feed. Start with about 1 pound of concentrate per head daily. Gradually increase the concentrate by 1/2 to 1 pound every other day, then every day until the cattle are on full feed.

Never change feeds nor feeding habits suddenly. Make all changes gradually. This will prevent animals "going off feed" and getting digestive disturbances. Once a steer "goes off feed" or "stalls" he will never make as efficient or rapid gains.

It is good insurance to provide a simple mineral mixture, free choice. Always provide plenty of salt and water. Good clean water is one of the cheapest feeds available.