COLLEGE OF AGRICULTURE & LIFE SCIENCES
Cooperative Extension

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# Feeding Management for Show Lambs

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## Purchase of Animal

As a general rule, lambs are not purchased until they are at least 8 weeks old and exceed 40 lbs. in weight. The lamb should gain an average of .5 to .8 lbs. a day while you are feeding him. Knowing this, you can calculate what weight animal you need to buy and the number of days you will have to feed him to obtain the final weight from 110 to 140 lbs.

When the animal is bought, see if shots for enterotoxemia (*Clostridium perfringens* C and D) have been given. These shots require an initial shot and a booster shot 2 weeks later and are not usually given before 4 weeks of age. It is imperative that lambs be up to date for enterotoxemia (overeating disease) when they are placed on a grain ration. Otherwise, sudden death can occur in the lamb. If the lamb has not been vaccinated, you should purchase a shot from a veterinarian and repeat the vaccination 2 weeks later. The veterinarian can tell you how to give the shots. Medicated rations (with Chlortetracycline) are also available to help prevent the occurrence of enterotoxemia.

## Rations

When the lamb is received, he should be started on an all hay diet unless he is used to grain. Also, if the lamb is not used to alfalfa hay, he should be fed high quality grass hay for the first few days to prevent bloat. Gradually, the hay can be changed to all alfalfa or alfalfa-grass mix. After the first 3 days, change over to alfalfa by 25% substitution, wait 2 days, then 50% substitution, wait 2 days, then 75% substitution, wait 2 days, then 100% alfalfa. Molasses lick blocks with Bloat Guard (poloxalene) can be placed in the feed bunk to help prevent bloat from alfalfa. Also, after the lamb is eating grain, feeding commercial feeds with the feed additive lasalocid can also help prevent bloat.

Feeding grain should be introduced slowly to avoid digestive upsets, acidosis, and possible death. It takes at least 2 to 3 weeks for the rumen microbes to adjust to a grain diet. Start introducing grain (if the lamb is not already used to it) after the first 3 days of the feeding period. Start by feeding .25 lbs grain for 3 days in addition to free choice hay. At the end of the 3 day period, increase the grain up to .5 lbs. if the lamb is cleaning up all its grain. Feed this ration for 3 days, then increase grain up to 1 lb. Monitor to make sure the lamb is eating all his grain then increase grain to 1.5 lbs. unless this exceeds 50% grain in the ration. Hold the 1.5 lbs. of grain constant for 1 week. Once the ration is up to 40 or 50% grain, hold this diet constant until the lamb weighs around 65 to 70 lbs. Exceptions to this feeding regime would be young lambs less than 50 lbs. which need additional total digestible nutrients (TDN) in their ration (see Tables 1 and 2). Table 3 provides information of proportions of grain needed for different TDN levels.

If your lamb weighs as much as 80 lbs. and you have 90 days or more until the show, you will not need to increase the grain in the ration beyond 50%. Otherwise the lamb will get too fat.

After the lamb exceeds 70 lbs., he is ready to be switched from the grower to finishing ration. If you are pushed for time in getting your lamb to the correct final weight, you will need to step up the ration to a finishing ration as quickly as possible. Increase grain content of the ration by 10% per week until you have reached the desired TDN level for the gain you desire (Table 2 and Table 3). Most likely, the final finishing ration will contain about 75% grain in the ration. However, if your lamb is prone to digestive upsets, you may not be able to feed above 50 to 70% grain unless a medicated ration is fed.

Lambs on finishing rations are very prone to digestive upsets and acidosis. Should the lamb's stool become loose and lose pellet consistency, remove all grain until he becomes normal. You may need to get your 4-H leader or veterinarian to look at him also. Animals which have a tendency to develop mild acidosis and loose stools will need to be fed a medicated ration. These rations will contain either chlortetracycline or lasalocid. Medicated rations do have a withdrawal time which will need to be complied with before the show and sale. Contact your feed dealer to find out what the withdrawal time is before slaughter. In most cases, feeding a medicated ration will eliminate problems with acidosis or enterotoxemia.

If your lamb is gaining too much weight or getting too fat, you will need to either reduce the percentage of grain in the ration or change to a lower energy grain such as oats. This should be combined with an exercise program for the

show lamb. It is a good idea to exercise your lamb to build up his muscle tone prior to the show.

Some 4-H'ers have had good luck in getting lambs in show trim by replacing hay with hay cubes the final 30 days before the show. This helps eliminate "hay belly."

## Dietary Intake

Successfully showing a show lamb requires pre-planning. Oftentimes, it is a struggle to keep a lamb from becoming over finished for the fair. Buying a show lamb within an acceptable weight range will help you meet your target show weight. Growing lambs will eat about 4% of their body weight each day if given a choice. As the lamb ages and slows down lean muscle deposition, appetite will decline. For a 110 lb. lamb, free choice feed consumption will equal about 3% of body weight per day. So, to obtain daily feed intake for a lamb you wish to grow at its maximum rate, multiply its body weight by .04 for a younger lamb and by .03 for an older lamb. For lambs for which minimal weight gain is a goal (due to becoming too heavy for the fair), use guidelines in Table 4. Table 4 provides information on minimum amounts of feed required to achieve weight gains desired. You will need to adjust the feed weights shown to fit your lamb. It is important to keep the lamb gaining weight prior to the sale, even if it is a small amount. Otherwise, you may have a lamb at the sale that is "stale" and will not show well. Obviously, you do not want to get him over finished either.

For example, for heavy muscled black face lambs, market weight is usually around 125 lbs. At a minimum, the lamb will probably gain at least .50 to .75 lbs./d. If you bought a lamb that weighed 80 lbs. at 110 days before the show, the lamb would need to gain .40 lbs./d {(125 – 80) ÷ 110 = .409 lbs./d}. You will need to combine some exercise with the lamb's feeding program in order to keep it from getting over finished. You could also lower the energy content of the feed by using lower energy grains in the ration, like oats instead of a sweet mix grain ration containing corn. Corn is around 91% digestible, barley about 84%, and oats 76% digestible. So, to slow down average daily gain in a grain diet, more oats instead of corn could be used in the ration.

From Table 4, the daily maintenance portion of the ration for the aforementioned lamb weighing 110 lbs. would require 0.91 lbs/d of a 70% TDN ration. Adjusting for the moisture in the feed (usually about 10%) would increase this portion of the daily feed to 1.0 lbs./d. To accommodate the additional feed for gain (0.40 lbs./day) would require an additional 1.79 lbs./d of feed on a dry matter basis, or 1.99 lbs. as fed (1.79 ÷ .90 = 1.988). So, we would estimate that we would need to feed this lamb about 3 lbs/d of feed to meet his requirements for both maintenance and growth.

Scientific calculations need to be calibrated against the performance of the animal you are feeding. Scientific tables are determined from pen averages in feeding trials and your lamb may be different from the average lamb. Frequent weighing of your lamb every two to three weeks can assist in meeting the preferred show weight. If you do not have access to a scale, you can estimate body weight following the guidelines shown in Figure 1.

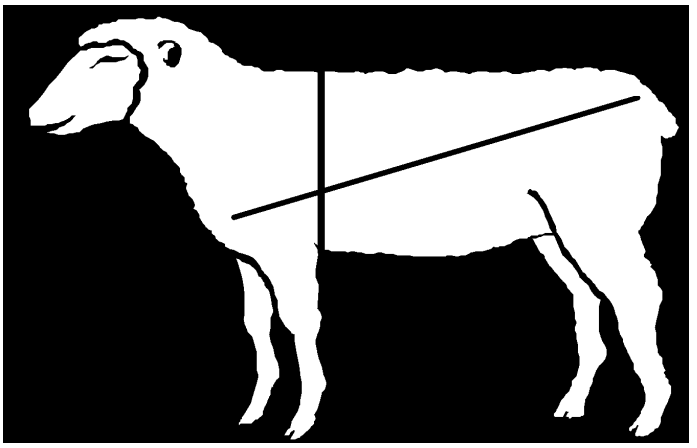

Figure 1. Measure body length (BL) and heart girth (HG) in inches. Weight in lbs. = (HG x HG x BL)/300. You can estimate weight for your lamb using a sewing tape. For the diagonal measurement, measure the distance from the point of the shoulder to the point of the hip. Go all the way around the heart girth immediately behind the elbow for the other measurement. Be sure and depress the sewing tape with some pressure if the lamb has a good growth of wool.

In addition to the science of feeding using feed tables from scientific experiments, there is also an "art" to producing show lambs. You can monitor finish on the lamb in several places. Once of the first places fat is deposited is immediately behind the shoulder. Fat continues to accumulate in the flank, and then in the twist (between the hind legs), and in the brisket. When fat has accumulated in the twist and brisket, the lamb is already over finished. We want to have minimal fat in the shoulder and flank. We also want to have minimal fat cover over the ribs. A measure of leanness in the lamb carcass is determined by using yield grades. The leaner the lamb, the lower the yield grade number. We are striving to obtain a yield grade of 1 for show lambs, which only accommodates a maximum of 0.15 inches backfat over the 12th rib. How much backfat is 0.15 inches? Not very much! If you palpate the backfat on your lamb, then you want the amount under your finger (excluding the pelt) to be about the width of a freshly sharpened pencil ½ way up the tapered edge.

## Protein

It is important to meet the animal's daily protein requirements in order to achieve desired weight gains. Tables 1 and 2 show the protein requirements for the desired weight gains. If you determine that protein is inadequate for the feed mixture you are feeding (Table 3), then protein needs to be substituted for part of the grain in the ration. The most common protein supplements are cottonseed meal (75% TDN, 44.8% protein), soybean meal (81% TDN, 51.3% protein), and linseed meal (76% TDN, 38.6% protein). Table 5 lists nutrients in different feeds and forages.

***Example protein substitution problem***. If a lamb weighed 44 pounds and was fed 1.76 pounds of a 30% alfalfa hay/70% corn diet, crude protein in the diet would be 10.9% (Table 3) or .19 pounds of protein (1.76 lbs.* .109 protein = .19 lbs. protein). If the desired gain was .55 pounds per day, then this lamb with moderate growth potential would be deficient .18 pounds of protein. (See Table 1. Protein requirements of .37 pounds - .19 lbs. protein supplied = .18 pounds.) To determine the amount of protein to substitute for corn, divide the amount of protein needed by the amount of protein per pound of protein supplement.

Accounting for 10% moisture in feeds (.40 lbs. cottonseed meal ÷ .9 = .44 lbs. cottonseed meal), about ½ pound of cottonseed meal would need to be substituted for corn. The TDN content would only change slightly (78.2% instead of 78.7%), so this would not be anything to worry about. Unless forages are used for protein supplements, TDN will not change much when substituting protein for grain.

## Minerals

It is better to supply a trace mineral block to the lamb which is specifically designed for sheep. Sheep are very sensitive to higher levels of copper which may be present in cattle salt. The recommended concentration for sheep is around 8 parts of copper per million parts of salt (8 ppm). Salt with copper levels of 25 ppm could possibly kill a sheep.

Another problem which has been observed in male sheep on grain diets is urinary calculi. Urinary calculi is something like kidney stones in people. It can be partially prevented by keeping the calcium to phosphorus ratio in the diet greater than 2:1. Commercial feed mixtures often contain .5% ammonium chloride or .5% ammonium sulfate to help prevent urinary calculi.

### Table 1: Nutrient Requirements of Lambs[a]

| | | DRY MATTER | | NUTRIENTS PER ANIMAL | | | |
|---|---|---|---|---|---|---|---|
| Body Weight (lb) | Daily Gain (lb) | Per Animal (lb) | % Live Weight | TDN (lb) | Crude Protein (lb) | Calcium (lb) | Phosphorus (lb) |
| Growing - Lambs finishing - 4 to 7 months old | | | | | | | |
| 66 | 0.65 | 2.9 | 4.4 | 2.1 | 0.42 | 0.0146 | 0.0071 |
| 88 | 0.60 | 3.5 | 4.0 | 2.7 | 0.41 | 0.0146 | 0.0073 |
| 110 | 0.45 | 3.5 | 3.2 | 2.7 | 0.35 | 0.0123 | 0.0066 |
| Early weaned lambs - Moderate growth potential | | | | | | | |
| 22 | 0.44 | 1.1 | 5.0 | 0.9 | 0.28 | 0.0088 | 0.0042 |
| 44 | 0.55 | 2.2 | 5.0 | 1.8 | 0.37 | 0.0119 | 0.0055 |
| 66 | 0.66 | 2.9 | 4.4 | 2.2 | 0.42 | 0.0148 | 0.0071 |
| 88 | 0.76 | 3.3 | 3.8 | 2.6 | 0.44 | 0.0170 | 0.0086 |
| 110 | 0.66 | 3.3 | 3.0 | 2.6 | 0.40 | 0.0154 | 0.0084 |
| Early weaned lambs - Rapid growth potential | | | | | | | |
| 22 | 0.55 | 1.3 | 5.9 | 1.1 | 0.35 | 0.0108 | 0.0049 |
| 44 | 0.66 | 2.6 | 5.9 | 2.0 | 0.45 | 0.0143 | 0.0064 |
| 66 | 0.72 | 3.1 | 4.7 | 2.4 | 0.48 | 0.0159 | 0.0075 |
| 88 | 0.88 | 3.3 | 3.8 | 2.5 | 0.51 | 0.0190 | 0.0095 |
| 110 | 0.94 | 3.7 | 3.4 | 2.8 | 0.53 | 0.0207 | 0.0106 |
| 132 | 0.77 | 3.7 | 2.8 | 2.8 | 0.53 | 0.0181 | 0.0099 |

[a] To convert dry matter to an as-fed basis, divide dry matter values by the percentage of dry matter in the particular feed. Source of information: Nutrient Requirements of Sheep, Sixth Revised Edition, 1985, ©1985; By The National Academy of Sciences

## Table 2: Nutrient Requirements of Lambs[a]

| | | DAILY DRY MATTER | | COMPOSITION OF FEED | | | |
|---|---|---|---|---|---|---|---|
| Body Weight (lb) | Daily Gain (lb) | Per Animal (lb) | % Live Weight | TDN (%) | Crude Protein (%) | Calcium (%) | Phosphorus (%) |
| Growing - Lambs finishing - 4 to 7 months old | | | | | | | |
| 66 | 0.65 | 2.9 | 4.4 | 72.4 | 14.5 | 0.50 | 0.24 |
| 88 | 0.60 | 3.5 | 4.0 | 77.1 | 11.7 | 0.42 | 0.21 |
| 110 | 0.45 | 3.5 | 3.2 | 77.1 | 10.0 | 0.35 | 0.19 |
| Early weaned lambs - Moderate growth potential | | | | | | | |
| 22 | 0.44 | 1.1 | 5.0 | 81.8 | 25.5 | 0.80 | 0.38 |
| 44 | 0.55 | 2.2 | 5.0 | 81.8 | 16.8 | 0.54 | 0.25 |
| 66 | 0.66 | 2.9 | 4.4 | 75.9 | 14.5 | 0.51 | 0.24 |
| 88 | 0.76 | 3.3 | 3.8 | 78.8 | 13.3 | 0.51 | 0.26 |
| 110 | 0.66 | 3.3 | 3.0 | 78.8 | 12.1 | 0.47 | 0.25 |
| Early weaned lambs - Rapid growth potential | | | | | | | |
| 22 | 0.55 | 1.3 | 5.9 | 84.6 | 26.9 | 0.83 | 0.37 |
| 44 | 0.66 | 2.6 | 5.9 | 76.9 | 17.3 | 0.55 | 0.25 |
| 66 | 0.72 | 3.1 | 4.7 | 77.4 | 15.5 | 0.51 | 0.24 |
| 88 | 0.88 | 3.3 | 3.8 | 75.8 | 15.5 | 0.57 | 0.29 |
| 110 | 0.94 | 3.7 | 3.4 | 75.7 | 14.3 | 0.56 | 0.29 |
| 132 | 0.77 | 3.7 | 2.8 | 75.7 | 14.3 | 0.49 | 0.27 |

[a] Values in Table 2 are calculated from daily requirements in Table 1.
Source of information: Nutrient Requirements of Sheep, Sixth Revised Edition, 1985,©1985, by The National Academy of Sciences

## Table 3. Energy and Protein Values for Different Feed Mixtures in Show Lamb Rations

**Nutrient Composition of Feedstuffs**

| bermude grass hay | | alfalfa hay | | corn | | barley | | oats | |
|---|---|---|---|---|---|---|---|---|---|
| %CP | %TDN | %CP | %TDN | %CP | %TDN | %CP | %TDN | %CP | %TDN |
| 8.9 | 46 | 12.9 | 50 | 10.1 | 91 | 12.9 | 84 | 12.2 | 76 |

**Feed Mixtures**

| Feeding Rations | | bermuda grass /corn | | bermuda grass/ barley | | bermuda grass/oats | | alfalfa hay/corn | | alfalfa hay/barley | | alfalfa hay/oats | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| %grain | %forage | %CP | %TDN | %CP | %TDN | %CP | %TDN | %CP | %TDN | %CP | %TDN | %CP | %TDN |
| | 100 | 8.9 | 46.0 | 8.9 | 46.0 | 8.9 | 46.0 | 12.9 | 50.0 | 12.9 | 50.0 | 12.9 | 50.0 |
| 20 | 80 | 9.1 | 55.0 | 9.7 | 53.6 | 9.6 | 52.0 | 12.3 | 58.2 | 12.9 | 56.8 | 12.8 | 55.2 |
| 30 | 70 | 9.3 | 59.5 | 10.1 | 57.4 | 9.9 | 55.0 | 12.1 | 62.3 | 12.9 | 60.2 | 12.7 | 57.8 |
| 40 | 60 | 9.4 | 64.0 | 10.5 | 61.2 | 10.2 | 58.0 | 11.8 | 66.4 | 12.9 | 63.6 | 12.6 | 60.4 |
| 50 | 50 | 9.5 | 68.5 | 10.9 | 65.0 | 10.6 | 61.0 | 11.5 | 70.5 | 12.9 | 67.0 | 12.6 | 63.0 |
| 60 | 40 | 9.6 | 73.0 | 11.3 | 68.8 | 10.9 | 64.0 | 11.2 | 74.6 | 12.9 | 70.4 | 12.5 | 65.6 |
| 70 | 30 | 9.7 | 77.5 | 11.7 | 72.6 | 11.2 | 67.0 | 10.9 | 78.7 | 12.9 | 73.8 | 12.4 | 68.2 |
| 80 | 20 | 9.9 | 82.0 | 12.1 | 76.4 | 11.5 | 70.0 | 10.7 | 82.8 | 12.9 | 77.2 | 12.3 | 70.8 |
| 85 | 15 | 9.9 | 84.3 | 12.3 | 78.3 | 11.7 | 71.5 | 10.5 | 84.9 | 12.9 | 78.9 | 12.3 | 72.1 |

**"Estimated TDN % in feeds containing 2% fat, 13% protein, and different levels of fiber as shown on feed labels*"**

| | Different levels of ash + minerals on feed tag | | | | | |
|---|---|---|---|---|---|---|
| %Fiber listed on feed tag | 2 | 4 | 6 | 8 | 10 | 12 |
| 2 | 86.9 | 85.1 | 83.3 | 81.5 | 79.7 | 77.9 |
| 3 | 86.1 | 84.3 | 82.5 | 80.7 | 78.9 | 77.1 |
| 4 | 85.3 | 83.5 | 81.7 | 79.9 | 78.1 | 76.3 |
| 5 | 84.5 | 82.7 | 80.9 | 79.1 | 77.3 | 75.5 |
| 6 | 83.7 | 81.9 | 80.1 | 78.3 | 76.5 | 74.7 |
| 7 | 82.9 | 81.1 | 79.3 | 77.5 | 75.7 | 73.9 |
| 8 | 82.1 | 80.3 | 78.5 | 76.7 | 74.9 | 73.1 |
| 9 | 81.3 | 79.5 | 77.7 | 75.9 | 74.1 | 72.3 |
| 10 | 80.5 | 78.7 | 76.9 | 75.1 | 73.3 | 71.5 |

"*For 16% protein, deduct .5% TDN. For example a feed tag with 2% ash, 2% fiber, and 16% protein would be 86.4 % TDN."
"*For 10% protein, add .5% TDN. For example a feed tag with 2% ash, 2% fiber, and 10% protein would be 87.4 % TDN."
"*For each 1% added fat, add 2.25% TDN."

## Table 4. Minimal Feed Amounts Required for Show Lambs

| | Lbs. of dry matter feed required for zero gain | | | | |
|---|---|---|---|---|---|
| Sheep weight, lbs. | 50% TDN | 60% TDN | 65% TDN | 70% TDN | 75% TDN |
| 50 | 0.71 | 0.59 | 0.54 | 0.51 | 0.47 |
| 60 | 0.81 | 0.68 | 0.62 | 0.58 | 0.54 |
| 70 | 0.91 | 0.76 | 0.70 | 0.65 | 0.61 |
| 80 | 1.01 | 0.84 | 0.77 | 0.72 | 0.67 |
| 90 | 1.10 | 0.92 | 0.85 | 0.79 | 0.74 |
| 100 | 1.19 | 1.00 | 0.91 | 0.85 | 0.80 |
| 110 | 1.28 | 1.07 | 0.98 | 0.91 | 0.85 |
| 120 | 1.37 | 1.14 | 1.05 | 0.98 | 0.91 |
| 130 | 1.45 | 1.22 | 1.11 | 1.04 | 0.97 |
| | Additional lbs. of dry matter feed required above maintenance | | | | |
| ADG desired, lbs. | 50% TDN | 60% TDN | 65% TDN | 70% TDN | 75% TDN |
| 0.10 | 1.11 | 0.62 | 0.52 | 0.45 | 0.40 |
| 0.20 | 2.21 | 1.24 | 1.05 | 0.89 | 0.79 |
| 0.25 | 2.76 | 1.54 | 1.31 | 1.12 | 0.99 |
| 0.30 | 3.32 | 1.85 | 1.58 | 1.34 | 1.19 |
| 0.35 | 3.87 | 2.16 | 1.84 | 1.56 | 1.39 |
| 0.40 | 4.42 | 2.47 | 2.10 | 1.79 | 1.58 |
| 0.45 | 4.97 | 2.78 | 2.36 | 2.01 | 1.78 |
| 0.50 | 5.53 | 3.09 | 2.62 | 2.23 | 1.98 |
| 0.55 | 6.08 | 3.40 | 2.89 | 2.46 | 2.18 |
| 0.60 | 6.63 | 3.71 | 3.15 | 2.68 | 2.38 |
| 0.65 | 7.18 | 4.01 | 3.41 | 2.90 | 2.58 |
| 0.70 | 7.74 | 4.32 | 3.68 | 3.13 | 2.77 |
| 0.75 | 8.29 | 4.63 | 3.94 | 3.35 | 2.97 |
| 0.80 | 8.84 | 4.94 | 4.20 | 3.57 | 3.17 |
| 0.85 | 9.39 | 5.25 | 4.46 | 3.80 | 3.37 |
| 0.90 | 9.95 | 5.56 | 4.73 | 4.02 | 3.57 |
| 0.95 | 10.50 | 5.87 | 4.99 | 4.24 | 3.76 |
| 1.00 | 11.05 | 6.18 | 5.25 | 4.47 | 3.96 |

## Table 5. Composition Of Feeds

| Dry Basis (Moisture-free) | | | | | | |
|---|---|---|---|---|---|---|
| Feedstuff | Dry Matter (%) | Protein (%) | TDN (%) | Crude Fiber (%) | Calcium (%) | Phosphorus (%) |
| Alfalfa, fresh | 27.2 | 19.3 | 63 | 27.4 | 1.72 | 0.31 |
| Alfalfa hay, prebloom | 84.5 | 19.4 | 60 | 28.5 | 1.25 | 0.23 |
| Alfalfa hay, midbloom | 89.2 | 17.1 | 58 | 30.9 | 1.35 | 0.22 |
| Alfalfa hay, full bloom | 87.7 | 15.9 | 52 | 33.9 | 1.28 | 0.20 |
| Alfalfa hay, mature | 91.2 | 13.6 | 50 | 37.5 | 1.33 | 0.24 |
| Alfalfa haylage | 55.0 | 17.9 | 55 | 32.4 | 1.61 | 0.38 |
| Alfalfa meal, dehydrated | 93.0 | 19.2 | 61 | 26.1 | 1.43 | 0.26 |
| Alfalfa silage | 30.4 | 17.8 | 56 | 30.4 | 1.61 | 0.38 |
| Alfalfa-brome, fresh | 21.6 | 19.6 | 62 | 25.3 | 1.52 | 0.37 |
| Barley, grain | 89.0 | 13.0 | 84 | 5.6 | 0.09 | 0.47 |
| Barley, straw | 88.2 | 4.1 | 40 | 42.4 | 0.34 | 0.09 |
| Beet molasses | 77.0 | 8.7 | 89 | - | 0.21 | 0.04 |
| Beet pulp, dried | 91.0 | 10.0 | 74 | 20.9 | 0.75 | 0.11 |
| Beet pulp, wet | 10.0 | 9.0 | 72 | 20.0 | 0.90 | 0.10 |
| Beet pulp with molasses, dried | 92.0 | 9.9 | 76 | 17.4 | 0.61 | 0.11 |
| Beet tops, ensiled | 20.7 | 12.7 | 51 | 13.3 | 2.32 | 0.20 |
| Bermuda grass hay | 91.1 | 8.9 | 46 | 29.6 | 0.46 | 0.20 |
| Bluegrass, fresh | 30.5 | 17.3 | 63 | 25.1 | 0.56 | 0.47 |
| Bluestem, fresh, immature | 31.6 | 11.0 | 57 | 28.9 | 0.63 | 0.17 |
| Brome, fresh, immature | 32.5 | 20.3 | 63 | 23.9 | 0.30 | 0.26 |
| Brome, fresh, mature | 56.1 | 6.4 | 50 | 33.0 | - | - |
| Brome hay | 89.7 | 11.8 | 52 | 32.0 | 0.30 | 0.26 |
| Buffalo grass, fresh | 47.7 | 9.2 | 56 | 27.7 | 0.52 | 0.16 |
| Cactus, prickly pear | 17.1 | 5.0 | 59 | 13.3 | 6.29 | 0.08 |
| Canarygrass, fresh | 25.8 | 13.2 | 56 | 26.8 | 0.40 | 0.30 |
| Citrus molasses | 65.0 | 10.9 | 77 | - | 2.01 | 0.25 |
| Citrus pulp, dehydrated | 90.0 | 7.3 | 82 | 14.4 | 2.18 | 0.13 |
| Clover, red, hay | 87.7 | 14.9 | 59 | 30.1 | 1.61 | 0.22 |
| Corn and cob meal | 87.0 | 9.3 | 90 | 9.2 | 0.50 | 0.31 |
| Corn cobs, ground | 90.4 | 2.8 | 47 | 35.8 | 0.12 | 0.04 |
| Corn distillers' grains dehydrated | 92.0 | 29.8 | 88 | 9.8 | 0.10 | 0.40 |
| Corn gluten feed | 90.0 | 28.1 | 82 | 8.9 | 0.51 | 0.86 |
| Corn gluten meal, dehydrated | 91.0 | 47.1 | 84 | 4.4 | 0.18 | 0.44 |
| Corn grain, No. 2 Dent | 89.0 | 10.0 | 91 | 2.2 | 0.02 | 0.35 |

| Feedstuff | Dry Matter (%) | Protein (%) | TDN (%) | Crude Fiber (%) | Calcium (%) | Phosphorus (%) |
|---|---|---|---|---|---|---|
| Corn silage, dough stage | 27.9 | 8.4 | 70 | 26.3 | 0.28 | 0.06 |
| Corn silage, mature | 55.0 | 7.8 | 68 | 23.0 | 0.27 | 0.19 |
| Corn stover, dry | 87.2 | 5.9 | 59 | 37.1 | 0.49 | 0.09 |
| Corn stover, silage | 27.2 | 7.2 | 58 | 32.1 | 0.38 | 0.19 |
| Corn, sweet, cannery refuse, ensiled | 29.4 | 8.8 | 72 | 26.8 | - | - |
| Cotton burrs | 92.0 | 9.6 | 45 | 39.0 | 1.13 | 0.12 |
| Cottonseed | 92.7 | 24.9 | 94 | 18.2 | 0.15 | 0.73 |
| Cottonseed hulls | 90.3 | 4.1 | 41 | 47.5 | 0.16 | 0.10 |
| Cottonseed meal, expeller | 94.0 | 43.6 | 78 | 12.8 | 0.17 | 1.28 |
| Cottonseed meal, solvent | 91.5 | 44.8 | 75 | 13.1 | 0.17 | 1.31 |
| Fescue hay | 88.5 | 10.5 | 54 | 31.2 | 0.50 | 0.36 |
| Grama grass, fresh, immature | 41.0 | 13.1 | 64 | 27.2 | 0.53 | 0.19 |
| Grama grass, fresh, mature | 63.4 | 6.5 | 58 | 32.7 | 0.34 | 0.12 |
| Grass-legume silage | 29.3 | 11.8 | 56 | 31.4 | 0.78 | 0.28 |
| Johnson grass hay | 91.0 | 7.6 | 55 | 33.3 | 0.81 | -.31 |
| Lespedeza, fresh | 25.0 | 16.4 | 60 | 32.0 | 1.35 | 0.21 |
| Linseed meal, expeller | 91.0 | 38.8 | 81 | 9.9 | 0.48 | 0.98 |
| Linseed meal, solvent | 91.0 | 38.6 | 76 | 9.8 | 0.44 | 0.91 |
| Milk, dry, skim | 94.0 | 35.6 | 80 | 0.2 | 1.34 | 1.09 |
| Milk, whole | 12.0 | 25.8 | 130 | 0.0 | - | - |
| Molasses, sugarcane | 75.0 | 4.3 | 72 | - | 1.19 | 0.11 |
| Oat hay | 88.2 | 9.2 | 61 | 31.0 | 0.26 | 0.24 |
| Oat silage | 31.7 | 9.7 | 59 | 31.6 | 0.37 | 0.30 |
| Oat straw | 90.1 | 4.4 | 45 | 41.0 | 0.78 | 0.10 |
| Oats, grain | 89.0 | 13.2 | 76 | 10.0 | 0.11 | 0.39 |
| Orchard grass, fresh | 23.8 | 18.4 | 65 | 23.6 | 0.58 | 0.55 |
| Orchard grass hay | 88.3 | 9.7 | 57 | 34.0 | 0.45 | 0.37 |
| Prairie hay, midbloom | 91.0 | 8.1 | 57 | 32.1 | 0.34 | 0.21 |
| Prairie hay, late bloom | 91.3 | 6.6 | 53 | 32.5 | 0.36 | 0.13 |
| Prairie hay, overripe | 91.5 | 4.0 | 48 | 35.4 | 0.52 | 0.08 |
| Rice bran | 91.0 | 14.8 | 66 | 12.1 | 0.07 | 2.00 |
| Rye grain | 89.0 | 13.4 | 85 | 2.2 | 0.07 | 0.38 |
| Ryegrass, Italian, fresh | 24.3 | 16.3 | 62 | 21.8 | 0.64 | 0.41 |
| Safflower meal, solvent | 90.5 | 49.1 | 76 | 9.4 | 0.26 | 1.83 |
| Sorghum grain, milo | 89.0 | 12.4 | 80 | 2.2 | 0.04 | 0.33 |
| Sorghum silage, sorgo | 26.0 | 6.3 | 58 | 26.8 | 0.35 | 0.20 |
| Sorghum stover, milo, silage | 29.4 | 7.3 | 57 | 26.3 | 0.25 | 0.18 |
| Sorghum stover, milo, sun-cured | 85.1 | 5.3 | 57 | 32.6 | 0.40 | 0.11 |

| Feedstuff | Dry Matter (%) | Protein (%) | TDN (%) | Crude Fiber (%) | Calcium (%) | Phosphorus (%) |
|---|---|---|---|---|---|---|
| Soybean hay | 89.2 | 16.3 | 52 | 32.1 | 1.29 | 0.23 |
| Soybean hulls, flakes | 91.3 | 13.7 | 64 | 38.9 | 0.59 | 0.17 |
| Soybean meal, solvent | 89.0 | 51.5 | 81 | 6.7 | 0.36 | 0.75 |
| Soybean seeds | 90.0 | 42.1 | 94 | 37.9 | 0.28 | 0.66 |
| Soybean straw | 87.6 | 5.5 | 38 | 44.1 | 1.59 | 0.06 |
| Sudan grass, fresh | 17.6 | 16.8 | 70 | 23.0 | 0.43 | 0.41 |
| Sudan grass, hay | 88.9 | 8.0 | 56 | 36.0 | 0.55 | 0.30 |
| Timothy, fresh, midbloom | 28.1 | 9.6 | 66 | 33.7 | 0.50 | 0.35 |
| Timothy, hay, late bloom | 88.0 | 8.3 | 58 | 32.4 | 0.38 | 0.18 |
| Trefoil, birdsfoot, fresh | 20.0 | 21.0 | 66 | 24.7 | 1.91 | 0.22 |
| Turnips, roots, fresh | 9.3 | 9.0 | 85 | 11.5 | 0.64 | 0.26 |
| Vetch, hay | 88.2 | 20.0 | 62 | 28.5 | 1.36 | 0.34 |
| Wheat, fresh, immature | 21.5 | 28.6 | 73 | 17.4 | 1.36 | 0.40 |
| Wheat bran | 89.0 | 18.0 | 70 | 11.2 | 0.16 | 1.32 |
| Wheat grain | 88.0 | 18.0 | 87 | 2.9 | 0.06 | 0.41 |
| Wheat middlings | 90.0 | 19.1 | 69 | 8.9 | 0.16 | 1.01 |
| Wheat straw | 90.1 | 3.6 | 45 | 41.5 | 0.17 | 0.08 |
| Wheatgrass, crested, fresh | 30.8 | 23.6 | 67 | 32.6 | 0.46 | 0.35 |
| Whey, dried | 94.0 | 13.9 | 81 | - | 0.93 | 0.84 |
| Yeast, brewers', dried | 93.0 | 47.9 | 78 | 3.2 | 0.14 | 1.54 |
| Yeast, Torula, dried | 93.0 | 51.9 | 80 | 2.2 | 0.61 | 1.81 |

***Source***: Adapted from feed tables in Nutrient Requirements of Beef Cattle, Subcommittee on Beef Cattle Nutrition, National Research Council. National Academy Press, Washington, D.C., 1976, 1984

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