

The Oklahoma Cooperative Extension Service Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.



Management of Cows with Limited Forage Availability

Chris Richards
Beef Cattle Specialist

Dave Lalman
Beef Cattle Specialist

Glenn Selk
Beef Cattle Specialist

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://osufacts.okstate.edu>

Cull Poorer Producing Cows

Many producers are currently being faced with limited forage availability due to drought and/or fire. One of the first management tools that should be evaluated for cow/calf producers is to cull poorer producing cows. This will allow for capture of their value at a time in the cattle cycle when prices for cows and culled replacement heifers are fair. It will also allow for some capital investment to be used when cattle prices are considerably lower and forage supplies are more plentiful.

Below is a suggested order of culling in the face of diminishing forage supplies.

Culling Order

1. Open (non-pregnant) old cows.
2. Open replacement heifers.
3. Old cows with unsound mouth, eyes, feet, and legs.
4. Open cows of any age.
5. Thin cows over 7 years of age (Body Condition Score < 4).
6. Very late-bred 2 year olds.

The first two items on the list are automatic culls in any forage year. Old open cows are not worth keeping through a low-forage, expensive feeding period. Replacement heifers that were properly developed and mated to a fertile bull or in a well organized artificial insemination (AI) program should be pregnant. If they are not bred, there is a likelihood that they are reproductively unsound and should be removed from the herd while still young enough to go to the feedlot and grade choice with an A maturity carcass. The more difficult decisions on culling come when the producer is short enough in forage and feed supplies that he/she feels the need to cull cows that have been palpated and found pregnant. That culling order starts with number five on our culling order. This is necessary only when grass and feed supplies are very short. The thin older cows are going to require additional feed resources to have a high probability of being productive the following year and the late-bred 2 year olds are least likely to have long-term productivity.

Feeding Options

Once poorer producing cows have been removed, there are several options to meet the nutritional demands of cows. These include moving them to alternate grazing locations, obtaining hay, feeding a complete diet, or limit feeding an energy supplement to extend hay or pasture resources. Decisions should be based on the additional labor requirement, management skills, feed storage capacity, and the availability of feed bunks, feed delivery equipment, and a well drained drylot or sacrifice pasture. Grazing forage has always been and will continue to be the most economical and practical way to maintain beef cows. However, in unique situations, limit feeding may be an economical alternative to purchasing expensive hay. The cost effectiveness of limit feeding will depend on each producer's price of alternative forage, the price of grain or by-product energy sources and the price of the protein supplement needed for the hay or limit feeding program.

Moving to alternate grazing locations or obtaining hay to feed free choice will require the least daily labor input. Feeding complete diets or limit fed hay and energy concentrate will require more facilities and daily labor. Depending on the price of grain, nutrients to maintain cows may be cheaper to purchase through concentrate feeds rather than roughage.

Obtain Sufficient Hay

For cows in late gestation or early lactation, 27 lbs per day of hay that is at least 59 percent total digestible nutrients (TDN) and 9 percent protein is needed to meet the demands of average milk-producing 1,200 lb cows in mid lactation.

Feeding a Complete Diet

If hay in sufficient quantity or quality is not available, you can consider limit feeding hay that is available with a concentrate diet. If no hay is available or limiting hay consumption is not feasible (see "Limit Feeding Hay" below), Table 1 represents a complete diet that can be limit-fed. This diet should be fed with a good quality free choice mineral that contains an ionophore. Table 2 provides calculated feeding rates for late gestation and lactating cows in good body condition. Feeding this diet free choice will result in cows becoming heavy conditioned and result in higher cost than feeding good quality hay.

Table 1. Complete diet for maintaining cows.

| Ingredients | Composition, % As-fed |
|--|-----------------------|
| Cracked corn | 10.00 |
| Corn gluten feed | 28.75 |
| Cottonseed hulls | 20.00 |
| Soybean hulls | 20.00 |
| Corn distillers grains | 20.00 |
| Limestone, 38% | 1.25 |
| <i>Calculated nutrient concentration</i> | <i>%, As-fed</i> |
| NEm, Mcal/cwt | 75.0 |
| TDN, % | 66.1 |
| Crude protein, % | 14.6 |
| Calcium, % | 0.74 |
| Phosphorus, % | 0.42 |

Table 2. Guidelines for limit fed complete ration (Table 1) for cows in average body condition.

| State of Production | Lb, As-fed |
|---------------------------------|------------|
| <i>Gestation</i> | |
| 1100 lb | 16.8 |
| 1200 lb | 17.6 |
| 1300 lb | 18.4 |
| <i>Lactation (average milk)</i> | |
| 1100 lb | 20.5 |
| 1200 lb | 21.5 |
| 1300 lb | 22.4 |

Limited Forage Available - Limit Feed Concentrate Mix

Table 3 includes guidelines for rations based on corn grain, supplement and minimal amounts of long stemmed hay. Several Oklahoma feed manufactures have supplements formulated for feeding with limit fed corn and hay. Table 4 represents a protein supplement designed for use in limit feeding beef cows. These diets require added limestone if the protein supplement does not contain at least 2.5 percent calcium (Ca). The added calcium is to offset the high phosphorus content of corn. An additional method of supplying the needed calcium would be to use a mineral supplement designed for cattle grazing wheat pasture because they typically have high calcium and low phosphorus contents. Salt and vitamin A should also be provided in the supplement or a free choice mineral. The concentrate portion of these diets should not be fed free choice.

Table 5 represents a complete supplement mixture that is designed for use in limiting feeding situations. It is similar to several 14 percent crude protein mixes that are available through local feed manufactures. On an as-fed basis, it is calculated to contain 13 percent protein, 70 percent TDN, 0.60 percent Ca and 0.55 percent phosphorus (P). Table 6 provides suggested feeding rates for these types of supplements along with 0.5 percent body weight of hay. If producers

Table 3. Guidelines for limit fed corn rations for cows in average body condition.

| State of Production | Whole corn | Long 38 to 44% stemmed | | Limestone |
|---------------------------------|------------|------------------------|-----------|-----------|
| | | protein supplement | grass hay | |
| <i>Gestation</i> | | Lb, As-fed | | |
| 1100 lb | 8.3 | 2.0 | 5.5 | 0.2 |
| 1200 lb | 9.0 | 2.0 | 6.0 | 0.2 |
| 1300 lb | 9.8 | 2.0 | 6.5 | 0.2 |
| <i>Lactation (average milk)</i> | | Lb, As-fed | | |
| 1100 lb | 11.0 | 3.0 | 5.5 | 0.2 |
| 1200 lb | 12.0 | 3.0 | 6.0 | 0.2 |
| 1300 lb | 13.0 | 3.0 | 6.5 | 0.2 |

Table 4. Protein supplement for use in limit fed corn diets.

| Ingredients | %, As-fed | | |
|----------------------------------|-----------|-------|-------|
| Soybean meal, 47% | 59.00 | 29.50 | --- |
| Cottonseed meal | --- | 29.50 | --- |
| Linseed meal | --- | --- | 81.06 |
| Wheat middlings | 22.96 | 22.96 | 0.9 |
| Limestone, 38% | 5.0 | 5.0 | 5.0 |
| Cane molasses | 3.8 | 3.8 | 3.8 |
| Salt | 2.5 | 2.5 | 2.5 |
| Urea | 2.3 | 2.3 | 2.3 |
| Dicalcium phosphate | 3.0 | 3.0 | 3.0 |
| Potassium chloride | 1.0 | 1.0 | 1.0 |
| Copper sulfate | 0.04 | 0.04 | 0.04 |
| Selenium 600 | 0.15 | 0.15 | 0.15 |
| Zinc oxide | 0.02 | 0.02 | 0.02 |
| Vitamin A, 30,000 units per gram | 0.15 | 0.15 | 0.15 |
| Rumensin 80 ^{®a} | 0.08 | 0.08 | 0.08 |

^aTo provide 60 mg Rumensin per pound of supplement.

Table 5. Complete supplement composition, % As-fed.

| Ingredient | Wheat middlings/soybean hulls |
|----------------------------------|-------------------------------|
| Cottonseed meal | 2.86 |
| Wheat middlings | 38.1 |
| Soybean hulls | 28.6 |
| Cracked corn | 24.2 |
| Cane molasses | 4.73 |
| Limestone, 38% | 0.952 |
| Salt | 0.476 |
| Rumensin 80 | 0.024 |
| Vitamin A, 30,000 units per gram | 0.029 |
| Copper sulfate | 0.005 |
| Selenium 600 | 0.029 |
| Zinc oxide | 0.0001 |

Table 6. Guidelines for limit fed complete supplement (Table 5) for cows in average body condition.

| State of Production | Wheat middlings/soybean hull supplement | Long stemmed grass hay |
|---------------------------------|---|------------------------|
| <i>Gestation</i> | Lb, As-fed | |
| 1100 lb | 14.5 | 5.5 |
| 1200 lb | 15.0 | 6.0 |
| 1300 lb | 15.5 | 6.5 |
| <i>Lactation (average milk)</i> | Lb, As-fed | |
| 1100 lb | 18.0 | 5.5 |
| 1200 lb | 18.7 | 6.0 |
| 1300 lb | 19.5 | 6.5 |

are not set up to handle bulk grain or other commodities or do not have the equipment and/or feed bunks necessary to feed grain, this mix can be made into 3/8- or 3/4-inch cubes for feeding on the ground. Because of the high level of corn and soybean hulls, the pellets or cubes will be somewhat soft. Consequently, handling, auguring, etc. should be minimized to reduce the amount of fines. As an alternative, many feed manufacturers already have available 20 percent cubes that will work well for this purpose.

Limit Energy Concentrate Feeding Management Tips

Limit feeding energy concentrate diets to breeding females will require greater skill and discipline on the part of the herd manager. Acidosis, bloat, founder, etc. are always a risk when energy concentrate diets are fed to ruminants. These risks can be minimized by the following management practices:

1. When starting the concentrate feeding program, gradually increase the amount of grain fed and reduce the amount of hay fed over a 2-week period.
2. Provide plenty of feeding space to accommodate uniform consumption. A minimum of 30 inches of linear bunk space per cow should be used, more for horned cows.
3. Whole shelled corn is safer to feed compared to finely processed grain. If the grain must be processed, it should be coarsely rolled or cracked.
4. Long stemmed hay should be fed at a minimum DM level of 0.25 percent and up to 0.5 percent of body weight for cows receiving whole shelled corn. If cracked or rolled corn is used, provide a minimum of 0.5 percent body weight hay DM, but do not exceed 0.75 percent. Feeding less hay reduces the cost, but increases the need

for greater management intensity. As the cows and the manager adjust to the program, the amount of hay fed can be gradually reduced to the minimum value suggested above.

5. Feeding an ionophore will help prevent acidosis and bloat as well as reduce the amount of feed needed by 7 to 10 percent.
6. Feed cattle at the same time every day. Altering the time of feeding, especially in limit feeding programs, greatly increases the risk of digestive upset. An ideal feeding situation would be one where corn, hay and supplement could be placed in the bunk ahead of time. At the appropriate time of day, the cattle would be given access to the feed by simply opening the lot gate. An alternative would be to feed the hay before the grain and supplement.
7. Remember, the idea is to supply a ration in a very small package that is highly concentrated in energy. Consequently, the total pounds consumed per day will be less than the cattle are accustomed to. The cattle will likely act hungry for the first few days. They will also have a gaunt appearance, compared to cattle receiving free choice hay or pasture. Resist the temptation to feed more because they act or look hungry. Otherwise the advantages of decreased cost and/or decreased hay utilization will be negated.

Limit Feeding Hay

The most certain way to make sure the cows are receiving adequate hay in limit feeding situations is to limit feed hay daily along with the concentrate. This could be practical with square bales, a hay grinder, or the ability to unroll bales for the cows. If that is not possible, controlling access to round bales may be an option. For this method, facilities are needed in which the cows and hay are maintained separately, and also be sure to have sufficient bales available for all cows to eat at one time. It may be difficult to get cows away from the bales, so it is recommended to place the bales in one pen and then feed concentrate in bunks in additional pens or pasture. If cubes are being fed on pasture, bunks would not be required. There are two strategies for time limit feeding hay with concentrate diets, daily or every other day. For the daily method, cows should be allowed access to their hay for approximately 45 minutes. If allowing access to hay every other day while limit feeding concentrates, cows should be allowed approximately 4 hours of access to the hay. It is NOT recommended that you feed hay less frequently than every other day. Hay should always be fed before the concentrate to ensure adequate hay intake. Feeding the concentrate after the hay may also be helpful in getting the cows to leave the hay. Limit feeding hay may result in cows acting hungry for the first couple of weeks.