

**Hay replacement rations for cows and early weaned calves**  
**Johnny Rossi – Extension Animal Scientist**

It has been another hot dry year and hay is likely to be in short supply again this winter. Many producers are looking for sources of feed for their cattle. Hay is an option, but certainly not the only option. Grains are often cheaper per unit of energy than hay, especially when hay prices increase during a drought period. Three major factors producers must keep in mind when purchasing supplemental feed:

- I. Cost of the hay or grain
- II. Nutrient content or quality
- III. Trucking or freight costs

As costly as it is to purchase, make sure to buy quality feed. Have the feedstuffs tested to determine nutrient content. Hay is highly variable in nutrient content, but many of the by-product feeds are also highly variable in nutrient content. Contact the local county extension agent to submit samples for testing.

Tables 1 and 2 are rations designed for free-choice feeding to lactating (Table 1) or dry cows (Table 2). All rations are based on average nutrient values for each ingredient and may require adjustments after feeds have been tested. Check feeders daily to make sure feed is not bridged in the feeder and to remove accumulated fines as needed. These rations should be hand-fed for one week prior to self-feeding to adjust cattle to these rations. Start at 10 pounds of total mix and increase 2 pounds every day until cattle are on full feed. Expected consumption is 25 to 30 pounds per day. To make these rations economical, a very cheap source of roughage must be available to mix with the grain. If cheap roughage is not available, limit-feeding the concentrate diet should be considered.

Table 1. These rations are designed to be fed free-choice to a lactating cow.

Ingredient	Ration (lbs/ton)						
	1	2	3	4	5	6	7
Corn	860	1000	450	600			550
Whole Cottonseed			500			350	
Corn gluten feed				400	450		
Soyhulls					650	750	
Distillers grains							550
Cottonseed or Soybean meal	140						
Peanut Hulls, cottonseed hulls or hay	1000	980	1050	1000	900	900	900
Total	2000	2000	2000	2000	2000	2000	2000

Vitamin A should be added to the above rations at the rate of 3.5 million units per ton or provided in a good quality salt-mineral mix.

Rumensin® or Bovatec® should be included. These can be purchased in a commercial mineral mix. Purchase a mineral mix that is approximately 20% calcium and is designed for use with grain based diets. The mineral can be either mixed with the feed or fed free-choice. When feeding free-choice,

monitor intake closely to ensure cows are eating the recommended daily rate of the mineral. If mixing minerals into the ration, include limestone at 15 lbs per ton and trace mineral salt at 10 lbs/ton.

Table 2. These rations are designed to be fed free-choice to a dry pregnant cow.

Ingredient	Ration (lbs/ton)						
	1	2	3	4	5	6	7
Corn	800		550	450			600
Whole Cottonseed			300			250	
Corn gluten feed				450	400		
Soyhulls		1000			550	650	
Distillers grains							350
Cottonseed or Soybean meal	100						
Peanut Hulls, Cottonseed Hulls, or hay	1100	1000	1150	1100	1050	1100	1050
Total	2000	2000	2000	2000	2000	2000	2000

Vitamin A should be added to the above rations at the rate of 3.5 million units per ton or provided in a good quality salt-mineral mix.

Rumensin® or Bovatec® should be included. These can be purchased in a commercial mineral mix. Purchase a mineral mix that is approximately 20% calcium and is designed for use with grain based diets. The mineral can be either mixed with the feed or fed free-choice. When feeding free-choice, monitor intake closely to ensure cows are eating the recommended daily rate of the mineral.

If mixing minerals into the ration, include limestone at 15 pounds per ton and trace mineral salt at 10 lbs/ton.

Table 3 lists rations that must be fed each day in limited amounts to either dry or lactating cows. Several important management practices need to be evaluated before limit-feeding grain-based rations.

- 1) Adequate bunk space must be provided so that all cows can eat at one time to prevent less aggressive cows from getting too little feed. In addition, cows should be fed at the same time every day to decrease the risk of digestive problems.
- 2) When selecting a site for feeding, make sure it is well drained and has a secure fence around it. Select an area with poor quality pasture and few trees.
- 3) Corn or by-product feeds do not have to be cracked or ground before feeding. Sorghum grain and wheat must be ground or rolled before feeding.
- 4) A limited amount of roughage must be fed every day to limit digestive problems such as bloat and acidosis. If feeding hay, square bales are the easiest way but availability may be limited. The best way to feed a round bale is to either roll the hay out or place in rings and limit the time cows are allowed to eat the hay. It will take some practice to estimate the time required for cows to eat

three to five pounds of hay, but expect 30 to 45 minutes to be the optimum amount of time. Also, all cows must be able to eat at one time, so make sure to provide adequate bales for all cows to eat at once.

- 5) Cows will be eating approximately half as much feed as they are accustomed to. Therefore, cows will act very hungry for the first couple of weeks. Resist the temptation to feed cows more as this will negate feed cost savings. Only increase feed if cows are losing body condition.
- 6) Cows should be gradually started on feed. Begin with feeding 5 lb of grain and increase 2 lb every other day until the desired grain level is reached.
- 7) A mineral supplement must be fed that is high in calcium and contains trace minerals and vitamins. Grains are low in calcium, so a high calcium mineral supplement should be fed. An ionophore such as Bovatec or Rumensin must be fed. Feed efficiency is significantly improved and digestive upsets greatly decreased by feeding an ionophore.
- 8) Corn can be contaminated with aflatoxins. Make sure the corn is not contaminated before you buy it.

Table 3. These rations are designed to be fed at rates of 1.9% of body weight to a lactating cow or 1.4% of body weight per day to a dry cow.

Ingredient	Ration (lbs/ton)						
	1	2	3	4	5	6	
Corn	1200		1050	1000			850
Whole Cottonseed		550	550			550	
Soybean or cottonseed meal	400						
Corn gluten feed				600	600		
Soyhulls		1050			1050	1050	
Distillers grains							750
Peanut Hulls, Cottonseed Hulls, or hay	400	400	400	400	350	400	400
Total	2000	2000	2000	2000	2000	2000	2000

Vitamin A should be added to the above rations at the rate of 3.5 million units per ton or provided in a good quality salt-mineral mix.

Rumensin® or Bovatec® should be included. These can be purchased in a commercial mineral mix. Purchase a mineral mix that is approximately 20% calcium and is designed for use with grain based diets. The mineral can be either mixed with the feed or fed free-choice. When feeding free-choice, monitor intake closely to ensure cows are eating the recommended daily rate of the mineral.

If mixing minerals into the ration, include limestone at 15 lbs per ton and trace mineral salt at 10 lbs/ton. Hay can be limit fed at 4 to 5 lbs per head per day to substitute for peanut hulls.

Table 4 lists rations that can be fed to newly weaned calves that are at least 60 days of age.

Table 4. Rations for early weaned calves.

	1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	4 <sup>b</sup>	5 <sup>b</sup>	6 <sup>b</sup>
Corn		1050	1000	1000	400	
Cottonseed		350				
Distillers grains	500		500			600
Corn gluten feed					400	
Soybean hulls	1000				400	900
Cottonseed meal or soybean meal	200	300	200	500	300	
Cottonseed hulls or peanut hulls	300	300	300	500	500	500
Total	2000	2000	2000	2000	2000	2000

<sup>a</sup>Feed rations 1, 2, and 3 at approximately 2.5% of BW to achieve a gain of 2.25 lb per day. Rations 4, 5, and 6 can be fed free-choice. Start feeding the ration at 0.5% of body weight. Wait until calves are eating at least 2% of body weight before allowing free-choice access. Rumensin® or Bovatec® should be included. These can be purchased in a commercial mineral mix. Purchase a mineral mix that is approximately 20% calcium and is designed for use with grain based diets. The mineral can be either mixed with the feed or fed free-choice. When feeding free-choice, monitor intake closely to ensure cows are eating the recommended daily rate of the mineral. If mixing minerals into the ration, include limestone at 15 lbs per ton and trace mineral salt at 10 lbs/ton.

Calves destined for sale should be implanted. Do not implant potential replacement heifers.