

# Some Feeding Alternatives for Wintering Beef Cattle

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A successful wintering program for beef cows gets them through the winter as economically as possible, but in condition to calve and milk well in the spring. Cattlemen may consider several alternatives if conventional feeds are in short supply.

Mature pregnant beef cows weighing 900 to 1,100 pounds need a minimum maintenance ration of about 8 to 10 pounds of TDN (total digestible nutrients) and from 0.6 to 0.8 pounds of digestible protein. Energy needs for maintenance increase as cows get larger and have more body weight to maintain. After calving, the protein requirements nearly double for milk production, and TDN should be increased to 12 to 15 pounds depending upon size, condition, and production level of the cows.

To know if protein should be added to a ration, it is essential that feeds be analyzed. A feed sample analysis is the only sure way to know. There is no need to feed too much protein, especially to adult animals. Adequate nutrition is the goal.

Alfalfa probably is the most nearly complete forage for cattle. It is a rich source of protein, TDN, minerals, and vitamins. Its quality varies according to stage of maturity when harvested. Alfalfa analyzes about 15 percent crude protein or about 11 percent digestible protein. Late-cut, very mature alfalfa usually will have less protein than average, and early-cut alfalfa may analyze from 18 to 20 percent or more crude protein. TDN also may vary from about 55 percent for early-cut, down to 50 percent or less for late-cut.

If alfalfa is full-fed to the cow herd, it usually supplies more protein than is necessary, especially before calving. A daily ration of 6 pounds of average alfalfa will supply about 0.7 pound of digestible protein, which is adequate for wintering most mature pregnant beef cows. The ration can be cheapened by balancing it out with about 15 pounds of lower quality roughage such as non-legume hay, grass straw, or cereal straw. Such a ration is balanced for protein and TDN without the

use of a commercial protein supplement, and often is cheaper when home-grown hay is available.

Quality of native meadow hay and improved grass hay also varies with stage of maturity when harvested. Late cutting means lower protein content and nutrient digestibility; TDN usually is reduced about 50 percent. Protein content of grass hay may vary from about 6 to 12 percent crude or about 4 to 8 percent digestible. A full feed of 20 pounds of 7 percent crude protein grass hay has adequate protein for beef cows. Protein, while needed by the animal's tissue, also is required by rumen microorganisms for adequate utilization of roughage. Supplemental protein fed with roughage of low protein content usually will increase roughage consumption.

Low quality roughages such as grass straw and cereal grain straw can be used to winter cattle if properly supplemented with protein, minerals, and vitamin A. Much work has been done at Oregon State University in attempting to determine the best method to utilize these feeds. Grass and cereal straws usually run from 40 to 48 percent TDN, but digestible protein may range from less than 1 percent for cereal grain straw up to about 3 percent for better quality grass straw. Twenty pounds of high quality grass straw may supply from 0.4 to 0.6 pound digestible protein, whereas 20 pounds of cereal grain straw will supply only about 0.15 pound digestible protein.

Mature cattle can make the best use of low and medium quality roughages. Young growing cattle such as replacement heifers need more protein than mature, dry cows. Bred yearlings and two-year-olds should be segregated according to age groups and fed to gain at a normal rate of near 1.0 pound per day. Weaner heifer calves should gain from 1.0 to 1.5 pounds per day.

When feed supplies are short, it may be more efficient to creep-feed suckling calves rather than to feed the mother cows at usual levels necessary to provide adequate milk production.



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Average Protein and TDN Content for Some Common Feeds

Feed	Average crude protein	Average digestible protein	Average TDN	Barley equivalent*
	%	%	%	%
<i>Hay</i>				
Alfalfa hay .....	15.0	11.0	51	65
Native meadow hay .....		5.0	50	64
Bluegrass hay .....	11.0	8.0	50	64
Barley hay .....	6.0	4.0	47	60
Oat hay .....	6.0	4.5	47	60
Wheat hay .....	5.0	3.0	47	60
Rye hay .....	5.0	3.0	42	53
<i>Straw</i>				
Barley straw .....	2.5	0.7	42	53
Oat straw .....	2.5	0.7	45	57
Wheat straw .....	2.5	0.4	40	51
Wheat chaff .....	3.0	1.0	43	55
Bluegrass straw .....	5.0	2.5	46	58
Tall fescue straw .....	5.0	2.2	50	64
Annual ryegrass straw .....	4.0	2.0	46	58
Perennial ryegrass straw .....	4.0	2.0	48	61
<i>Silage</i>				
Corn silage (28% dry matter) .....	3.0	1.5	19	24
Grass silage (28% dry matter) .....	4.0	2.5	17	22
Mint silage (30% dry matter) .....	4.0	2.5	15	19
<i>Concentrate</i>				
Barley .....	10.0	8.0	78	100
Oats .....	9.0	7.5	70	90
Molasses, beet .....	6.7	3.8	61	78
Molasses, cane .....	3.2	1.8	53	68
Beet pulp (dried) .....	9.0	4.1	68	87
Cottonseed meal .....	41.0	33.0	70	89
Soybean meal .....	42.0	37.0	78	100

\* For example: Alfalfa hay has a calculated TDN feeding value of 65 percent of barley.

Your Extension agent can assist in helping to balance rations based on animal requirements and nutritive value of feeds.

Nutrient Requirements for Different Classes of Cattle

Class of cattle	Daily dry matter	TDN	Digestible protein
	lbs.	lbs.	lbs.
Mature pregnant cows .....	15 to 18	8 to 10	0.6 to 0.8
Pregnant heifers .....	18 to 20	10 to 12	0.9 to 1.2
Weaner calves .....	11 to 14	5 to 7	0.7 to 1.0
Bulls .....	20 to 25	10 to 12	1.0 to 1.5

Both dry and liquid protein supplements are available and are fed extensively on a free-choice basis. Management factors, such as cost, ease of handling, mixing, and feeding facilities, are items to consider.

Non-protein nitrogen, such as urea or biuret, can be fed successfully to all classes of beef cattle except creep-fed calves under three months of age. Beef cows can be fed from 0.1 to 0.2 pound daily of urea, so long as 2 pounds or more of grain or molasses is in the ration. It is most important that urea be fed with a source of readily available carbohydrate such as grain or molasses. It should not be fed with an all-roughage diet. Also keep in mind that biuret requires a feeding period of two to three weeks before cattle utilize it most efficiently. Urea has either 2.62 or 2.81 protein equivalent on a nitrogen basis. As a protein supplement 600 pounds of barley plus 100 pounds of urea has as much protein and energy as 700 pounds of 43 percent protein soybean oil meal. Urea must be mixed *thoroughly* into the carrier. A safe basis for feeding urea is at 1 percent of the total ration, or one-third of the protein equivalent in a supplemental source.

To assure adequate mineral supplementation, mix 1 part steamed bone meal, dicalcium phosphate, or tricalcium phosphate with 3 parts coarsely ground trace mineralized iodized salt and feed free choice.

When low quality roughage makes up most of the ration, it may be necessary to provide supplementary vitamin A. This can be added in a feed supplement or it can be injected. When cattle are being worked through the chute during the fall season is an excellent time to give an intramuscular injection that will last for several months.

Close culling of less productive and older broken-mouthed cows will leave more feed available for high producers.