Feeding High Protein Range Cubes

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High protein range cubes (38-41% natural protein) are designed to be fed to beef cattle on dry winter forages. To get the most out of your feed program it is important to understand the interaction between dry roughage and high protein concentrates. Most standing dry grasses in the winter are low in protein, but more importantly they are quite hard for the animal to digest. For wintering cows and for dry wintering other stock where the objective of feeding is to obtain most of the needed energy from these dry forages the primary principle of supplementation is to improve the intake and digestibility of the forage.

The only supplemental feeds which will consistently meet the objectives of improving both intake of the forage and its digestibility are high protein concentrates. For example the feeding of an adequate amount of high protein concentrate to cows on dry native range in the winter will likely cause a large increase in forage intake (2-10 lbs. per day) and give an improvement in dry matter digestibility of the forage of up to 15%. Thus, the feeding of a small amount of high protein concentrate to cattle offered adequate quantities of dry forage is usually the least expensive method of wintering cattle in Oklahoma.

What type of feed causes an increase in both digestibility and intake of a low quality forage?

High protein concentrates such as soybean meal, cottonseed meal, and mixtures of these to which other important nutrients such as phosphorus and vitamin A have been added.

What type of supplemental feeds do not cause this desirable effect on both forage intake and digestibility?

As strange as it may seem, the high energy concentrates such as corn milo and wheat are the most damaging to the utilization of low quality forages. The reason for this is that the starch from the grain reduces the digestibility in the rumen of lignin and cellulose from the forage. The higher the quality or the digestibility of the forage the less serious this problem is.

Feeds such as alfalfa hay or pellets have a slight positive effect on the digestibility of the low quality forage, particularly when fed in small amounts (6-7 lbs.). They are a good alternative when good quality standing forage is limited.

Low protein formula feeds are likely mixtures of grains and protein concentrates. They cannot be counted on to stimulate the intake and digestibility of very low quality forage like the high protein concentrates. They may have another important function to be covered later.

What are the limitations of feeding small amounts of high protein cubes on low quality winter forage?

Often cold stress or production requirements such as lactation require more nutrients than the dry winter forage plus cubes can supply. When it becomes impossible to meet the nutrient needs beyond what can be provided by the improvement in forage digestibility and intake you must add more feed.

What if the nutrient deficiency between the animals' need and what the forage and the cubes will provide is small?

In this case many cattlemen simply increase the amount of high-protein cubes fed even if the amount fed exceeds the total crude protein requirement. This may be better than using a slightly larger amount of lower protein cubes because forage intake and digestibility will not be depressed as if grain were added.

What if the deficiency is large?

If the deficiency is large there are a couple of options depending on cost and other factors. The first and usually the most satisfactory method is that of providing a higher quality forage (good hay) with the cubes. When this option is used always offer as much hay as the cattle can consume. Feeding less than all they can consume often leads to poorer nutrition, because the cattle receiving hay likely won't graze much. If hay is going to be fed for an extended period of time (i.e. several days or even weeks) obtain a feed analysis on the hay and adjust the amount fed and the supplement based on the nutrient requirements of the cattle.

If it is not feasible to feed hay or provide a better quality forage, then large amounts of lower protein (14-20%) energy feed must be provided. When this is done it will always take much more supplement, because you must accept both lower forage intake and digestibility.

Table 1. Wind-Chill Factors for Cattle with Winter Coat.

Wind Speed (mph)	Temperature (°F)												
	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Calm	-10	-5	0	5	10	15	20	25	30	35	40	45	50
5	-16	-11	-6	-1	3	8	13	18	23	28	33	38	43
10	-21	-16	-11	-6	-1	3	8	13	18	23	28	33	38
15	-25	-20	-15	-10	-5	0	4	9	14	19	24	29	34
20	-30	-25	-20	-15	-10	-5	0	4	9	14	19	24	20
25	-37	-32	-27	-22	-17	-12	-7	-2	2	7	12	17	22
30	-46	-41	-36	-31	-26	-21	-16	-11	-6	-1	3	8	13
35	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0
40	-78	-73	-68	-63	-58	-55	-48	-43	-38	-33	-38	-23	-18

How do I know if the cattle are getting adequate nutrition from forage and high protein cubes?

If the weather is good and the quantity of forage is adequate to abundant, and the cattle are grazing hard they are most likely all right. If the chill factor goes below 10°F during the day and lower at night the cattle usually need extra feed.

If they quit grazing it is time to feed some hay. Where hay is fed it is best to remember the "all or none rule." If you are going to feed hay during a storm or cold spell, feed an amount large enough for all cattle to get a complete day's feed (one 65 lb. bale for three cows).

With dry winter forage how much of a high protein cube should I feed my spring calving cows?

The amount fed depends on cow condition. But as a general rule, 1,000-pound early spring calving cows in average condition should be fed according to the following schedule. Assuming adequate standing forage, these recommendations can be cut in half when fed with hay.

October to Nov. 1	1-1 1/2 lbs. per day
Nov. 1 to Dec. 1	2 lbs. per day
Dec. 1 until Calving	2 1/2-3 lbs. per day
After Calving until Grass	3-4 lbs. per day

How much high protein cube should I feed my fall calving cows?

Again amounts depend on cow condition and the forage, but it is usually wise to start feeding early to be sure the cows are in good condition at calving time. It will likely be impossible to gain condition after calving. When fed with good hay these recommendations can be cut in half.

October to Breeding	2-2 1/2 lbs. per day
After Breeding until Grass	3-4 lbs. per day

You have recommended feeding cubes to cattle early in the fall while there is still some green grass. Why?

This is the only time where a small amount of feed can cause a significant increase in weight gain and body condition on the cows. Cows in excellent condition with a little body fat possibly require less energy under cold stress which occurs later in the winter. The extra condition put on at this time costs far less than trying to regain it at a later date.

How much should I feed my 500-pound steers which I want to dry winter at a rate of about 1/2 lb. per day?

A feeding rate of 1-1 1/2 lbs. per day will give gains of 0 to about 1/2 lb. per day.

I have hay in the barn, but I am not sure when I should feed it except when there is snow or ice on the ground. Is there a better guideline?

Again, whenever the wind chill factor drops below 10°F during the day (see Table 1) for more than a few hours the cattle will likely need more energy to keep warm than dry grass and cubes can provide. Remember when feeding hay to give a full day's feed. A little is often worse than none at all.

What is the best time of the day to feed hay?

It is usually best to have the cattle full of hay right before the greatest cold stress. This means feeding late in the afternoon to be sure they go into the coldest part of the day with a rumen full of feed. Some cattlemen report that when hay is fed late in the day that the cattle also graze harder early in the day. If this is the case it should save some hay.

You recommended feeding 2 lbs. of cubes per day. Do I have to feed it every day?

No, it might work better if you fed about 4 lbs. every other day, or 6 lbs. every third day.

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