What are your mid-winter feeding options?

By Jim Cotton
Editor

By now you've inventoried the stacks and the, silos, bunkers, or mows–wherever you store vital feedstuffs for wintering the cow herd. There's been a storm or two through the region. The cornfield's deep under the snow, or if you're further south, you're surveying slim pickin's on fields left reeling from last summer's drought. Hay is dear, perhaps, and trucking another painful expense. What to do?

Option one is selling down the herd until it more closely matches the resources you have on hand.

Option two is finding new resources.

Weaving one's way through the woes of winter feeding needn't be akin to leaping a river's ice floes; there is a safe path or two to the opposite bank and springtime.

One first step is evaluating your cow factory. Yes, they're all pregnant, but can you cull down any further? An evening spent with your AHIR printout might reveal some interesting history. You may find three or four cows who've been cutting corners and lagging in production or calving dates.

Next, consider taking it from, say, mid-January until you can quit feeding and it's typically "grass time" in your country. Possibly, a three-part scenario of "worse possible," "average," and "easy winter" might be useful. We recently heard of one commercial ranch in the northwest saving $200 a day in feed costs simply because of winter's late arrival in that area. However, a late spring can scuttle those gains.

As the mature cows likely represent your biggest block, can these be sorted by condition or calving date? If you have as much as a 60-day spread from the first to the'last expected calving, you might consider segregating the herd into two groups allocating that good alfalfa hay to the early calvers sooner. Many of you in the Northern latitudes are already through the mid-gestation period, and your planning is directed toward the last third of pregnancy. Stubble, weather damaged hay was fine earlier, but now a rising plane of nutrition is recommended by most nutritionists.

Will your good quality roughage last, and do you dare experiment with some untried roughages or invest in some protein or energy supplements?

If you've located a source of by-products, straw, peanut hulls, corn gluten, have you arranged for a forage test or nutrient analysis? It's well to remember the book may say one thing, but the variety out in the field can spell something else. And, relying on the book–regardless of how reputable it might be–can spell disaster. Test it.

"We know forages vary in nutritional content depending on the soil, rainfall, weather, time of harvest, and method of harvest," says Dr. David Whittington, extension beef specialist, South Dakota State University. "The combination of all these factors makes it all but impossible to properly evaluate the nutrition available in a feedstuff without an analysis of the feed." Whittington cites several examples of millet hay, sudan grass hay, and wheat hay where the actual nutrient quality was anywhere from 30 to 50 percent lower than expected.

If you're considering alternative feeds, there are some checkpoints to remember.

1) Can you be assured of a consistent supply?

2) Can it be hauled and stored easily? Feeds which are bulky or watery may not be worth the effort even if priced attractively.

3) If it's high moisture in content, be sure to convert the feed to a dry-matter basis to determine the true cost of the feed. For example, if the purchase price, transportation, storage run the cost up to $70 a ton and it's a 30 percent dry matter feed, the actual dry matter cost is more than $230. ($70 divided by 30 multiplied by 100).

Also, rations should be computed on a dry matter basis. A feed of 90 percent dry matter and 22 percent. protein as fed would produce a 24.4 percent protein feed on a dry-matter basis (22 divided by 90 multiplied by 100).

4) Can you use present equipment or facilities to feed it?

5) Is it a reliable feed? By-products from cereal processing mills, bakeries, potato chip factories can vary widely in value and even contain foreign materials like grease or cooking oils, fungus, mold, or toxic chemicals such as copper in broiler litter.

6) Are there other possibilities you should consider?

7) Any local history of success with this feed or by-product?

8) And possibly most important, will it do the job? Buying expensive, over-priced supplements when a simple mineral mix or modest protein supplement would have done the trick is a common enough story to fill volumes. Check it out.

Most mature beef cows require 52 percent TDN during gestation as a rule plus 7.5 percent crude protein with calcium and phosphorus levels approximately .18 percent and in equal proportions to one another. That cow expects her daily ration to be 70 percent the relative feed value of the energy provided by corn. Though it's not likely to be fed for wintering cows, corn does represent a standard and an important benchmark when making financial decisions and choosing alternative feeds. Alfalfa hay meets the typical cow's needs quite adequately. However, the wise cowman will consider its cost, the availability of other cheaper roughage, and the influence wind, weather and time may have on his herd through the winter months.

The values given for most silages also will winter a cow herd, yet the feeder should expect more variability with silages. For most silages, the feeding values are directly tied to their grain content. Some are very high moisture. Feeding excessively wet silage requires a dry feedstuff to raise the dry matter content of the entire ration.

We've all seen cattle stuffed with straw until they could hardly waddle yet internally starving. The theory- or wive's tale-given: "It has a lot of 'heat' in it."

And, some producers try to blunt cold weather stress by feeding more roughage. This practice can stunt cattle performance according to Will Thompson, a livestock services manager for Servi-Tech, Inc.

"In a true cold stress situation, cattle need all the energy they can consume," he points out, citing this important distinction:

What your cows need when..

	Total Digestible Nutrients (energy)	Crude protein
Weaning to pre-calving	9 to 10 pounds daily	1.4 pounds daily
Pre-calving to calving	11 to 12 pounds daily	1.6 pounds daily
Calving to breeding	13 to 14 pounds daily	2.3 pounds daily

(Based on National Research Council requirements stated for I ,050-to I, 1,000-pound cows.)

Some suggested rations..

For:	Dry, Mature Cow, 1100 pounds, late gestation	South and Southeast	Mature Cow, 1100 pounds, through rebreeding (heavy milker)	South and Southeast
Ration 1	Medium to high quality pasture	20# grass/ legume hay	High quality pasture and grain if necessary	30# good quality grass/legume hay
Ration 2	25 to 30# hay	20# coastal bermuda or fescue hay 1# corn	30 to 40# hay (full-feed) and grain if necessary	60# corn silage 3# 40% supplement
Ration 3	50# corn silage (30% Dry matter)	35# corn silage, 5# grass/legume hay	75# corn silage (30% DM) full feed and 2 1/4# soybean meal or equivalent	60# sorghum silage; 1# corn; 3# 40% supplement
Ration 4	60# wet haylage (35% DM)	45# corn silage	85# wet haylage (35% DM), full feed and grain if necessary	20# grass/legume hay; 6# corn
Ration 5	40# dry haylage (50% DM)	50# sorghum silage, 1# corn	60# dry haylage (50% DM), full feed and grain if necessary	Good quality grass/ legume or improved pasture
Ration 6	5# hav: 35# corn silaae	Cirazina accumulated fescue	90# foraae sorghum silaae (30% DM) full feed and 2# soybean meal or equivalent	
Ration 7	10# hay: 25# corn silage	Crop residue free choice, 5# grass/ legume hay or 3# corn	85# oat silage (30% DM), full feed and 3/4# soybean meal or equivalent	
Ration 8	15# hay; 15# corn silage	Grazing corn stalks; limited grazing of small grain pastures		
Ration 9	60# forage sorghum silage (30% DM)	Pasture		
Ration 10	60# oat silage (30% DM)			

"Roughages do produce more heat per unit of digestible energy, but they do not produce more heat per pound of dry matter." One compounds the problem by lowering the grain level, according to Thompson, for reducing the grain level in the ration produces a decreased total energy intake. For beef cows and breeding bulls, Thompson recommends feeding more energy in the form of grain if costs are in line.

"The physical environment is where a producer can have the greatest influence on reducing winter stress," he concludes, adding the environment is the major difference between cattle performance from one location to the next. Fresh, palatable water is a must; windbreaks or shelters are worth the expense and trou-

Rule of thumb: the beef cow will consume approximately 2.5 percent of her body weight.

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Cattle can reach a point where they simply can't eat enough energy to keep up with the chill, John Wagner, extension ruminant nutritionist at South Dakota State University, points out. Roughage levels play an important role in helping lotted cattle get back on feed should a blizzard interrupt feeding. Wagner says the roughage level can be increased if cattle seem to off feed temporarily, but he cautions to not increase roughage during severe weather unless cattle appear to go off feed completely. Then it becomes a matter of starting over again,

Joe Minyard, beef specialist also at South Dakota State University, suggests producers consider high fiber grains in a cow wintering program. Barley, oats, and ear corn are considered a little easier to manage and feed safely because of their high fiber content. More energy per truckload can be transported hauling grain rather than hay if that's a consideration, Minyard points out, adding producers can nutritionally substitute grain even up to three-fourths of the roughage fed.

"We need to be careful how we do this. Obviously when you feed grains instead of hay, you are restricting intake. You have to in order to make that substitution work."

Other practices stockmen have successfully undertaken to reduce winter feeding expenses include feeding cows on alternate days. Some vary the scheme, by -feeding hay one day, cottonseed cake the next, Kansas State University extension sepcialist 'Larry Corah reports some findings where feeding supplements, every other day actually improved performance. Also Southern producers, especially can take advantage of. limited grazing during the winter using small grain,. ryegrass, or clover pastures for protein supplementation.. Again, con-, dition of the cows. forage analyses of the pastures available. and a balanced ration overall are essential in achieving success come spring. Cows under such a regime can appear like our straw-stuffed cow mentioned, earlier-bloated but unbalanced inside.

Wind chill indexes for cattle

(Dry Hair Coat)

Wind Speed (MPH)	Temperature (°F)						
	-10	0	10	20	30	40	50
10	-20	-10	0	9	19	29	39
20	-37	-27	-17	-7	2	12	22
30	-53	-43	-33	-23	-13	-10	0
40	-60	-50	-40	-30	-20		

Ames, 1974

A 20 mph wind whistling through a truck or trailer on a 30 degree F.Add produces a wind chill index of2 degrees F. Add a freezing rain to wet the hair coat, and the effect is the same as minus 38 degree F. weather.

More and more stockmen are recognizing the impact played by wind chill. Larry Corah has studied the effects of wind and cattle response to plunging temperatures.

"Cows carrying a winter hair coat get by very comfortably until the temperature drops to 30 degrees F.," he says. As the temperature falls one degree below that point, a corresponding one percent increase in TDN (energy) is demanded by the cow to keep her weight intact. She'll mobilize body fat to supply the difference under prolonged stress.

Should the wind chill index drop to 10 degrees F., the cow typically will need 20 percent more TDN or up to four pounds of additional hay or better than two pounds of grain just to stay even. Wet hair coats act like a

wick and raise the critical temperature to around 50 degrees F.

Condition of the cow is important both when entering the feeding phase and during the winter/gestation period. Ron Bolze, extension assistant at KSU, urges stockmen to keep a watchful eye on cow condition especially if feeding crop residues. Recycling in the spring is often a function of early and mid-winter feeding.

A generally accepted rule provides for thin cows needing 12 pounds of TDN per day, while cows in moderate condition may get along on nine pounds. Cows in good condition can maintain health, weight, and fertility on seven pounds. Weather and position in the gestation cycle should be added to the formula, however, for peace of mind. Research at the Texas Agricultural Experiment Station has shown practically all cows in good flesh return to heat within 90 days after calving. Sixty-one percent of those cows in moderate flesh showed heat 60 days post-calving. Thin cows showed only 46 percent heat while those cows in good condition showed heat in 91 percent of the cases at 60 days post-calving.

If it's January, calving for many producers is on the horizon. Getting there with a cow herd in good shape and ready to perform is a function of what's done today. If hay supplies are dwindling, don't despair. Almost every area of the country offers some alternatives. They may not present the best case situation, but like Granddad Rufus used to say-"Better'n feedin' a snowball."

There are no super feeds, but here are the $ values of some

Ingredient	Unit of Measure	% Dry Matter	% Crude Protein	% TDN	Value @ $1.60 Corn ($)	Value @ $2 Corn ($)
Energy Feeds						
Alfalfa Pellets	ton	92	17.0	57	79.22	85.19
Barley	bu.	88	11.5	74	1.58	1.86
Citrus Pulp	ton	90	6.5	74	48.04	61.70
Corn	bu.	88	8.5	80	1.60	2.00
Ear Corn	cwt.	87	7.8	73	2.61	3.26
Milo	cwt.	88	9.0	70	2.77	3.37
Molasses	ton	75	4.5	58	35.56	46.49
Oats	bu.	88	11.7	66	1.02	1.18
Triticale	bu.	90	13.5	76	1.76	2.04
Wheat	bu.	88	10.0	78	1.85	2.25
Wheat Mids	ton	88	16.0	75	81.82	92.09
Protein Feeds						
Brewers Grain (wet)	ton	22	6.2	17	27.60	28.95
Corn Gluten Feed	ton	90	19.0	72	91.36	99.84
Cottonseed (whole)	ton	93	22.0	89	107.70	118.74
Cottonseed Meal	ton	92	41.0	72	168.80	168.92
Liquid Protein	ton	75	32.0	56	131.68	131.72
Protein Block	cwt.	95	32.0	62	6.69	6.75
Range Cubes (20%)	ton	95	20.0			
Soybeans (whole)	bu.	92	39.0	47 84	86.38 4.98	89.03 5.08
Soybean Meal 44	ton	90	44.0	75	180.00	180.00
Roughages						
Alfalfa Hay (good)	ton	85	18.0	54	81.72	86.65
Alfalfa Hay (fair)	ton	85	14.0	48	65.60	70.74
Broiler Litter	ton	75	21.0	41	87.86	88.82
Corn Silage (good)	ton.	35	3.0	24	18.72	22.81
Corn Silage (fair)	ton	35	2.6	19	15.61	18.77
Corn Stalks	ton	85	5.6	43	34.33	41.58
Corn Stalks (w/ammonia)	ton	85	11.5	53	58.50	65.68
Cottonseed Hulls	ton	90	4.0	4c	27.68	34.88
Grass Hay (fair)	ton.	85 . . .	72	45	40.64	‘47.72
Peanut Hay	ton	88	8.0	40	41.76	47.44
Peanut Hulls	ton	92	7.3	28	35.22	38.55,
Sorghum Silage	ton	30	2.1	18	13.51	16.64
Soybean Hulls	ton	90	10.8	72	62.50	74.09
Soybean Stubble	ton	90	4.5	37	28.42	34.78
Wheat Straw	ton	90	‘3.2	37	23.84	30.69
Wheat Straw (w/ammonia)	ton	90	,11.5	52	58.16	65.13