

Stretching Hay Supplies for Beef Cow Herds

Abnormal weather years usually cause a chain of events to happen in a cow-calf operation. Iowa beef producers have faced these challenges on numerous occasions. Excessively wet weather, drought conditions, hot temperatures, below normal temps, and in some years, producers can be challenged by all of these extremes! In addition, in many of these seasons when “everything goes wrong”, cow-calf producers pay the price with decreased production of pastures, other forage resources, overall crop production, and ultimately, decreased cattle production.

In some years, not only is the quantity of feed availability negatively impacted, but also the nutrient quality may be impacted. This can result in reduced protein and energy content of different feedstuffs, and in some cases, concerns about molds, fungus, and potential mycotoxins. Each of these scenarios may require supplementation (i.e., energy and/or protein), management of the available feed inventory, and the development of usable, cost effective rations that best utilize feed resources while meeting animal requirements.

Many options exist

Fortunately, the beef cow is highly adaptable when it comes to feedstuffs and energy concentrations. However, in dry years when the hay crop is short, the corn crop will most likely be short as well. In most years, there will be cornstalks available for grazing and harvesting, although it may not be as plentiful. Past experience with drought-stricken corn has shown that total corn and forage yield will decrease by 30-70%, so normal stocking and harvest rates must be adjusted accordingly. Fortunately, Iowa beef producers have many potential co-products available that work well to supplement while grazing cornstalks or feeding other low-quality forages.

Iowa’s large ethanol and corn sweetener industry has resulted readily available supply of corn co-products that can be utilized to supplement beef cow rations. The primary co-products available in Iowa are wet, modified, and dried distillers grains, wet condensed distillers solubles, and corn gluten feed. Distillers grains and corn gluten feed are high protein feeds with energy levels comparable to or greater than corn grain. A second advantage is that the starch has been removed during the ethanol manufacturing process, leaving a product that does not interfere with fiber digestion in beef cattle rations.

Table 1 shows the average nutrient values for some of the feeds that can be utilized to stretch rations. Notice how the corn co-products are quite high in protein and energy compared to cornstalks and work effectively in overcoming the nutrient shortcomings.

	Feedstuff			
	Dried distillers grains	Corn gluten feed	Cornstalks	Corn silage
% Crude protein (CP)	30	20	6	8.4
% Total digestible nutrients (TDN)	90	83	51	70
Net energy maintenance (NEm)	1.00	.92	.45	.74
Net energy gain (NEg)	.70	.62	.21	.47
% Calcium	.20	.08	.37	.23
% Phosphorus	1.00	.54	.12	.22

^aAll values on 100% dry matter basis.

Tables 2 and 3 give ration suggestions when only 10 lbs. of first-crop, brome-mixed hay is available per head daily mirroring producer’s situation when short of hay by 60-75%. Because substantial quantities of high-energy feedstuffs are used in these rations, you will not be full-feeding cows, but rather they will be on limited intakes. In these rations provided in Tables 2 and 3, if you have better access to dry corn gluten feed instead of distillers grains, the substitution rate would be 10% more gluten feed than dried distillers grains. For example, if 4 lbs of dried distillers grains are recommended, then you would feed 4.4 lbs of dried corn gluten feed.

Table 2. Rations stretching hay using various feedstuffs for dry 1350-lb. British bred beef cows in mid-pregnancy.^a

Mid-pregnancy; dry cows				
	Ration 1	Ration 2	Ration 3	Ration 4
Feedstuff				
Brome mix hay	15	12	12	12
Cornstalks	17	--	--	-
Dried distiller grain ^c	--	5	2	-
Corn grain	--	--	2	-
Corn silage	--	--	--	22
Consumption ratio ^b	1.0	0.50	0.48	0

^aFeed free-choice mineral and vitamin mix

^bExample: a consumption ratio of 0.71 indicates that the ration provides 71% of expected “full-feed” intake

^c10% more dried corn gluten feed can replace dried distiller grain

Table 3. Rations stretching hay using various feedstuffs for dry 1350-lb. British bred beef cows in late pregnancy.^a

Late pregnancy; dry cows				
	Ration 1	Ration 2	Ration 3	Ration 4
Feedstuff				
Brome mix hay	14	12	12	12
Cornstalks	14	--	--	--
Dried distiller grain ^c	2	7	4	--
Corn grain	--	--	3	--
Corn silage	--	--	--	31
Consumption ratio ^b	.99	.62	.61	.83

^aFeed free-choice mineral and vitamin mix

^bExample: a consumption ratio of 0.71 indicates that the ration provides 71% of expected “full-feed” intake

^c10% more dried corn gluten feed can replace dried distiller grain

Practices for Success

1. **Wean the calves.** Dry cows have a 30-40% reduced energy need compared to lactating cows. Protein needs are reduced by about half. These rations all assume that this first step has been achieved.
2. **You may have to adjust the corn or concentrate intake to achieve the desired weight and/or body condition score.** Smaller framed cows require less supplemental feed than recommended in these rations, while larger framed cows will require 10-20% more. As cow sizes have increased, it is easier to underestimate cow weights. Consider weighing cows or using cull cow weights adjusted for condition and stage of production to properly formulate diets.
3. **Make sure the bunk space is adequate so all cows get their share.** With the rations that supply less than 0.90 on the consumption ratio, cows should be in a securely fenced lot. Why? Because these limit-fed intake rations will leave cows hungry, and they'll have a desire for more dry matter intake. You might consider offering a round bale of a lower-quality feedstuff such as cornstalks, soybean residue, oat straw, etc. This will provide "filler" and reduce the incidence of fence riding.
4. **Do your best at mixing these rations.** Poorly mixed rations will result in ration "hot spots" and the potential for inadequate nutrition for some of the cows. One consideration is the use of a feed wagon with scales and the ability to mix and deliver a variety of feedstuffs. This approach has both positive and negative aspects. First and foremost, this type of feed mixing equipment gives the producer the opportunity to deliver total mixed rations (TMR) to a variety of cattle types — cows, backgrounding animals, or finishing calves in the operation. Also, a TMR gives the producer control over feed intake, provides flexibility to incorporate low cost supplements and commodities, and allows for more uniform nutrient intake. In many cow-calf enterprises, especially smaller cattle operations, the cost of a feed wagon may be difficult to justify. As the cowherd size decreases, the tradeoff between reduced depreciation and increased maintenance and repair for used versus new feed mixing equipment may favor the lower cost used equipment. Also, consider the potential of spreading the cost of the feeder wagon over more cattle by feeding a TMR to several production groups.
5. **Make every affordable effort to reduce feed waste.** For some producers, tub grinding feeds and/or feeding a TMR in bunks, tires or other feeders have dramatically reduced feed waste and lowered winter feeding bills. This approach should be strongly considered when incorporating lower quality feeds such as cornstalks or poor quality hay. For hay feeding operations, be sure to use hay rings or panel feeders that are in a good state of repair. Research has shown that restricting time access to the hay feeder results in decreased waste by the cows. If you are unrolling hay bales out in the open field, be sure to only feed what is needed on a daily basis. Feeding more than one day's feed supply results in substantial feed waste.

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IBC 45 - Revised July 2017

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