Stretching Hay Supplies for Beef Cow Herds in a Drought Year

Iowa Beef Center

Drought years usually cause a series of events to happen on a cow-calf operation. Generally the first crop hay harvest is good to excellent, then the second crop is short and the third crop is non-existent. Additionally pastures get very short and burn up, thus requiring producers to supplement the grazing. Because hay is the quickest and simplest resource available many producers utilize their valuable winter feed resource just to get them to cornstalk grazing. As a result it is not unusual for operations to go into the winter feeding months 50 to 75% short of what is needed to make it to spring turnout.

Many Options Exist

Fortunately the beef cow is highly adaptable when it comes to feedstuffs and energy concentrations. High concentrate feeding is a very viable option that producers should consider and is covered in a separate fact sheet, "High Concentrate Feeding Beef Cows to Reduce Hay Needs During Drought Years".

Iowa beef producers because of corn production have many potential co-products from this crop available that will work well to supplement and stretch a short hay supply. Yes, if the hay crop is short, most likely the corn crop will be short as well. But in most drought years there will be cornstalk residue available for grazing and harvesting, although it will not be as plentiful. Past experience with drought stricken corn has shown total corn and forage yield will be decreased by 30 to 70%, thus normal stocking and harvest rates have to be adjusted accordingly.

Table 1. Feeding value of drought damaged corn silage

Description		Feeding Value (Estimated % of Normal Silage)
1.	Stressed all summer (no ears, stunted)	70-80
2.	Severely stressed (5 to 20 bu. grain yield/acre)	80-90
3.	Stressed only during pollination (3 1/2 bu. grain yield/acre) or Moderate drought stress (40 to 60 bu. grain yield/acre)	90-100

References: Univ. of Nebraska Beef Report (1971 and 1976), Michigan State Univ. Beef Report (1978), Clemson Univ. Animal Science Report (1983), Purdue Univ. Beef Report (1984)

Drought corn harvested as silage is another option that works extremely well in stress years. A separate fact sheet that reviews nutrient value and feeding recommendations for drought corn silage is available, "Feeding Drought Corn Silage to Beef Cows".

Iowa's large ethanol and corn sweetner industry has resulted in huge quantities of co-products that can be utilized to supplement beef cow rations. The main co-products available in Iowa are wet and dried distiller's grains, wet distiller's solubles and corn gluten feed. Limited research has been done with distiller's grains, but extensive work with corn gluten feed has been done. Distiller's grains and corn gluten feed are high protein feeds that have energy levels comparable to corn grain. A second advantage that these products have is that the starch has been removed in the manufacturing process, thus leaving a product that does not interfere with fiber digestion in beef cattle rations.

Table 2 shows the average nutrient values for some of the feeds that can be utilized to stretch rations. Notice that the corn co-products are quite high in protein and energy in comparison to cornstalks and work effectively in overcoming the nutrient shortcomings.

Table 2. Average nutrient values of feedstuffs available for supplementing hay shortages.[a]

	Feedstuff			
	1350 lb British		1350 lb Exotic	
	Ration	Ration	Ration	Ration
	Distillers Grain	Corn Gluten Feed	Corn-stalks	Drought Corn Silage
% Crude Protein	30	25	6	9
% TDN	90	83	51	66
Net energy, maintenance	1.00	.92	.45	.59
Net engery, gain	.70	.62	.21	.33
% Calcium	.20	.08	.37	.23
% Phosphorus	1.00	.54	.12	.19

[a]All values on 100% dry matter basis.

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Tables 3 to 5 give ration suggestions when only 10 pounds of first crop brome mixed hay is available per head daily. This would mirror a producer's situation when he is short of hay by 60 to 75%. Because substantial quantities of high energy feedstuffs are used in these rations one will not be full-feeding cows, but rather they will be on limited intakes.

In rations provided in tables 3-5, if one has better access to corn gluten feed instead of distiller's grain the substitution rate would be 10% more gluten feed than distiller's grain. For instance, if 4 lbs of distiller's grain is recommended then one would want to feed 4.4 lbs of corn gluten feed.

Practices for Success

1. You may have to adjust the corn or concentrate intake to achieve the desired weight and/or body condition score. Smaller cows will require less supplemental feed than recommended in these rations, while larger Exotic breed cows will require more.
2. Make sure bunk space is adequate so all cows get their share. With the rations that supply less than .90 on consumption ratio the cows should be in a securely fenced lot. Why? Because these limited intake rations will leave cows hungry and they will have a desire for more dry matter intake. You might consider offering a round bale of a lower quality feedstuff such as corn stalks, soybean stalks, straw, etc. This will provide "filler" and reduce the incidence of fence riding.
3. Do your best at mixing these rations. Poorly mixed rations will result in ration hot spots and inadequate nutrition for some of the cows.

Table 3. 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	10	10	10	10
Cornstalks	18	--	--	--
Dried distiller grain[c]	--	7.5	3.5	--
Corn grain	--	--	3.5	--
Drought corn silage	--	--	--	28
Consumption ratio[b]	.83	.50	.48	.68

[a]Feed free-choice mineral and vitamin mix.
[b]A consumption ratio of .71 indicates that the ration provides 71% of expected "full-feed" intake.
[C]10% more corn gluten feed can replace dried distiller grain.

Table 4. 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	10	10	10	10
Cornstalks	20	--	--	--
Dried distiller grain[c]	4	13	6.5	--
Corn grain	--	--	6.5	--
Drought corn silage	--	--	--	50
Consumption ratio[b]	.99	.60	.65	.94

[a]Feed free-choice mineral and vitamin mix.
[b]A consumption ratio of .71 indicates that the ration provides 71% of expected "full-feed" intake.
[C]10% more corn gluten feed can replace dried distiller grain.

Table 5. Rations stretching hay using various feedstuffs for open 1350 lb. British bred beef cows in early lacation.[a]

	Early Lactation, Open Cows			
	Ration 1	Ration 2	Ration 3	Ration 4
FEEDSTUFF				
Brome mix hay	10	10	10	10
Cornstalks	20	--	--	--
Dried distiller grain[c]	9.5	19	9	4
Corn grain	--	--	9	--
Drought corn silage	--	--	--	57
Consumption ratio[b]	1.00	.69	.72	1.00

[a]Feed free-choice mineral and vitamin mix.
[b]A consumption ratio of .71 indicates that the ration provides 71% of expected "full-feed" intake.
[C]10% more corn gluten feed can replace dried distiller grain.

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