

Corn Stover and Distillers Grains for Lactating Drylot Beef Cows

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North Dakota is primarily a cow/calf state. Cow numbers are decreasing here and nationally as a result of drought and the fact that more grazing land is being farmed for corn, soybeans, and other profitable crops. The high cost of conventional feed ingredients has also been a factor in reducing cow numbers, yet there are underutilized and undervalued feed resources available to livestock producers in North Dakota. Feed resources in the region include crop residues, grains, and nearly 3 million tons of a variety of co-products produced each year in North Dakota. Corn stover is becoming a primary forage for beef cows. The preferred utilization is by post-harvest grazing in the fall and early winter. Harvesting corn stover in big bales is highly weather dependent but makes year round use of stover possible.

Drylot cow/calf production is a new concept in beef production as the cost of pasture rent and grassland prices escalate beyond economic thresholds. An integrated crop-livestock production system has the advantages of maximizing biological efficiencies such as stover and straw used as feed or bedding, and returning manure to the fields. Ruminant animals help diversify the North Dakota agricultural economy and can add to the net profit of an appropriately managed integrated crop-livestock farming operation.

This project evaluated the use of corn stover and distillers grains as the primary ingredients in lactating beef cow diets. Table 1 presents the diets in pounds fed per day and percent of the ration on a dry matter basis. The intake of the free choice forages was estimated as there was some waste.

Crossbred mature beef cows and their calves ($n = 42$ pairs) were allotted to one of two drylot ration treatments: 1) corn stover and distillers grains as the primary feed ingredients; and 2) corn silage, straw, wheat middlings, and barley hulls. The two diets were balanced to meet or exceed the nutrient requirements of lactating beef cows. Ration ingredients were mixed and fed in a fenceline bunk (Table 1) once daily, with free choice straw or stover offered as large round bales placed in ring feeders. Cows were bred by natural service sires. Creep feed was offered to all calves at equal amounts per head.

Table 1. Rations for lactating drylot beef cows with stover and distillers grain.

	Diet treatments			Diet Treatments	
	Control	Stover/Dist Gr		Control	Stover/Dist Gr
	lb/hd/day, as fed			Percent, DM basis	
Bunk fed					
Corn Silage	24.23			30.31	
Wheat/pea straw, ground	6.77			18.86	
Barley hulls	7.71			24.78	
Wheat midds	7.71			23.93	
Ion/min suppl	0.52	0.47		2.12	2.28
Corn stover, ground		10.35			43.71
Modified dist grain		11.35			30.47
Mixed hay, ground		5.21			23.54
Free choice, estimate of intake					
Wheat/pea straw	8.38				
Corn stover		28.34			
Total	55.32	55.72		100	100

Feed intake appears to be similar for both diets. Cow and calf performance appear to be consistent with other drylot observations at this Center. Corn stover cows lost 90 pounds during the lactation period while control cows lost only 57 pounds. Condition score change was similar at 1.0 and 1.1. Calf gains were numerically higher for the stover/distillers grain cows at 2.73 versus 2.57 for the control ration. From this field trial data, feeding a ration of primarily corn stover and distillers grain appears to support satisfactory cow performance and calf growth rate.

Table 2. Performance of drylot cow/calf pairs fed distillers grains and stover

	Diet Treatments	
	Control	Stover/Dist Grain
Cow weight, lb		
Initial wt	1540	1500
Final wt	1483	1410
Weight change	-57	-90
Cow condition score		
Initial	6.2	5.9
Final	5.3	4.8
Change	-1	-1.1
Calf weight, lb		
Initial	287	304
Final	521	552
Change		248
ADG	2.57	2.73