

Alternative Feeds for Beef Cattle

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Infosheet

August 2012

Background

Lack of pasture and hay production in many parts of Ontario this summer has resulted in tight hay supplies for winter. However, there are other options for feeding cattle. This article examines some of the possibilities by comparing the value of alternative feeds with hay priced at various levels. Producers can use this information to help make informed decisions regarding whether to buy hay or some combination of alternative feeds. **Each proposed ration must be balanced for nutrient content (fibre, energy, protein, minerals, vitamins) to ensure it meets the needs of the cattle it is intended for.**

For long term health, cattle should consume at least **0.5 % of their body weight per day as forage** (dry matter basis). For example, a 1400 lb cow needs a minimum of 7.7 lbs of hay or 22 lbs of corn silage (as fed basis), along with the concentrate feeds required in their diet.

Table 1 compares alternative fibre sources for feeding value and economic value compared with hay priced at \$175/tonne, based on their energy and protein content [Petersen's Equation].

Alternative Fibre Feeds

Table 1. Alternative Fibre Feeds Compared with Hay for Beef Cattle
(hay valued at \$175/tonne [as fed] = 8 cents/lb = \$64 for a 4X5 round bale*)

Feed	Replacement Rate Relative to Hay (lbs of feed to replace 1 lb of hay [as fed])	Breakeven Price (\$ per tonne as fe	Maximum Feeding Rate (% of total diet)**	Storage Options	Feeding Options ^y
Hay	1.0	\$175	100%		
Corn silage ^{†,x}	2.38	\$74	60%	pile, silo, bunker, bag	feed bunk
Baled corn stover [†]	1.43	\$122	40%	Bales	bale feeder
Wheat straw	1.56	\$112	60%	Bales	bale feeder
Soybean straw	1.59	\$110	60%	Bales	bale feeder
Soybean hulls	0.78	\$224	50%	flat or bin (covered)	feed bunk

* 800 lbs as fed wt.

**dry matter basis

∞ You could pay up to this amount per tonne and it would be a better value than hay @ \$175/tonne

† Possible toxicity due to nitrate accumulation

^xfor efficient transportation of this wet crop, maximum recommended haul time from field to storage is 30 minutes

^yGround feeding may result in up to 30% loss.

Table 2 gives the breakeven prices for alternative fibre sources compared to buying hay at prices ranging from \$25/tonne to \$350/tonne, which is equivalent to [1.1 cents/lb to 15.9 cents/lb], and [\$9/bale to \$127/bale] (800 lb bale).

Table 2. Breakeven Price of Alternative Fibrous Feeds for Beef Cattle, Relative to Hay at Varying Prices*(\$/tonne, as fed basis)

Alternative Feed	Price of Hay (\$/tonne, as fed basis)													
	350	325	300	275	250	225	200	175	150	125	100	75	50	25
Corn silage†	147	137	126	116	105	95	84	74	63	53	42	32	21	11
Baled Corn stover	245	227	210	192	175	157	140	122	105	87	70	52	35	17
Wheat straw	224	208	192	176	160	144	128	112	96	80	64	48	32	16
Soybean straw	220	204	189	173	157	142	126	110	94	79	63	47	31	16
Soybean hulls	449	417	385	353	321	288	256	224	192	160	128	96	64	32

*Example: if hay cost \$325/tonne, you could afford to pay up to \$227 for baled corn stover and it would be a cheaper feed source than the hay.

Corn Stover Grazing

Grazing the corn stover left in the field after grain harvesting may be an option. This would require buying and installing temporary electric fencing, providing a water source and trucking cattle to and from the field. Strip grazing is the most effective way to utilize the stover. Table 3 estimates the value of corn stover as a feed source on a per acre basis, assuming it costs \$50 an acre to set up and manage the field. Assuming that the grain harvest produced 120 bu/acre, strip grazing the stover should provide 60 cow days of grazing per acre. **Depending on the size of the cobs and harvest conditions, there may be a significant amount of grain left in the field. In order to minimize the risk of bloat, make sure cows are full of feed before first turn out onto the corn stover field, provide some familiar dry hay for the first couple of days, and keep a close eye on them.**

Table 3. Value of Corn Stover (\$/acre) for Grazing Beef Cattle Relative to Buying Hay at Various Prices*#

Stover Value (\$/acre)	Price of Hay, \$/tonne (as fed basis)													
	350	325	300	275	250	225	200	175	150	125	100	75	50	25
	135	122	109	96	82	69	56	43	29	16	3	-10	-24	-37

*Assumptions: 120 bu/acre grain yield, 6700lbs stover residue in field (80% dm), cows utilize 25% of residue [1670 lbs/acre].

#Corn stover value has been adjusted to reflect a \$50/acre charge for fencing, water provision and management time. Does *not* include cost to transport cattle to and from field. Does *not* include charge for protein supplement which may be needed as season progresses. *One acre of stover would provide feed for 1 cow for 2 months, or 60 cow days per acre.*



Energy and Protein Concentrate Feeds

Although beef cows are not usually fed much in the way of concentrates, they may be required when low quality roughages such as straw make up a large component of the diet. Table 4 gives the replacement rates for some concentrate feeds, relative to the energy and protein contained in average quality hay. It also estimates the breakeven price for these alternative feeds compared with hay valued at \$175/tonne.

Table 4. Alternative Concentrate Feeds for Beef Cattle, Compared with Hay Valued at \$175/tonne
 (\$175/tonne [as fed] = 8 cents/lb = \$60 for a 4X5 round bale*)

Feed	Replacement Rate Relative to Hay (lbs of feed to replace 1 lb of hay [as fed])	Breakeven Price* (\$/tonne as fed)	Max Feeding Rate (% of total diet)**	Storage Options
Wheat shorts	0.75	\$306	25%	flat or bin (covered)
Corn gluten feed (dry)	0.62	\$310	50%	flat or bin (covered)
Distillers dried grains with solubles	0.50	\$414	30%	flat (covered)
Brewers grains (wet)	2.44	\$73	40%	pile, bunker, bag
Oats	0.81	\$219	60%	flat or bin (covered)
Barley	0.76	\$241	30%	flat or bin (covered)
Shelled Corn	0.81	\$216	40%	flat or bin (covered)
Soymeal 48%	0.40	\$438	15%	flat or bin (covered)
Wheat	0.73	\$240	30%	flat or bin (covered)

Note: A feed bunk is required for concentrate feeds. Ground feeding may result in up to 30% loss.

*You could pay up to this amount per tonne and it would be a better value than buying hay @ \$175/tonne

**dry matter basis

Table 5 gives the breakeven prices for concentrate feeds compared with buying hay at prices ranging from \$25/tonne to \$350/tonne, which is equivalent to [1.1 cents/lb to 15.9 cents/lb], and [\$9/bale to \$127/bale] (800 lb bale).

Table 5. Breakeven Price of Concentrate Feeds for Beef Cattle, Relative to Buying Hay at Various Prices *

Alternative Feed	Price of Hay, \$/tonne (as fed)													
	350	325	300	275	250	225	200	175	150	125	100	75	50	25
Wheat shorts	467	433	400	367	333	300	267	233	200	167	133	100	67	33
Corn gluten feed (dry)	565	524	484	444	403	363	323	282	242	202	161	121	81	40
Distillers dried grains & solubles	700	650	600	550	500	450	400	350	300	250	200	150	100	50
Brewers grains (wet)	143	133	123	113	102	92	82	72	61	51	41	31	20	10
Oats	432	401	370	340	309	278	247	216	185	154	123	93	62	31
Barley	461	428	395	362	329	296	263	230	197	164	132	99	66	33
Wheat	479	445	411	377	342	308	274	240	205	171	137	103	68	34

*see Table 4 for feeding limits for each feed.

These various alternative feeds can be used to stretch hay supplies or provide novel rations for beef cows. Producers should work with a feeds specialist prior to making dramatic ration changes. Any new feeds need to be introduced slowly to avoid digestive upset. It may take up to 2 weeks to complete the change if the 2 diets are very different.

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