



Ridin' Herd

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Alternative beef cow-calf systems

Conventional cow-calf production systems are dependent on forage resources for grazing or hay production. If such traditional forages become limited or unavailable, other feedstuffs must be utilized to maintain the beef cow-calf enterprise in an intensively managed (confinement) system.

While grain commodity prices have fluctuated recently, many dynamics have increased land values and initiated the conversion of traditional forage acres to grain crop production, particularly throughout the Midwest and Northern Great Plains. Although traditional forage production in these regions has decreased, the availability of alternative forage in the form of corn residue is growing as a result of increased corn production. Therefore, corn residues represent a valuable forage resource for beef-cattle production systems in areas where grain production is abundant.

The University of Nebraska is currently engaged in investigating alternative options to traditional cow-calf

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enterprises. The premise is to research cow-calf enterprises that center around the large number of corn acres that are available in many Midwestern states.

In the Nebraska experiment, composite June-July-calving cows were drylotted for 365 days. Cows were limit-fed a diet of distillers' grains and crop residue (either ground cornstalks or wheat straw). The limit-fed rations meet

the cow's nutrient requirements, but cows did not eat to their full capacity. The rations were about 19% crude protein (CP) and 80% total digestible nutrients (TDN) on a dry-matter basis, and level of dry-matter intake varied depending on stage of production. A supplement was fed that contained an ionophore.

While eating these rations, cows maintained weight and body condition when they were gestating or lactating. In addition, calf performance was monitored.

There are extensive data sets on spring-calving and early-summer (June)-calving systems to compare to the confinement system. In these systems, records were kept on days grazing vegetative and dormant pasture, days grazing corn residue, and days fed distillers' grains, hay, baled residues and supplements. The prices used for the comparison in 2015 are described in Table 1.

Distillers' grains and stalks/straw are the major components of the ration when cows are drylotted. When cow-calf pairs are grazing corn residue, pairs are supplemented with distillers' grains. A different yardage was assessed for cows when they were in the drylot, grazing stalks or pasture, or fed supplement while on pasture. The yardage would account for fuel, labor and depreciation on equipment to deliver the ration.

For the cows on extensive grazing systems or grazing corn residue, yardage

accounts for fuel and labor to check cows, fence and water, and to deliver supplement for pairs on stalks, and salt and mineral. A freight cost to transport cows to and from cornstalks is not included.

The "cow cost" row in Table 1 represents all other costs in an annual cow budget and includes replacement costs. Percentage of calves weaned of females exposed used in the analysis was 80% for cows in confinement and 89% for all other systems. Using two years of data, weaned of exposed for cows managed in a drylot for 365 days has been in the 80% range.

In Table 2 the confinement system is compared to three other cow-calf management systems.

● The June-calving herd is a Sandhills system used at the Gudmundsen Sandhills Laboratory (GSL) that is basically pasture and protein supplement and essentially no hay.

● The D/H system is a spring-calving Southeast Nebraska research herd where cow-calf pairs graze pasture in the spring, summer and fall, then cows go to cornstalks followed by hay feeding during calving before grazing spring pasture.

● The D/H Supp herd is a spring-calving herd like the one described above except during the spring/summer/early fall, a distillers'-grains-plus-ground-residue combination is substituted for half of the pasture consumed daily.

Total costs are lower for the

Table 1: Base prices for economic analysis, 2015

Grass	\$52/mo./pair	\$1.73/day
Cornstalk grazing		50¢/day
Distillers' grains ¹	\$118/ton	\$0.055/lb. DM
Hay	\$60/ton	\$0.030/lb. DM
Baled stalks/straw ¹	\$62/ton ground	\$0.031/lb. DM
Labor/yardage ²		10¢/day
Mineral		\$10/year
Cow cost		\$325/year

¹Based on 86% of corn at \$3.50 per bushel, 90% DM price. Includes \$12-per-ton grinding fee.

²10¢ per day for cows in conventional systems; 20¢ for cows supplemented on pasture and 45¢ per day for cows in feedlot.

Table 2: Total costs and UCOP, 2015

	GSL June	D/H	D/H Supp	Conf.	Conf. Stalks
Total, \$	830	790	791	830	786
Wean, lb.	557	500	502	486	580
UCOP ¹ , \$/lb.	1.77	1.83	1.78	2.08	1.46

¹Percentage weaned of exposed for all systems was 89% except for the total confinement, which was 80%.

confinement/stalk-grazing system and highest for the GSL June-calving system. The total-confinement system breakeven [or unit cost of production (UCOP)] is 31¢ per pound (lb.) greater than the GSL system, which has the lowest UCOP, with the UCOP for two D/H systems between the total-confinement and GSL systems.

The question might be, what could a producer pay for pasture on a monthly basis per cow-calf pair that would result in a UCOP equal to \$2.08 per pound of calf weaned, which is the UCOP for the total-confinement system? For the GSL June-calving system, you could pay \$73.50 per month to get to a UCOP of \$2.08 per lb. in 2015. For the D/H Supp system you could pay \$93 per pair per month and for the D/H system you could pay \$69 per pair per month. This information would suggest that if you don't have access to grass pastures for cows to graze, then a combination of drylotting and grazing corn residue is an alternative beef cow-calf system to consider.

The nutritional quality of corn residue is influenced by the proportion of plant parts consumed.

Conclusions

Changes in land use present both challenges and opportunities for the beef industry. While increasing corn production is related to the decline in traditional forage acres, residue from corn production represents a forage resource becoming more abundant.

The nutritional quality of corn residue is influenced by the proportion of plant parts consumed. Grazing cornstalks during fall/winter presents an opportunity for intensified cow-calf systems to capitalize on an economical forage while different methods for mechanically harvesting and storing residue for use in complete diets are evolving.

Designing intensified cow-calf systems that are integrated with crop production will be essential for the beef industry in an era of increasing crop production. Drylotting beef cows can and should be used as a drought-mitigation strategy.

The recent drop in grain and forage prices appear to make it a more competitive alternative beef cow-calf system, but it is still expensive. When drylotting cows, consider limit-fed rations because limit-fed rations will usually be cheaper than full-fed rations. Remember, limit-fed rations meet all the cow's requirements, but cows are not fed all that they can eat. Even when rations are limit-fed, include yardage in the daily costs. A semi-confinement system is competitive with other cow-calf production systems.

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