



Ridin' Herd

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Keep heifer development cost affordable

Heifer development programs can be a major expense for the cow-calf enterprise. Heifer development costs will depend on when the potential replacements are weaned and the feeding strategy used to develop them.

Affordability

Because the replacement heifer enterprise does not generate income, or very little income from cull replacements, costs for this enterprise are borne by the cow-calf enterprise. The more economical the replacement heifer program, the greater the profit potential of the cow-calf enterprise as long as reproductive performance of the heifers is not compromised.

Distillers' grains have been affordable this year and at times were priced at 60% of the price of corn. There has not been a lot of data generated investigating the use of cornstalk residue and dormant winter range, and the effect of using these feed resources as part of a heifer development program. Using byproducts in the heifer development program and management strategies using crop residue and dormant winter range have the potential to affect costs.

Distillers' grains

Distillers' grains are a good source of energy, protein and phosphorus. In addition, research trials already conducted indicate that distillers' grains are higher in energy than corn. Research also indicates there are no negative interactions on forage digestion when distillers' grains are included in high-forage diets.

We designed an experiment to examine the use of dry distillers' grains (DDGs) in a heifer development program on reproductive performance. All heifers were treated alike except the diet for the treatment heifers included DDGs. Minerals and vitamins were balanced in each diet. The remainder of the diets consisted of grass hay that ranged between 8.4% and 11.0% crude protein (CP) and about 54% total digestible nutrients (TDN).

Heifers used in this experiment were born in the spring and weaned in the fall of the year. Heifers were weighed throughout the trial, and diets were adjusted so as to achieve similar average daily gains (ADG).

Heifers were synchronized for estrus using two shots of prostaglandin given 14 days apart. For five days after the last shot of prostaglandin (PG), the number of heifers responding to synchronization and the time (hours after the second PG shot) heat occurred were recorded. Heifers that exhibited heat during the five-day time frame were artificially inseminated (AI) using the same bull. We waited 10 days, then turned in cleanup bulls for a breeding season of 45 days total.

The percent pubertal prior to PG and age at puberty were not different between groups. The AI conception rate of those heifers detected in heat after the second PG injection and AI'd was significantly greater in the DDG-fed heifers. This corresponded to a greater AI pregnancy rate in the DDG-fed group.

The DDGs were supplemented at 0.57% of the heifer body weight on a dry-matter (DM) basis. As an example, if the average weight of the heifers was 600 lb., they were fed 3.4 lb. per head per day of DDGs on a DM basis (3.8 lb. per head per day if the distillers' were 90% dry matter). If heifers are consuming 2.5% of their body weight on a DM basis daily, the total DM intake would be about 15 lb. per head per day. Of the 15 lb. per head per day intake, 3.4 lb. per head per day would be DDGs. DDGs at this level calculates to 23% of the diet on a DM basis [(3.4 lb. per head per day DDG ÷ 15 lb. per head per day intake) × 100 = 22.7%].

As with any diet that is developed using DDGs, because DDGs are high in phosphorus it is important to make sure the calcium-to-phosphorus ratio is within the range for growing cattle. In addition, make sure there is plenty of bunk space or eating space so that each heifer gets her fair share. Make sure the ration is mixed uniformly to avoid any complication with sulfur in the DDGs.

Finally, total fat in the diet should not exceed 5% to 5.5% to eliminate the negative

effect of fat on forage digestion in the rumen. The full report on this research can be found online at <http://beef.unl.edu/beefreports/200701.shtml>.

Dormant range or crop residue

Not developing heifers in a drylot has always been appealing to producers because they don't have to fight the mud in the winter. In addition, input costs have steadily increased during the last few years, especially harvested feed costs. In most areas of the country, there is an abundance of crop residue, and, in some areas, dormant native range available for winter grazing. Producers do a good job of using these feedstuffs in cow management feeding strategies. To get heifers developed to an acceptable target weight prior to first breeding, they have to achieve a minimal daily gain. Crop residue or winter range by itself will not provide the needed gain. A supplementation strategy for replacement heifers using these feed resources will need to be implemented.

Research conducted at the University of Nebraska compared performance of heifers developed in a drylot (DL) compared to ones that grazed cornstalk residue (CR) for 145 days and supplemented 1 lb. per head per day of a 28% protein cube on a DM basis as part of their development program. Although there was a statistical difference in AI conception rate (64% DL, 54% CR), there was no difference in yearling pregnancy rate or pregnancy rate for their second breeding season.

In a second experiment, heifers were developed using winter range and/or cornstalk residue and supplemented 1 lb. per head per day of a 28% protein cube on a DM basis as part of their development program. There was no difference in yearling pregnancy rate between the two groups and pregnancy rates as 2-year-olds were not statistically different, either.

In the third experiment, the protocol was much like Experiment 2, but the supplementation rate was between 1 and 2 lb. per head per day of the protein supplement (29% CP) on a DM basis. There was no difference in AI conception rate, yearling pregnancy rate or pregnancy rate as 2-year-olds.

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In all experiments (1, 2 and 3), there was no difference in calf birth weights or weaning weights. Although experiments 2 and 3 should not be compared, an observation would be that when supplementation rate was increased (Experiment 3), heifer gain increased, yearling pregnancy rates were not much different, but pregnancy rate for the 2-year-olds was numerically greater in Experiment 3 compared to Experiment 2, especially for heifers that grazed cornstalk

residue. That might lead one to think that a supplementation rate closer to 2 lb. per head per day should be considered. At 1 lb. per head per day, the diet is deficient in protein (mainly degraded intake protein) for heifers consuming cornstalk residue or dormant winter range. Cost difference favored developing on residue compared to the drylot <http://beef.unl.edu/beefreports/201002.shtml>.

Final thoughts

In challenging times, pushing the pencil on management strategies that reduce harvested feed inputs will increase profit

potential. It would be nice to think that all harvested forages could be eliminated; this is likely not possible because of snow and ice in some states, so you will need to have some harvested forages on reserve.



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Editor's Note: "Ridin' Herd" is a monthly column written by Rick Rasby, professor of animal science at the University of Nebraska. The column focuses on beef nutrition and its effects on performance and profitability.