



Ridin' Herd

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Heifer-development strategies

There is a lot of interest among producers in retaining more heifers this year compared to years past. The January 2014 national beef cow inventory will again show a decrease in beef cow numbers. In 2013, we saw record-high prices for weaned calves as a result of a low feeder-calf inventory and a fall corn price that was closer to \$4 per bushel (bu.) than \$7.50.

Heifer-development programs can be a major expense for the cow-calf enterprise. Because the replacement-heifer enterprise does not generate income, or generates 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.

Using distillers' grains

Distillers' grains are a good source

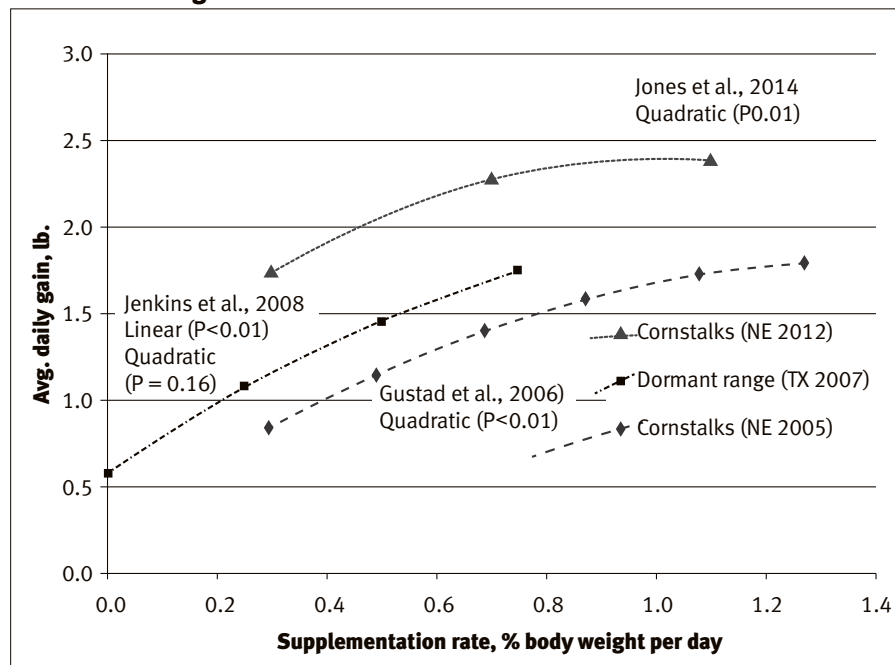
of energy, protein and phosphorus. In addition, research trials already conducted indicate that distillers' grains are higher in energy than corn. Research also indicates there are no negative interactions on forage digestion when distillers' grains are included in high-forage diets.

In Nebraska, researchers have conducted studies using distillers' grains in heifer-development diets. Distillers' dried grains (DDGs) were fed at 0.57% of body weight on a dry-matter (DM) basis. The percentage of heifers detected in heat was not different from control heifers not fed DDGs, but the artificial insemination (AI) conception rate was significantly greater in the DDG-fed heifers. This corresponded to a greater AI pregnancy rate in the DDG-fed group.

As an example for the amount of distillers' grains fed, if the average weight of the heifers was 600 pounds (lb.), they were fed 3.4 lb. per head per day of DDGs on a DM basis. On an as-fed

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Fig. 1: Performance of calves grazing low-quality forages when supplemented dried distillers' grains at different rates



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basis they would need to be fed 3.8 lb. per head per day (3.4 lb. ÷ 90% DM). If heifers are consuming 2.5% of their body weight on a DM basis daily, their total DM intake would be about 15 lb. per head per day. Of the 15-lb.-per-head-per-day intake, 3.4 lb. would be DDG. DDG at this level calculates to 23% [(3.4 lb. DDG ÷ 15

lb. intake) × 100 = 22.7%] of the diet on a DM basis.

As with any diet that is developed using DDG, because DDGs are high in phosphorus, it is important to make sure the calcium-to-phosphorus ratio is within the correct 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 that the ration is mixed uniformly to avoid any complication with sulfur in the DDG.

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, crop residue is available for winter grazing. In some areas, dormant native range is available.

To get heifers developed to an acceptable target weight prior to first breeding, they have to achieve a minimal daily gain. In many cases, 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.

The graph (on page 82) illustrates supplementation amounts as a percent of body weight on a DM basis fed per head per day and average daily gain. There are some differences in responses observed between cornstalk residue and dormant range. In addition, there are differences in response of calf average daily gain and supplementation rate while grazing corn residue. Some of that is due to the amount of down corn in the residue field and that impact on average daily gain.

The graph illustrates that a producer can almost "program" the desired average daily gain of calves through a supplementation strategy while grazing low-quality forages. Gustad's data says that if you supplement calves at 0.60% of the calf's weight with distillers' grains on a DM basis, calves will gain about 1.3 lb. per day.

As an example, if the average weight of the heifers grazing corn residue was 550 lb. and the strategy was to feed 0.6% of the calf's body weight, then 3.3 lb. per head per day would be fed on a DM basis of DDGs. If the DDGs were 90% DM and 10% water, the amount delivered on a daily basis for each calf would be 3.6 lb. (3.3 lb. ÷ 0.90).

Distillers' grains work well for calves grazing low-quality forages because they are 30% crude protein. For calves grazing low-quality forages, the first limiting nutrient is protein. It doesn't



hurt that distillers' grains are an excellent energy source, as well, which contributes to animal performance. The graph also illustrates that there is a point of diminishing return on the amount of distillers' grains supplemented and rate of daily gain. The lines plateau at higher levels of supplementation, and there is a lower response to average daily gain.

Supplemental protein source for pregnant beef heifers

The relationship between prepartum nutrition and subsequent breeding-season pregnancy rates is well-established. This relationship is especially critical for first-calf females and young cows due to the added nutrient requirement of their own growth, resulting in a higher risk of reproductive failure compared with mature cows.

Providing supplemental protein, when protein is the first limiting nutrient, to beef cattle grazing low-quality forages has been reported to increase forage intake, improve cow body weight gain, and may increase pregnancy rate. However, results vary based on protein source, degradability and physiological status of the female.

In Nebraska, they designed an experiment to determine whether supplementing heifers either a protein source that was degraded in the rumen or one that bypasses rumen digestion and is broken down in the small intestine and absorbed there has an impact on heifer performance. Heifers were supplemented for 110 days beginning about Day 142 of gestation (corresponds to mid- to late gestation). Protein supplementation increased forage intake and average daily gain in pregnant heifers. Calf birth weight and subsequent pregnancy rates were similar between the two groups of heifers supplemented the different protein sources.

Final thoughts

Push the pencil on management

strategies that reduce harvested-feed inputs as this 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. Either corn residue or

dormant grass pasture, when available, provided opportunities to develop strategies that provided acceptable daily gains when supplementation was provided. The supplement will need to provide protein first, but a supplement that provides both protein and energy without reducing forage digestion

would be the one to consider for this management strategy.



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.

