

Is Feeding Beef Cows during the Nongrowing Season an Expense or an Income?

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Most beef producers view feeding harvested forages to livestock during the nongrowing season as a major expense, but results from a recent study suggest that the costs for some types of harvested forage could be considered an investment into a source of substantial income, says a North Dakota State University range scientist.

“The weight added to a calf during the dry gestation, third trimester, and early lactation production periods has economic value when the calf is sold. If the value of this calf weight is less than the costs of forage during the nongrowing season, the forage costs are an expense. If the value of the calf weight is greater than the costs of forage, the difference is an income. Results of a study at the NDSU Dickinson Research Extension Center indicate that while native range forage grazed during the nongrowing season is an expense, certain harvested forages are a source of substantial potential profit,” states Lee Manske, a range scientist at the Dickinson facility.

The pasture and forage costs for a cow and calf and the value of calf weight were evaluated for three types of forage used as livestock feed during the 167-day nongrowing season. The three forage types were reserved native range pasture supplemented with range cake, mature crested wheatgrass hay supplemented with range cake and alfalfa-corn silage, and forage barley hay cut early.

An average 1,200-pound cow with a calf born in mid March requires 4,143 pounds of dry matter, 2,202 pounds of energy (TDN), and 339 pounds of crude protein during the 167-day (5.5-month) nongrowing season from mid November until late April. The dry matter and nutrients need to be provided from the forage type selected.

Native Range

Reserved native rangeland pasture has production costs of \$8.76 per acre and forage dry matter costs of \$122.13 per ton. A 1,200-pound cow would require 28.89 acres of properly stocked native range pasture for the 167-day nongrowing season, and the forage to feed the animal would cost \$252.99. Crude protein supplementation from range cake would cost \$26.08. Total forage and supplement costs would be \$279.07 per nongrowing season, or \$1.67 per day.

Calves born in mid March weighed an average of 95 pounds. Calf weight gain during the early lactation production period was 1.8 pounds per day and accumulated weight gain was 81 pounds. Total calf weight was 176 pounds, at a cost of \$1.59 per pound. When calf weight was assumed to have a value of 70 cents per pound, the gross value was \$123.20 per calf. Net returns after pasture-forage costs were a loss of \$155.87 per cow-calf pair grazing reserved native rangeland pastures.

Crested Wheatgrass

Mature crested wheatgrass hay has production costs of \$28.11 per acre and forage dry matter costs of \$34.80 per ton. Production of mature crested wheatgrass to feed a 1,200-pound cow during the 167-day nongrowing season would require 2.72 acres, and the forage would cost \$77.92. Nutrient supplementation would cost \$11.50 for range cake and \$15.75 for alfalfa-corn silage. Total forage and supplement costs would be \$105.17 per nongrowing season, or 63 cents per day.

Calves born in mid March weighed an average of 95 pounds. Calf weight gain during the early lactation production period was 1.9 pounds per day and accumulated weight gain was 85.5 pounds. Total calf weight was 180.5 pounds, at a cost of 58 cents per pound. When calf weight was assumed to have a value of 70 cents per pound, the gross value was \$126.35 per calf. Net returns after pasture-forage costs were \$21.18 per cow-calf pair fed mature crested wheatgrass hay.

Forage Barley Hay

Forage barley hay cut early, at the milk stage, has production costs of \$68.21 per acre and forage dry matter costs of \$28.80 per ton. Production of early cut forage barley hay to feed a 1,200-pound cow during the 167-day nongrowing season would require 0.54 acres, and the forage would cost \$37.52. Roughage supplementation would cost \$29.69. Total forage and supplement costs would be \$64.21 per nongrowing season, or 38 cents per day.

Calves born in mid March weighed an average of 95 pounds. Calf weight gain during the early lactation production period was 1.9 pounds per day and accumulated weight gain was 85.5 pounds. Total calf weight was 180.5 pounds, at a cost of 36 cents per pound. When calf weight was assumed to have a value of 70 cents per pound, the gross value was \$126.35 per calf. Net returns after pasture-forage costs were \$62.14 per cow-calf pair fed early cut forage barley hay.

Crude Protein Makes the Difference

“The amount of income or expense for a forage type is determined by the difference between the value of calf weight and the pasture-forage costs,” Manske explains. “The major factor determining pasture-forage costs is the cost per pound of crude protein from a forage type. The cost per pound of crude protein is determined by the efficiency of nutrient capture for the harvest management of a forage type.”

Cows grazing reserved native range pastures captured 8.74 pounds of crude protein per acre; the prorated cost of the nutrient was \$1.04 per pound. This high cost of crude protein produced pasture-forage costs greater than the calf weight value. Reserve native range pastures returned a loss of \$5.40 per acre.

Haying crested wheatgrass at the mature stage captured 102 pounds of crude protein per acre; the prorated cost of the nutrient was 28 cents per pound. Mature crested wheatgrass hay returned \$7.79 per acre above the pasture-forage costs. Cutting crested wheatgrass hay earlier, at the boot stage, increased the net return after pasture-forage costs to \$26.41 per acre.

Haying forage barley at the milk stage captured 606 pounds of crude protein per acre; the prorated cost of the nutrient was 11 cents per pound. Early cut forage barley hay returned \$115.07 per acre above the pasture-forage costs.

“Net returns of more than \$100 per acre from the forage barley hay should be viewed as a source of substantial income,” Manske says. Some other annual plants grown on cropland and harvested as livestock forage for the nongrowing season have potential to be a source of income: among them are oat forage hay cut early, pea forage hay cut late, forage lentil hay cut late, and oat-pea forage hay.

“The forage production costs, land rent costs, equipment costs, and labor costs do not directly determine livestock forage costs. The amount of nutrient captured per acre prorated against the forage production costs determines the forage costs when the cows’ daily nutrient requirements are met,” Manske says. “If supplementation is needed, supplement costs and forage costs together determine livestock feed costs.”

“The valuable product from pastures and haylands is the nutrients, not the dry matter weight,” he says. “Beef producers who determine the prorated costs per pound of nutrient and select a forage type with lower feed costs than the value of calf weight have changed feeding beef cows during the nongrowing season from a major expense into a source of substantial income.”