

Rotational Grazing at Neely-Kinyon

The Neely-Kinyon Farm, near Greenfield, began rotational grazing in 1995 with 30-35 dairy heifers on 37 acres. A goal is to evaluate the economics of raising replacement dairy heifers on rotationally grazed pasture in southwest Iowa. Money was spent on permanent fencing and a water system. Additionally, the pasture was seeded with red clover and birdsfoot trefoil, and 104 pounds per acre of triple superphosphate was applied. The stock were in the field from May through August, and weights were taken monthly. ISU animal scientists Bill Wunder and Jim Russell supervised the data collection.

The graph shows average daily gain (ADG) and cost per pound of gain for the four months of grazing. Instead of dipping in late summer, ADG continued to climb throughout the season. Bill Wunder suggests that this was, in part, a benefit of the legume seeding and fertilization. Jim Russell has an additional factor in mind.

Russell kept track of daily forage consumption using a sward stick. He says that the heifers consumed about 33 pounds of forage dry matter per head each day early in the season. In July, when each cow began to receive 4 pounds of grain a day, forage intake went down to around 28 pounds per day, but total energy intake remained relatively constant. Crude protein intake didn't change much either, but Russell figures that the amount of protein escaping degradation in the rumen - by-pass protein -- nearly doubled. It is the by-pass protein that is used by the cow.

Forage protein, says Russell, is 90 percent degraded by bacteria in the rumen. Protein in hay is about 80 percent degraded. Roughly 60 percent of soybean protein is degraded. Russell thinks that next year ADG could be maintained by feeding as little as a pound of corn gluten or bloodmeal, whose protein is about 50 percent available to the animal. Jim Russell's team is also analyzing the bypass protein in berseem clover. Berseem, like birdsfoot trefoil, is high in tannins that prevent bacterial breakdown and probably make it a good source of by-pass protein.

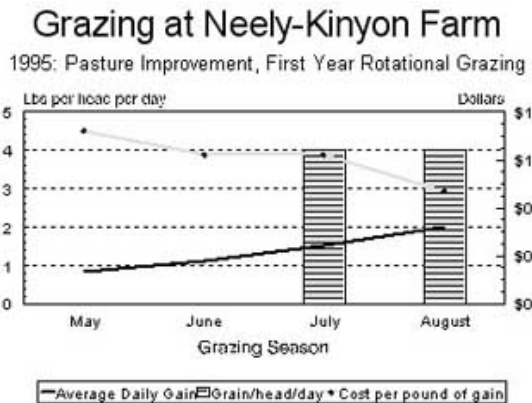


Figure 4. Gain, cost, and grain fed to dairy heifers at Neely-Kinyon farm.