

This article was presented on  
June 22, 2000 at the Purdue Forage Day.

## **OUR EXPERIENCES WITH BROWN MIDRIB SORGHUM-SUDANGRASS**

Kirk Vanzant, Beef Unit Manager  
Animal Sciences Department, Purdue University

Summer annual forages can be effectively used to overcome short-term shortages in pasture production. The decision to establish an area with a summer annual must take into consideration many factors, including but not limited to: 1) cost to establish the summer annual versus feeding hay or other supplemental feed, 2) availability of supplemental feed, 3) location of the summer annual in relation to permanent pastures and ease with which cattle can be moved to and from the area, 4) water availability, 5) alternative uses for the land area, 6) labor and equipment availability to prepare the seedbed and sow the summer annual, and 7) health concerns associated with grazing certain summer annual forages, particularly prussic acid and nitrate poisoning. There may be several other factors to consider, depending on the specific operation.

At the Purdue Beef Research and Education Center, we rotationally stock sixty to seventy head of replacement heifers on seventy acres of permanent pastures. These pastures consist of a mix of fescue, red clover, alfalfa, orchardgrass and reed canarygrass. During years when rainfall is limiting, particularly in mid to late summer, the pasture forage production decreases. We are then faced with a situation of having to supplement the cattle with hay to make up for the shortage of forage in the pastures—an expense we would prefer not to incur. One approach we have taken to reduce the amount of hay fed during the summer has been to establish 16.8 acres of brown midrib sorghum-sudangrass in a winter drylot area located adjacent to our permanent pastures. These drylots are used to winter our developing heifers and new cow-calf pairs prior to spring pasture turnout (~ January through mid-April). Due to the heavy animal pressure they receive during the winter and early spring, these drylots will not support any traditional perennial forages. In previous years, the drylots were used as sacrifice areas for the permanent pastures during periods of heavy rainfall in the summer. However, the majority of the time these lots sat idle, and required constant mowing through the summer months to control weed growth. Seeding these drylots to a summer annual, such as brown midrib sorghum-sudangrass has allowed us to reduce the amount of hay fed and utilize land area that would otherwise sit idle.

In establishing the brown midrib sorghum-sudangrass, we normally seed during the last week of May. The seed is sown with a grain drill, at a depth of about  $\frac{1}{2}$ ", and at a rate of 20 lb. PLS per acre. If adequate moisture is available, and

temperatures are warm, we usually see the seedlings emerge within a week after seeding. Our first grazing usually occurs within 35 days, when the forage has reached a height of 18"-30".

By bringing this additional 16.8 acres of forage into our rotation, we have typically been able to carry seventy heifers for eight to ten days on each rotation, with three rotations per year (1890 head days). If the sorghum-sudangrass were not available, and assuming the heifers would consume 2% of their body weight in hay dry matter, we would need to feed an estimated 23.5 tons of hay to carry the animals through this same time period. If hay is priced at \$75 per ton, we are spending \$1762 dollars (\$25.17 per head) for the hay. Add to this a custom rate of \$5 per acre for mowing weeds in the drylots while they sit idle (4 times per year), and our cost not to utilize the drylots is  $\$336 + \$1762 = \$2098$  (\$29.97 per head). This can be compared with a cost of \$1714 (\$24.48 per head) to establish the brown midrib sorghum sudangrass. This establishment cost includes a custom rate for seedbed preparation, fertilizer application, spraying, and sowing, and costs for fertilizer, chemicals, and seed. Although we could choose not to mow the drylots while they sit idle, there is some "cost" associated with not controlling weeds, as we may increase weed pressure in other areas of the farm.

This year, in an effort to further reduce the establishment costs associated with the summer annuals, we applied composted manure on the seeding sites, eliminating the starter application of fertilizer. Additionally, we chose not to apply any herbicides, with the expectation that the rapid growing summer annuals would compete well with the weeds. The elimination of these direct costs has reduced our establishment cost to \$873.60 (\$12.48 per head). Although this gives a clear economic advantage to the summer annual, we have yet to see what effect these changes will have on forage quality and yield.

It is important for the individual producer to determine the economics of production when deciding if summer annuals will benefit his operation. One needs to look at the overall benefit received versus the cost incurred to receive that benefit. Based on our experiences, we have been pleased with the results of the brown midrib sorghum sudangrass. We have seen a definite advantage to our grazing program by including the summer annual in our pasture rotation, and have reduced our summer feeding expenses.