

## Forage Crop Research: Evaluating Forage Species in Iowa for Productivity during Drought Conditions

M.H. Wiedenhoef, associate professor  
R. L. Hintz, assistant scientist  
P. Patrick, research associate  
Department of Agronomy

Drought often results in greater agricultural damage in southern, western, and northeastern Iowa than in the rest of the state. Slight to severe slopes are prone to erosion, and soils high in clay content are slow to drain excess moisture during wet periods and have low amounts of available moisture during periods of drought. The land is predominantly used for livestock production because of factors that limit level of productivity in row-crop production. Pastures/hayfields typically used to produce livestock in these areas contain cool-season grasses of European origin with little tolerance to extreme weather conditions such as drought and warm climatic conditions. Even in years of normal temperatures and rainfall, forage productivity in Iowa often is limited by low productivity of cool-season grasses during summer. Individual plant species possess certain characteristics or adaptations that allow survival and recovery during and following extreme

stress conditions. Sorghum, sudangrass, and sorghum–sudangrass hybrids are important forage species because they are adapted to environments with limited rainfall and high temperatures. Unfortunately, new varieties have not been tested for Iowa conditions.

The objective of this research is to evaluate forage species for their seasonal productivity differences and their ability to withstand droughty environmental conditions in Iowa. Small plots of pure stands of various forage species will be seeded in a randomized complete block design at three Iowa State University research farms at McNay, Nashua, and Ames during the 2001, 2002, and 2003 growing seasons. Many of the selected species will include new sorghum and sorghum–sudangrass hybrids. The established forage plots will be harvested at appropriate growth stages for grazing and silage forage systems. Forage yield will be determined, and nutritional quality will be analyzed. This research is being funded by a grant from the U.S. Dept. of Commerce, Economic Development Administration