

Tawney Bleak

Senior Division Plant Sciences

Evaluating Forage Soybean as an Alternative Dryland Crop for the Central Great Plains

Many farmers produce wheat in a traditional mono-crop wheat-fallow system. Mono-crop systems are subject to disease and insect problems, and can also lead to the development of herbicide-resistant weeds; therefore, an alternative crop needs to be identified that can be grown in rotation with winter wheat. The objective of this study is to determine if forage soybean can be an alternative dry land crop for farmers in the Central Great Plains. Forage soybean (97NYCZ33-1, Maturity Group III) was planted at Akron, CO under a line-source gradient irrigation system to produce a range of available water treatments. Soil water and irrigation amounts were measured at four distances from the water source with four replications and used to calculate crop water use. Biomass samples were taken at each of the sixteen locations from mid-August to late September at approximately weekly intervals. Samples were then dried, weighed, and analyzed for dry weight and forage quality parameters (crude protein, acid detergent fiber, neutral detergent fiber, relative feed value). The water use/yield production function was linear and produced an estimated yield frequency distribution that indicated a yield of at least 4000 lbs/A could be attained 68% of the time. Forage quality analysis indicated that this is a high quality forage source. Harvest date should occur in mid-September to maximize harvestable dry matter and crude protein. These results indicate that forage soybean could be recommended as an alternative crop.