Using Reduced-Lignin Alfalfa Cultivars to Improve Water Use Efficiency, Forage Yield, & Forage Quality in Water-Limiting Environments

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Alfalfa is commonly used as high-quality feedstock for the milk and beef industry in the Central Great Plains. Previous studies performed in non-limited water environments indicated reduced-lignin alfalfa as an improved alternative, with 10% higher forage digestibility and similar yields to conventional alfalfa. However, no adjustments in reduced-lignin alfalfa harvest management based on water use efficiency, forage yield, and quality were developed for soil water deficit environments in the Central Great Plains. The specific goals of this project are to 1) quantify the effects of cutting management of conventional and reduced lignin alfalfa cultivars on forage yield, forage quality, and water-use efficiency; 2) conduct a comprehensive survey of current management practices and associated forage yield in commercial alfalfa fields of the Central Great Plains to characterize the management practices associated with current average and potential water-use efficiencies of the region; 3) assess the economic feasibility of reduced-lignin alfalfa in water-limited environments; and 4) disseminate project findings and products to stakeholders. This is an ongoing project. However, partial findings and performed activities will be discussed.