

# **Annual Cool-Season Legumes as Components of Cool-Season Perennial Grass Pastures**



The ability to fix nitrogen by cool-season annual legumes may reduce dependence on N fertilizer and improve forage quality of perennial grass pastures, if species compatible with newly introduced to the southern Great Plains, summer-dormant cool-season perennial grasses could be identified.

**This project is being conducted in cooperation with Grasslands Innovation Ltd. (New Zealand) and the Samuel Roberts Noble Foundation, Ardmore, OK.**

## **Rationale**

Annual cool-season legumes may have a potential to improve pasture profitability in the southern Great Plains. Currently, mixed perennial cool-season grass pastures with annual legumes are not a common practice in this region due to insufficient knowledge of management requirements and producers' concerns about water use patterns by multi-species crops. Introduction of summer-dormant cool-season grasses with a similar growth pattern to cool-season annual legumes offers new options of multi-species pastures.

## **Objectives**

The objectives of this research are:

1. Determine adaptability, forage, and seed production, and re-seeding potential of a range of cool-season annual legumes
2. Determine compatibility of selected annual legumes with summer-dormant tall fescue
3. Determine cattle grazing preferences of annual legume - summer-dormant tall fescue mixed pastures
4. Breed cultivars of annual legumes adapted to southern Great Plains

## **Impact**

During 2004-2007, we identified a number of annual legume accessions with high potential of forage and seed production, and favored by cattle. Since 2006, these annual legume accessions were subjected to selection and seed increase procedures to create a set of breeding lines with a potential of release as companion cultivars to summer-dormant tall fescue for various regions of Texas and Oklahoma.

## **Summary of Results**

Malinowski, D.P., Widdup, K., Butler, T.J., Pinchak, W.E., and B.A. Kramp. 2008. [Companion legumes for summer dormant tall fescue](#). Paper 41454. ASA-CSSA-SSSA Annual Meeting. 5-9 October 2008. Houston, TX.

Butler, T.J. Interrante, S.M., Malinowski, D.P., and K. Widdup. 2011. Annual medic forage and seed evaluations for the semiarid regions of the Great Plains. Forage and Grazinglands. Available online <http://www.plantmanagementnetwork.org/sub/fg/research/2011/medic/medic.pdf>.

## **Funding Sources**

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