Weed Invasion and Diversity Relationships in Pasture Communities. (C06-tracy134713-Oral)

Authors:

- B.F.Tracy - *University of Illinois*
- M.A.Sanderson - *USDA-ARS*

Abstract:

High plant diversity has been shown to reduce weed invasion in some plant communities. In 1999, we began a study to determine whether greater forage diversity in cool season pastures could reduce weed abundance. First, weed abundance was measured in experimental pasture communities ranging from 1 to 15 species. We then evaluated weed germination and growth in a greenhouse experiment by sowing curly dock (Rumex crispus L.) seeds with different forage mixtures. Lastly, we explored the relationship between weed abundance and forage diversity in 37 pastures surveyed across the northeast US. In the field experiment, weed abundance was significantly lower in the most diverse forage mixtures. Higher forage diversity in the greenhouse experiment repressed curly dock germination and final biomass by 36% and 90%, respectively. We also found a significant negative relationship between weed abundance and forage diversity across the 37 pastures surveyed in the northeast US (P=0.004, df = 1,35). Overall, our study suggests that high forage diversity may help reduce weed invasion in pastures. The presence of large, productive forage species in diverse mixtures best explains this repressive effect.

Corresponding Author Information:

Benjamin Tracy
University of Illinois
Dept. Crop Sciences, 1102 S. Goodwin AVe.
Urbana, IL 61801
USA

phone: 217.265.5313
fax: 217.333.9817
e-mail: bftracy@uiuc.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 1:45 pm

Keywords:
pastures, weed invasion, forage diversity, northeast US