Progress in Creating Interspecific Hybrids with Texas Bluegrass (*Poa arachnifera*)

In addition to population based breeding within Texas bluegrass for improved forage type material, an interspecific hybrid breeding program was initiated. Interspecific hybrids involve crossing Texas bluegrass with other *Poa* species. Texas bluegrass is a diploid (2n=28), separate male and female plants which enabled hand crosses to be made in the greenhouse by transferring pollen from other species onto female Texas plants. This goal is to produce novel hybrids that are more vigorous than the parents and possess agronomic traits not found in Texas bluegrass. Poa species from other *Poa* species in an effort to produce novel forages or low input turf-type material. Four species of bluegrass (*Poa trivialis*, *Poa annua*, *Poa secunda*, and *Kentucky bluegrass*) were used for hybrid production. CA, KY, and Seraucare reproduce by apomixis, enabling the possibility of recovering true breeding hybrids. In 2004, hand crosses resulted in recovery of six hybrid types. None of the hybrids involving an apomictic pollen donor produced individuals that contained complete flower and reproductive asexually. In 2005, by using hybrids from the previous year and altering flowering conditions resulted in the recovery of approximately 23 hybrid types. Three accessible 3-way hybrid involving three *Poa* species. Approximately five hybrids that appear to have complete flowers were recovered from Texas X CA or KY crosses and are suitable for large scale evaluation and cultivar release.

**Current Breeding Program Outline**

**Selection Criteria**

- **Stem rust resistance** (*Puccinia graminis*)
- **Drought/Heat tolerance**
- **Persistence**
- **Forage types**
- **Turf types**
- **Mode of reproduction**
- **Seed yield**
- **Seed Processing characteristics**

**Seedling Stage DNA Screen**

- ISSR = GAG AGA GAG AGA GAG AYC Y = (C,T)

**Summary**

The number and complexity of interspecific hybrids produced increased each year. Fertility varies depending on the cross type and in some cases the specific parents used. Based on plants produced from crosses made in 2004 & 2005, apomictically reproducing hybrids have been recovered. A new set of 20+ Kentucky bluegrass genotypes are scheduled to be used in the next crossing cycle (spring/summer 2007). This region provides excellent stem rust pressure for selecting resistant material for use in the breeding program. The extremes in heat and drought present in this area are also beneficial for selecting elite material. Further work is planned to continue creating and evaluating hybrids.