USDA NRCS

United States Department of Agriculture
Natural Resources Conservation Service

2010 Perennial Biofeedstock Tour
Big Flats Plant Materials Center

Warm season grasses to be observed include: Switchgrass *Panicum virgatum*, Big bluestem *Andropogon gerardii*, eastern gamagrass *Tripsacum dactyloides*, prairie cordgrass *Spartina pectinata*, and indiangrass *Sorghastum nutans*. Cool season grasses: tall wheatgrass *Thinopyrum ponticum*, intermediate wheatgrass, *Thinopyrum intermedium*, wild ryes *Leymus sp*. Trees and shrubs: willows *Salix* sp. and hybrid poplar, *Populus deltoides* hybrid. Also Canola and Camolina.

Cultural trials include establishment of switchgrass with corn using atrazine and other herbicides for weed control. It is possible to get a yield of silage corn the first year while establishing switchgrass. Result of 2007 demonstration planting of big bluestem with a Vicon pendulum spreader will be observed. Fall dormant seeding studies using different fungicides and insecticides to aid in the overwintering of the seed is ongoing. Studies with fungicides on switchgrass seed are being initiated to evaluate their effects on smut disease.

Big Flats PMC cooperated with Cornell in obtaining a New York Farm Viability Institute grant "Accelerated evaluation of grass and legume biofeedstock for biofuels production in New York State". Big Flats is one of 5 locations. The project is evaluating 5 species of warm season grasses and mixes for a total of 19 cultivars. Cave-In-Rock and Kanlow switchgrass are the best performers of those being evaluated. Newer cultivars are being developed which should improve yields.

Switchgrass and big bluestem have a lot of genetic diversity within native populations. It is important to collect, evaluate and store this germplasm in case there is widespread planting of non-indigenous cultivars. Approximately 80 native collections each of switchgrass and big bluestem from 10 states in the Northeast have been collected and are grown at both the Big Flats PMC and Cornell for evaluation and breeding.

Southern germplasm of switchgrass has been obtained from University of Oklahoma, Mississippi State, North Carolina State University and PMCs in New Jersey, Mississippi and Arkansas . The use of Southern germplasm can increase yield due to later flowering caused by a photoperiod response; later flowering dates maintain the plants in a vegetative state longer than earlier maturing Northern germplasm. Selecting plants which have the ability to go dormant and maintain winter hardiness is an objective. One cycle of selection from a high elevation site has been obtained from 'Kanlow' and 'Atlantic' coastal panicgrass. Evaluations of breeding lines from Ken Vogel, USDA-ARS -Nebraska and Mike Casler , ARS-Wisconsin are underway, along with evaluations of other available newly released cultivars.

Tall wheatgrass is a non native cool season grass from Southern Europe and Asia Minor; it flowers later with stiffer stems than most forage type grasses grown in the Northeast. It has been used in Hungary for burning for heat. We are evaluating 4 cultivars of Tall wheatgrass – 'Largo', 'Alkar', 'Jose' and one from Hungary- 'Szavarsi-1' as well as 2 cultivars of reed canarygrass- "Chiefton' and 'Bellevue' and 1 accession of intermediate wheatgrass, #9051920. All are at 2 seeding rates, 20 and 40 lb/ac, except the reed canarygrass , only at 20 lb/ac. Yields of greater than 5.5 t/ac were achieved with 2 cuttings on the best cultivars. A tme of cutting tall wheatgrass study will be discussed.

Evaluations of additional cool season grasses in cooperation with USDA-ARS Logan Utah are being conducted, which include: *Leymus triticoides, L. cinereus, L. condensatus L. mollis and L. racemosus.* These represent wildryes from the intermountain west and one introduced species. Demonstration plantings of mixes between tall and intermediate wheatgrasses and tall wheatgrass and red clover will be shown, as well as replicated plantings of cultivars and breeding lines of intermediate wheat grass.