



Rose Lake Plant Materials Center

Winter Newsletter FY 13

New Vegetative Barrier Planting in Barry County, MI

Vegetative barriers are narrow strips of vegetation planted perpendicular to concentrated water flow areas in a field. NRCS Conservation Practice Standard 601 (Vegetative Barriers) describes the practice, its installation, and the criteria needed for a successful barrier. When used under appropriate conditions this practice reduced ephemeral gully erosion without taking much land out of production, as is the case with grassed waterways. Plants used in this practice need to be stiff stemmed plants that will stay upright throughout the winter. Plants used for this practice also need to withstand water flow and soil deposition.

Plant species selection and establishment methods have been researched for a number of years. Warm season grasses such as switchgrass have been established by seed. Vegetatively propagated species have been used as a model system to develop methods of establishment using pre-established sod strips. Establishing vegetative barriers by seed can be difficult as seeds or newly germinated seedlings are subject to wash out in the concentrated flow areas of the barrier. The concept for using pre-established sod strips shows good promise but the method used at the Rose Lake PMC would be cost prohibitive in commercial production.

In November 2012 the Plant Materials Center, in cooperation with NRCS State Agronomist Jerry Grigar, established several vegetative barriers on a farm near Woodland, MI in Barry County. A dormant seeding of 'Shelter' switchgrass was established using straw bales to protect seeds and newly emerged seedlings from water flow. Two rows of switchgrass were planted upslope of the bales and two rows were planted downslope of the bales.

Several switchgrass varieties and giant miscanthus (*Miscanthus x giganteus*) barriers were established vegetatively using a 5mil mesh tube (registered by Filtrexx™) filled with soil and plant material. The

switchgrass varieties used in this trial are ‘Northwind’ and ‘Thundercloud’. The technique is similar to the process evaluated by the PMC in previous research but is intended to be more cost effective in commercial production. Initial soil elevations will be measured upstream and downstream from the established barriers this fall and annually for the next 3 – 5 years. Estimates of establishment and survival in the concentrated flow areas, as well as stem counts and stem diameters will also be taken.

Two rows of vegetatively established barrier



Vegetatively propagated barrier material inserted into trench



Vegetable seed planter used to seed switchgrass barrier



Switchgrass barriers planted on upslope and down slope side of straw bales



Giant Miscanthus Propagation Efforts at the PMC

Giant miscanthus (*Miscanthus x giganteus*) is a sterile triploid hybrid in the *Miscanthus* genus. It is being tested in Michigan and in other parts of the United States for bioenergy production and other applications. Giant miscanthus is propagated vegetatively with rhizomes and is very winter hardy. The Rose Lake PMC is planning several projects that call for the use of giant miscanthus in conservation applications (see article below). The PMC has several small scale plantings of giant miscanthus that we want to use for those projects.

The PMC started evaluating several giant miscanthus propagation techniques in preparation for 2013 field experiments. Dormant material was excavated and separated in November 2012 for either cold room storage in moist peat or immediate planting in greenhouse containers. Stem material with attached rhizome section or rhizome sections alone were planted in greenhouse containers to evaluate which, if either, plant parts would be the best to use in propagation. A similar planting will be done with cold room stored material and material that will be excavated in the spring of 2013.

Results from the immediate planting timing indicate that shoot emergence from rhizomes alone occurred within 14 – 18 days after planting, whereas shoot emergence from stem material with rhizome portions occurred in 21 – 24 days. Other than the difference in emergence time (which may have been due to planting depth differences) there was no difference in the overall emergence of the two propagation techniques.



Excavated giant miscanthus



View of giant miscanthus rhizome and root system



Giant miscanthus stem and rhizome section



Giant miscanthus shoot emergence from stem and rhizome section



Giant miscanthus rhizome section



Giant miscanthus shoot emergence from rhizome section

Warm Season Grasses to Be Evaluated as Living Snow Fences

Herbaceous wind barriers are intended to protect adjacent soil from wind erosion, protect growing crops from damage by wind borne soil particles, and help conserve soil moisture. NRCS Conservation Practice Standard 603 (Herbaceous Wind Barriers) describes the practice, its installation, and the criteria required for successful establishment. The standard does provide criteria for snow management, however the intent is for trapping snow in the production area next to the barrier.

Living snow fence is the use of vegetation (herbaceous or woody) to disrupt snow drifting by causing it to settle out of the air in an area adjacent to the vegetation. When appropriately placed the snow fence can reduce or prevent snow drifting onto adjacent roads. NRCS Conservation Practice Standard 380 (Windbreak and Shelterbelt Establishment) provides criteria for using woody vegetation for protection against snow drifting on roads but there currently are no criteria in either standard for the use of herbaceous material for that purpose.

NRCS State Agronomist Jerry Grigar has been working with potential cooperators at the Michigan State University Experiment Station near Chatham, MI (upper peninsula), Bay Mills Community College near Sault Ste. Marie, MI (upper peninsula) and the Gratiot County Road Commission near Ithaca, MI (lower peninsula) to find sites to evaluate giant miscanthus and several switchgrass varieties for their effectiveness as living snow fences. The District Conservationists and Conservation District staffs in the respective Counties are also involved in the planning of the project. Plant materials for the project will be propagated in the PMC greenhouse in the spring of 2013 and established on those sites in June.



We are wishing each and every one of you a wonderful Holiday Season filled with love, happiness, peace and good health.

John Leif, PMC Manager

John Durling, PMC Agronomist

Elaine Gerona, PMC
Administrative Assistant

Sergio Perez, PMC
Biological Science
Technician

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