Giant Miscanthus (Miscanthus x giganteus) is a warm season grass native to Asia that grows up to 13 ft tall. It is sterile and non-invasive. Miscanthus is a relatively new addition to the American biomass crops, although its success for energy production in Europe has been documented for decades. Early studies in the United States show great promise for its success here, as it has yielded more than twice the biomass of corn and switchgrass per acre. Miscanthus is productive much longer than corn, since it produces green leaves 6 weeks earlier and maintains leaves about 6 weeks after corn leaves die. Miscanthus is a perennial crop, not an annual like corn, so it does not need to be seeded every year and can be harvested annually for 20 years with negligible inputs following its 2-3 year establishment period.

Miscanthus may be our most promising bioenergy crop to date. It can be harvested annually and used as feedstock for biomass production. It can be converted to ethanol for use as a transportation fuel, and it can be pelletized or pressed into biomass logs for combustion as a heat source. It is also used for animal bedding, as an absorbent, and for bio-based materials such as fiberboard. It also provides the potential for income generation through carbon credits, which can be awarded to offset industrial carbon emissions in exchange for a crop’s carbon sequestration.

Miscanthus has the potential to be a widely used reclamation-site species in West Virginia. High yields of Miscanthus can be achieved with minimal fertilizers or other agricultural inputs even on marginal soils like reclaimed mine lands. Miscanthus is very cold tolerant, and can tolerate drought. It performs best, however, under wetter conditions. Therefore it is well suited to marginal soils that are too wet for traditional crops and grasses, and it would thrive under the periodic flooding conditions that often occur during WV’s spring months.

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Miscanthus is usually propagated by its rhizomes. To establish a stand, farmers must plant the rhizomes about four inches deep in spring. Rhizome planting machinery, similar to that available in Europe, is currently being developed in the US. Retro-fitted planters have been used in the US to set about 15 acres of rhizomes per day, but when the European style planters are available, that should increase to about 50 acres per day. Alternatively, Miscanthus seedlings can be started in a greenhouse then field planted.

During establishment, adequate water and weed suppression are critical. Establishment typically takes about 3 years. After establishment, shoots will generally reach 6’ tall by the end of May and 12’ tall by the end of each growing season. In November, the shoots die and the leaves fall off. During this time the plant moves nutrients into root system that it will use for growth in the spring. To allow time for the movement of these nutrients, harvest should occur in early winter (December or early January,) following senescence but before the worst of winter weather.

Miscanthus can be harvested using traditional hay equipment, and the bales can be left in the field for a very long time without the crop breaking down, particularly if left under tarps. This should simplify logistical aspects of commercial Miscanthus biomass production: increasing Miscanthus’ profitability by eliminating the need for massive crop storage facilities to hold the biomass until it is converted to fuel.

For more information visit http://www.extension.org/pages/26625/miscanthus-miscanthus-x-giganteus-for-biofuel-production