

Producing Switchgrass On The Farm

Milan's Tour D Presents Data From Production Research on Private Farms

MILAN, TENN.

In 2008, 16 East Tennessee farmers planted 723 acres of switchgrass as part of the University of Tennessee's Biofuels Initiative. With the help of a team of experts with UT Extension, the Initiative is providing an opportunity for farmers within a 10-county area of Vonore, Tennessee, to produce switchgrass as a dedicated energy crop under a three-year contract.

Vonore is located approximately 35 miles south of Knoxville. The Initiative allowed for farmers to plant an additional 1,890 acres in 2009 and an additional 2,400 acres 2010, bringing the total acreage to approximately 5,000 acres being grown by 60 farmers in approximately 320 fields.

At the UT Milan No-Till Field Day, UT Extension biofuels experts will present the results of their research and observations regarding producing switchgrass on private farms. Speakers will include Extension Specialists Jon Walton and Ken Goddard as well as Clark Garland, Chair of the UT Biofuels Farmer Education Team and professor in the Department of Agricultural and Resource Economics.

Switchgrass is a warm-season perennial grass native to North America. The plant can reach heights up to 10 feet with an extensive root system. Once established, switchgrass well-managed for biomass should have a productive life of 10-20 years. Within the stand, switchgrass is an extremely strong competitor. However, it is not considered an invasive plant.

Alamo, a lowland variety of switchgrass was planted the first two years. In 2010, improved varieties of Alamo and Kanlow were also included in the new plantings.

The team will discuss purchasing switchgrass seed and how switchgrass is established. The experts say switchgrass seed are very small and normally sold on the basis of pure live seed (PLS) and that when calibrating seeding equipment, care should be used to account for the percentage of pure seed and the germination rate. For biomass production, UT recommends 6 pounds of PLS per acre.

Planting dates can range from mid April to mid June. Switchgrass can be planted into a tilled seedbed or no-tilled, but the UT experts say no-till planting with a no-till drill in fields

not bedded from past row crops is the ideal way to plant. A planting depth of ¼ inch or less is critical with good seed coverage at that depth. The drill should have small seed boxes suitable for accurately metering switchgrass.

Working on the farm has shown that producers should "pick their battles" with respect to switchgrass and potential weed problems. "In the establishment year, switchgrass does not compete well with grasses such as fescue, crabgrass, and johnsongrass and broadleaf weeds. Appropriate weed control measures vary greatly according to previous cropping history and specific weed varieties," Goddard said. "Carefully evaluate fields before and after planting and check with an Extension agent for control options. Our experience in Tennessee on weed control in switchgrass indicates grass competition is much more severe than broadleaf competition." Goddard also maintains that once switchgrass is well-established and properly managed, it is very competitive against weeds.

In a one-cut harvesting system, the switchgrass has been harvested around November 1 or the first killing frost, whichever comes first. A disc-mower conditioner should be used. Switchgrass should be cut at least 6 inches high. Switchgrass stand survival, vigor and yield consistency in later years is greatly impacted by the cutting time and height.

In the first year of production yields, at 18 percent moisture, are estimated to run approximately 30 percent (1.8 tons) of the full yield potential. Second year yield is normally 70 percent (4.2 tons) of full production. In the third year, yields should be at the 100 percent yield level of 6 to 7 tons. Obviously, land quality, weather conditions, stand vigor, weeds and overall management will impact yield levels for a given switchgrass field.

Prior to planting switchgrass as a bioenergy crop, the UT experts recommend that producers have a firm and satisfactory contract in place. At this time the market for dedicated bioenergy crops is extremely limited, but the industry is poised to take off. The fact that it takes three years to for switchgrass plots to reach their full yield potential is a dilemma for many interested in this crop. △