

Elsberry Plant Materials Center  
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# Plants for Conservation

Spring 2007

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Vol. 8 No. 1 Elsberry PMC Serving Programs for Iowa, Illinois, Missouri

## Elsberry PMC Plans Fall Training/Tour

The USDA NRCS Elsberry Plant Materials Center (PMC) invites you to attend our Fall Field Day on Wednesday, September 26, 2007 from 10:00 a.m. to 2:30 p.m. The open house begins at 10:00 a.m. with a welcome and introduction to the Elsberry Center.

A wagon tour will provide an overview of the facilities, specialized equipment, foundation seed processing, harvesting, cleaning, and storage requirements for native seed. The tour will also view the Center's production fields that can be observed at the peak of the harvest season.

The Center has 24 active studies that directly relate to finding plant solutions to help respond to our natural resources challenges in the three states of Iowa, Illinois and Missouri that the Center serves.

So schedule September 26 to come and spend a beautiful autumn day at the Elsberry Plant Materials Center. Please bring a sack lunch for our 1/2 hour break for lunch.

Call the Center at 573-898-2012 or contact [steve.bruckerhoff@mo.usda.gov](mailto:steve.bruckerhoff@mo.usda.gov) PMC, Mgr, or contact [jerry.kaiser@mo.usda.gov](mailto:jerry.kaiser@mo.usda.gov), PM Specialist, to confirm your attendance.

Drawing prizes will be awarded to some lucky winners that attend the field day.

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## New Release of 'Refuge' Big Bluestem Jerry Kaiser, Plant Materials Specialist

***Wanted:*** A grass that can stand up to wind, water, and ice storms! Excellent cover for wildlife and filtering of runoff after established.

'Refuge' big bluestem can do all the above. Contact the center if interested in further field testing of this new release!

This short stature big bluestem obtains a height of only 4.5 feet with excellent stand ability throughout the winter.



Winter Ice Storm 2006



Short Stature 'Refuge' Big Bluestem

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## Testing Herbicides for Control of Reed Canarygrass

Steve Bruckerhoff, PMC Manager

Outrider herbicide that controls Johnsongrass is labeled for use on some native warm season grass species. It has recently been labeled safe on some trees. See the supplemental label.

Further testing was conducted at the PMC with a tank mix of Outrider and Roundup compared to each separately. A fall and spring split application of the tank mix gave better and longer control of canarygrass but still did not provide total control. Canarygrass is hard to control and will take more than one application or application cycle (split application) for total control.

Additional information on this product can be obtained from James C. Graham, Monsanto Company, 800 N Lindbergh Blvd., St. Louis MO 63167. [james.c.graham@monsanto.com](mailto:james.c.graham@monsanto.com)

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## Plant Materials for Biofuel Technology

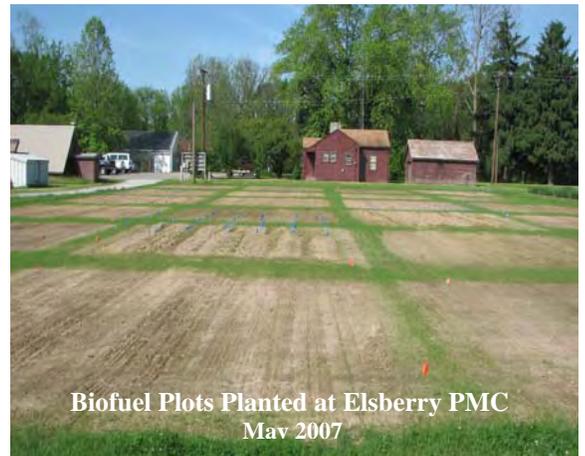
Jerry Kaiser, Plant Materials Specialist

This spring the Elsberry Plant Materials Program is cooperating in a regional study of testing warm season grasses for biofuel. This article is from Joel Douglas, Central Region Plant Materials Specialist.

Switchgrass has been designated by the U.S. Department of Energy as a model lignocellulosic biomass crop. However, one of the main problems of using switchgrass and other herbaceous grass crops is the amount of ash in the biomass material. The ash, which influences conversion technology (e.g. direct combustion, fermentation, gasification), contains alkali metals, especially potassium. Potassium causes slagging and boiler fouling as high temperatures react with silica and other minerals. One option to improve biomass combustion properties is to delay harvest until the alkali metals have been leached or translocated from the biomass. But how much biomass degradation occurs during the weathering process and when is the alkali metal content at an acceptable level in the biomass?

To answer this question, CNTSC Specialists, Joel Douglas, Jerry Lemunyon, an Bill Kuenstler are working with Plant Materials Centers in Knox City, TX and Elsberry, MO, the USDA-ARS Blackland Research Center in Temple, TX and Mississippi State University in Starkville to investigate how the time of harvest affects biomass yield and biofuel quality of switchgrass. In addition to switchgrass, three other species – giant miscanthus, big bluestem, and Indiangrass will be included in the study. Initial harvest will begin at seed maturity then sequential harvests will be made at six-week intervals. In addition to biomass yield, fuel quality parameters will be collected to determine suitability for direct combustion conversion.

The results of this cooperative research will provide information on the acceptance of new species for biofuel consideration and refine agronomic management technologies for further advancement of switchgrass and other grasses as a biofuel crop.



Biofuel Plots Planted at Elsberry PMC  
May 2007

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## State Conservationist's Advisory Committee Mission Statement Elsberry Plant Materials Program

The mission statement is to provide direction and focus of the Elsberry Plant Materials Program for the needs within the three-state service area.

Click on this link to view the Vision, Mission Strategy, Goals, and Tactics for the Elsberry Plant Materials Program.

<http://plant-materials.nrcs.usda.gov/mopmc/Mission.html>

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## Direct Seeding Study of Woody Shrub Species

Jerry Kaiser, Plant Materials Specialist

The objective of this study is to test an establishment technique for woody species using seed rather than seedlings.

The species include American plum, *Prunus americana*; Roughleaf dogwood, *Cornus drummondii*; Fragrant sumac, *Rhus aromatic*; Chokecherry *Prunus virginiana*; Arrowwood *Viburnum dentatum*; and American hazelnut, *Corylus americana*. The six woody species were direct seeded in the random split plots with three replications on September 6, 2006. This seeding time was selected for a warm (fall) stratification period to follow with cold (winter) stratification.

A prepared seedbed (disk) into soybean residue was seeded by hand using a cyclone seeder, except for the American hazelnut and American plum seed that were evenly spread by hand. All plots were lightly disk to cover the seed for fall.

The species were each seeded at a 1# bulk rate/per plot of 50'X30' for 1,500 sq. ft.; the size of a Covey Headquarters for quail habitat.

Management: (1) Control -No Management, (2) Mowing above canopy of developing seedlings, and (3) Herbicide - a Post application for grass control.

In Spring 2007 positive results with first emergence of chokecherry, followed by American plum, and in May with roughleaf dogwood. The results will be listed in the annual technical report for 2007.



American Plum Seedling

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## Improvement of Low Growing and Flood Tolerant Switchgrass for Seedling Vigor

Ron Cordsiemon, PMC Soil Conservationist

The Elsberry Plant Materials Center purchased a new germinator this past winter. One of the first projects was to improve germination and seedling vigor of both low growing and flood tolerant switchgrass. Both accessions of switchgrass have had poor establishment periods in field plantings. In an effort to advance field planting establishments first generation seed was put into several Petri dishes and allowed to germinate. The seed that germinated within a five day period was stepped-up into cone-tainers. The remaining seed was disposed of and the process was started over until more than 100 seedlings were established. These plants will be compared against existing plants for improved seedling vigor and germination.



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## 2007 Spring Field Plantings

Jerry Kaiser, Plant Material Specialist

The Elsberry Plant Materials Program depends on landowner participation to field test new selections of grasses, forbs and woody plants. This is a working relationship with local conservation districts and NRCS field offices that are in contact with cooperators that show interest in taking advantage of field planting opportunities. This relationship allows us to field test new plant materials in a real world setting on farms and ranches in Illinois, Iowa and Missouri.

Thanks to all who participated in establishing field plantings for this year. In 2007: Illinois 18, Iowa 16, and Missouri 16 field plantings.

## Examples of Field Plantings from 2006:



Cuivre River Virginia Wildrye on Wetland  
WRP Berms, Marion County Illinois



Excellent Stand of OZ-70 Big Bluestem Planted in 2006. A  
Field Planting for Grazing in Miller County Missouri



Sioux County Iowa Low Growing Switchgrass Waterway

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## Website Reference Locations

- \* Click on the web link to access Elsberry PMC Homepage

<http://plant-materials.nrcs.usda.gov/mopmc/>

- \* Click on the Updated Growers List if you are looking for native grasses, legumes, forbs or woody plant materials.

<http://plant-materials.nrcs.usda.gov/mopmc/pubs/MOPMC-VL-Rel-Mar2007.pdf>

- \* Click on the 2005 Annual Technical Report for current study updates from the Elsberry PMC.

<http://plant-materials.nrcs.usda.gov/mopmc/pubs/MOPMCATR2005.pdf>

Use the bookmarks on the left side to review a study of interest.

- \* Why is the 2005 Annual Technical Report (ATR) the most current in 2007?

The reason is that we collect the data during that growing season year for that report. After the growing season the data is analyzed, compiled and documented to be in the Annual Technical Report that is available the following year.

So look for the 2006 ATR coming soon to the website.

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