



Elsberry Plant Materials Center 2023 Progress Report of Activities



The Elsberry Plant Materials Center (PMC) is located along the Mississippi River about an hour drive north of downtown St. Louis, Missouri. The PMC was established in 1934 as a production nursery for various tree seedlings. Today, the PMC develops conservation plants and new planting technology for Illinois, Iowa, and Missouri, as well as other states in the north-central region of the US. The Center has developed more than 80 conservation plants since it began. The PMC consists of 215 acres on both upland and bottomland soils. The priority resource concerns are water quality and soil health. In recent years, the focus has been on soil health, primarily looking at the benefits of a reduced tillage system with a cover crop component.



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2023

Plant Materials Center Staff

Ron Cordsiemon – Manager
Mollie Herget – Study Leader
Erin Tapley – Biological Technician
Jennifer Howard – Bio Technician Aid

State Conservationists

Scott Edwards – Missouri
Jon Hubbert – Iowa
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PMC Hosts Prescribe Burn Training

On February 1, 2023, Joe Alley, Missouri State Forester, led a prescribed burn training for conservation planners (Fig. 1). The training involved developing a burn plan, acceptable conditions, and equipment to implement a prescribed burn, and actual hands-on training with a live burn. Joe utilized the warm season grass production plots at the PMC to demonstrate fire behavior. Erin Tapley, PMC Technician, and Jennifer Howard, Biological Technician Aid, assisted and participated in the training.



Fig. 1. Prescribed burn planning at the PMC.

Northern Region Little Bluestem Field Plantings and Evaluations - UPDATE

The PMC is working to release an adapted germplasm of little bluestem (*Schizachyrium scoparium*) for conservation use in Illinois, Iowa and Missouri. Selections for the northern and southern regions of the PMC service area are needed to expand the use of little bluestem for conservation plantings. The commercial release of northern and southern (Ozark Germplasm) little bluestem selections will give landowners and operators within the Midwest region another, potentially better adapted, option for soil conservation, wildlife habitat and livestock forage.

The northern selection is in its final stage of the release process with evaluations ongoing at the PMC and in field plantings (Fig. 2). Field plantings to compare performance of Ozark Germplasm, 'Aldous' and the northern selection of little bluestem were established at six sites in the PMC service area; two in Missouri (Linneus and Albany), three in Iowa (Lake City, Donnan and Waterville) and one in Illinois (Freeport). Evaluations made in the spring and fall of 2022 and 2023 will help determine if the northern selection warrants release for commercial



Fig. 2. Erin Tapley, PMC technician, applies herbicide to little bluestem plots in Lake City, IA in June 2023.

production. Plans are to complete the documentation required for the release of this little bluestem in 2024.

Hairy Vetch Seed Increase



Fig. 3. The New York hairy vetch selection begins to flower on June 13, 2023.

The Elsberry PMC continued to participate in the hairy vetch (*Vicia villosa*) trials in collaboration with the Agricultural Research Service (ARS) (Fig. 3). Three lines of hairy vetch seed were assigned to the PMC from seed increase. The three lines include New York 17NYHV, New York 20NYHV and Maryland 22MDHV. Seed provided to the Elsberry PMC were direct seeded using a plot planter. The decision to direct seed the hairy vetch was due to issues with weed management the previous year. Planting the rows approximately 8 feet apart allowed PMC

staff to control weeds between the rows. A plot combine was used to maximize seed harvest since hairy vetch seed matures indeterminate. Below are the seed amounts that were harvested and cleaned and provided to the ARS in Wisconsin for further testing and seed increase.

Hairy Vetch Line	Amount of Seed Planted (grams)	Amount of Harvested Cleaned Seed (pounds)
New York 17NYHV-EARLY	50	14.7
New York 20NYHV-EARLY	50	7.6
Maryland 22MDHV-BULK	50	50.0

Elsberry PMC Begins New Multi-PMC Study

A new national study started in 2023, to evaluate the effects of seeding rate, date and termination timing on biomass and other attributes of cool season cover crop for production agriculture. Cereal rye is the first species evaluated at the PMC (Fig. 4). There are 13 additional PMCs involved with this study. The PMC is investigating the cereal rye variety, 'Elbon'. Elbon was released by the Oklahoma Agricultural Experiment Station and was mass selected and increased at the Samuel Roberts Noble Research Institute,



Fig. 4. 'Elbon' cereal rye plots at the PMC.

Ardmore, OK. It is adapted to the southern and central U.S. Evaluations began in early fall to measure the effect of seeding rates and planting dates on canopy cover. Biomass will be collected in the spring at different termination dates.

Advanced Cover Crops Workshop for Soil Health Specialists



Fig. 5. Lucas Brass, Soil Health Specialist in northeast Missouri, explains components of a no-till drill and residue management.



Fig. 6. Manuel Matos, Puerto Rico State Soil Scientist and Laura Starr, Regional Soil Health Specialist (in soil pit) discuss cover crop roots and soil properties to the group of soil health specialists.

On June 20, 2023, the PMC hosted a pilot training course for soil health specialists, entitled *Advanced Cover Crops for Soil Health Specialists* (Figs. 5 and 6). Topics discussed included Intro to cover cropping, cover crop plant identification, equipment training (as it pertains to tillage and residue management, seed drills, planting equipment and termination equipment), principles of cover crop plant diversity and functional groups, cover crop biology and diversity, among other topics. Ron Cordsiemon, PMC Manager, discussed seed drills and termination equipment. Plots were established by PMC staff to demonstrate differences among cover crop species, biomass production and attributes of each cover crop, canopy cover and flowering times. Josh Beniston and Nathan Lowder, Regional Soil Health Specialists, provided a walking tour through the cover crop plots. The workshop, a 3-day event, went smoothly and participants attended received a wealth of information.

Seed Production of Conservation Plants

Beginning in 1952, the PMC began selecting and releasing plants to aid various conservation efforts such as soil erosion control, plant diversity and restoration, wildlife habitat improvement, soil enhancement and fertility, grazing and forage, and other conservation uses. As of 2023, the PMC has developed over 90 conservation plant

releases with 74 of them actively produced on the commercial market and approximately 35 maintained by the PMC.

Plant releases in current production at the Elsberry Plant Materials Center.

<i>Species</i>	<i>Release</i>
Big Bluestem (<i>Andropogon gerardii</i>)	OZ-70 Germplasm
Big Bluestem (<i>Andropogon gerardii</i>)	Refuge Germplasm
Big Bluestem (<i>Andropogon gerardii</i>)	Rountree
Big Bluestem (<i>Andropogon gerardii</i>)	Northern Missouri Germplasm
Little Bluestem (<i>Schizachyrium scoparium</i>)	Northern Missouri Germplasm
Little Bluestem (<i>Schizachyrium scoparium</i>)	Ozark Germplasm
Switchgrass (<i>Panicum virgatum</i>)	Shawnee
Switchgrass (<i>Panicum virgatum</i>)	Cave-in-Rock
Sideoats Grama (<i>Bouteloua curtipendula</i>)	Northern Missouri Germplasm
Indiangrass (<i>Sorghastrum nutans</i>)	Rumsey
Tall Dropseed (<i>Sporobolus compositus</i>)	Northern Missouri Germplasm
Virginia Wild Rye (<i>Elymus virginicus</i>)	Cuivre River Germplasm
Foxglove Beardstongue (<i>Penstemon digitalis</i>)	Northern Missouri Germplasm
Wild Bergamot (<i>Monarda fistulosa</i>)	Western Missouri Germplasm
Pale Purple Coneflower (<i>Echinacea pallida</i>)	Northern Missouri Germplasm
Greyhead Coneflower (<i>Ratibida pinnata</i>)	Northern Missouri Germplasm

Elsberry PMC Hosts Technician Workshop

PMC technicians from around the country converged on the PMC the week of August 22-24, 2023 (Fig. 7). Technicians shared innovative and unique processes from their PMC with the group. Several technicians were asked to give presentations on technical topics related to PMC activities since they were considered the subject matter expert. Topics included field records, equipment maintenance and record keeping, combine harvesters and cover crop planning. Technicians came from as far as Hawaii, Florida, and New Jersey with 15 of the 25 PMCs represented at the training.



Fig. 7. John Englert, PM Program Leader, speaks to the group of technicians during the first day of the workshop.

Mollie Herget, PMC Study Leader Leaves PMC for Another Opportunity

Mollie Herget was hired at the PMC in February 2016. She was a valued employee at the Plant Materials Center. Mollie was focused on her work and studies (Fig. 8). During her time at the PMC she became a mother to 3 wonderful daughters. Looking for a more flexible work-life balance, Mollie accepted a position with the Center for Regenerative Agriculture at the University of Missouri. Mollie was a wonderful co-worker and friend and will definitely be missed.



Fig. 8. Mollie collecting water samples from demonstration project at the PMC.



2023 PMC Staff - (left-right) Mollie Herget, PMC Study Leader; Ron Cordsiemon, PMC Manager; Jennifer Howard, Biological Tech Aid; Erin Tapley, Biological Science Technician.

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