



United States Department of Agriculture

NRCS Tucson Plant Materials Center

2025 Report of Activities

3241 N. Romero Road, Tucson, AZ 85705-9233 | Telephone: 520-292-2999 | <https://www.nrcs.usda.gov/plant-materials/azpmc>

This report highlights the major activities at the Tucson Plant Materials Center (PMC) during 2025. For more detailed information, contact the PMC at 520-292-2999.

National Cover Crop Seeding Rate Planting Date Trials

This national study is being conducted at multiple PMCs across the United States, currently studying cereal rye and hairy vetch. This was the third year planting the cereal rye trial, and the second year of the hairy vetch trial to evaluate performance under different seeding rates and planting dates. It includes five different seeding rates: 15, 30, 60, 90, and 120 Pure Live Seed (PLS) lb/ac for cereal rye, and 5, 10, 20, 30, and 45 PLS lb/ac for hairy vetch, with three different planting dates for each species.

We will evaluate growth characteristics and production attributes of commercially available cool season cover crops and provide data to inform local and regional recommendations. The goal is to understand the interaction of planting date and seeding rate of regionally adapted cover crop varieties for successful establishment and management of cover crops in agriculture cropping systems. Data collected includes fall, spring, and termination canopy cover; days to closed canopy after planting; height; and biomass production. As part of the same efforts, PMCs are also using and testing a 'PlantMap3D' technology camera put together by the Precision Sustainable Agriculture team to collect data. This camera utilizes different sensors to map plants (crops, weeds, or cover crops) and their performance by utilizing image pixel semantic segmentation. This tool aids in providing researchers with an imaging tool that detects plant species and approximates plant biomass measurements in real time. We are excited to test this technology in this field study to share its results in the near future.



Figure 1. Hairy vetch first year plots before harvest in April 2025. Second year study plots were planted in November 2025.



Figure 2. Cereal rye second year trial planting.



Figure 3. Hairy vetch second planting date harvest.



Figure 4. Hairy vetch plots in full bloom.

Cool Season Cover Crop Demonstration Plots

We planted our first year of cool season cover crop demonstration plots following our third year of warm season cover crop demonstration plots. A total of 20 plots containing various cereals, legumes, seed mixes, and native species were planted. These included barley, black oats, radish, triticale, fava bean, lentil, chickpea, and wheat among others. These demonstration plots were used during PMC tours and trainings to promote cover crop usage and benefits in side-by-side comparisons. Cool season annual cover crops can provide multiple benefits to production agriculture when planted as a cover crop; e.g., weed suppression, erosion control, nitrogen fixation and increased soil organic matter.



Figure 3. Cool season cover crop demonstration plots in February 2025.

Active Seed Releases

The Tucson PMC maintains seed production of our active conservation plant releases including the ones below. For more information, please contact AZPMC staff.

- 'Loetta' Arizona cottontop (*Digitaria californica*)
- 'Pima' whiplash pappusgrass (*Pappophorum vaginatum*)
- 'Moapa' scratchgrass (*Muhlenbergia asperifolia*)
- 'Bonita' plains lovegrass (*Eragrostis intermedia*)
- 'Vegas' alkali sacaton (*Sporobolus airoides*)
- 'Cochise' spike dropseed (*Sporobolus contractus*)
- 'Saltillo' cane bluestem (*Bothriochloa barbinodis*)
- 'Seco' barley (*Hordeum vulgare*)
- 'Stevan' plains bristlegrass (*Setaria leucopila*)

Technology Transfer Technical Documents and Publications

In 2025, PMC personnel completed three plant guides, including [Brittlebush](#) (*Encelia farinosa*), [Coulter's lupine](#) (*Lupinus sparsiflorus*), and [Fairyduster](#) (*Calliandra eriophylla*), all available on the [USDA NRCS PLANTS database](#) and on our website.

All publications from the Tucson PMC can be found by going to the website <https://www.nrcs.usda.gov/plant-materials/publications/search> and typing "AZPMC" on the search bar. For more information, please visit us at <https://www.nrcs.usda.gov/plant-materials/azpmc>.



Figure 4. Brittlebush flowers.

Tours, Presentations, Trainings, Outreach Activities, and Personnel

The University of Arizona's Restoration and Revegetation of Wildlands class visited the Tucson PMC on February 7th to learn about the Plant Materials Program, our center, current studies, and farm operations related to native plant production. We presented a seed cleaning demonstration, including functional demonstration of our equipment, as well as a full tour of the facility. The center went through staffing changes this year, including the participation of Megan Kelly-Slatten and interns Jugal Patel, Bill Nichols, and Kady Sawers. Thank you all for your hard work.



Figure 7. University students at our active AZPMC releases (dormant) demo plot during their tour.



Figure 8. Interns help harvest cereal rye plots.

The Tucson PMC: Who We Are

In 1934, one of the first USDA PMCs was established in Tucson, Arizona. The Tucson PMC was created to address the need for adapted plant material to revegetate eroded rangelands in the Southwest. Today, erosion continues to threaten Western rangelands in addition to other resource concerns including drought, fire, invasive species, threatened and endangered species, and wildland-urban interface issues. As one of 25 PMCs across the United States, the Tucson PMC continues to address these conservation issues within the Sonoran, Mojave, and Chihuahuan Desert regions.



Figure 5. The Tucson PMC continues to work out of the original adobe buildings built in the 1930s.

...And What We Do

The goal of the Tucson PMC is to provide effective economical vegetative solutions and technology development for conservation problems. The conservation potential of native grasses, shrubs, forbs, and trees is evaluated at the federally owned 40-acre farm, as well as test locations throughout the service area. Plant materials become part of advanced trials designed to develop cultural and management practices that enhance seed production under agronomic conditions. The ease of establishment and persistence of plant materials in their native plant communities is also evaluated. The PMC conducts studies and plantings to address resource issues in rangelands, urban and urban-interface areas, croplands, and riparian areas.

The PMC works in partnership with the Natural Resources Conservation Service (NRCS) field offices, resource conservation and development groups, conservation districts, federal and state agencies, non-profit groups, and private landowners. Cooperation with agencies other than NRCS provides opportunities for joint development of plant materials and management practices as well as for exchange of information, seed, and planting stock.

PMC Staff

Manager: Jim Thomas
Study Leader: Vacant
Biological Science Technician: Vacant

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