

### THE BROOKSVILLE PLANT MATERIALS CENTER



**FIGURE 1. THE PMC JOINED NRCS FL STAFF TO PROVIDE EDUCATIONAL HANDS-ON EXPERIENCES DURING THE 2025 BUZZ & BLOOM EVENT AT RAINBOW SPRINGS STATE PARK**

The Plant Materials Program operates under the USDA, Natural Resources Conservation Service (NRCS). The Brooksville Plant Materials Center (PMC) is one of 25 PMCs, strategically located throughout the nation, working to deliver state-of-the-art plant science technology to meet conservation needs.

The PMC is located 7 miles north of Brooksville, Florida, on US 41, 15 miles inland from the Gulf of Mexico. We have 53 acres of cleared fields to use for research and production and 116 acres of woodland on the property. This PMC, along with those in Georgia and Mississippi, address the plant materials needs of states in the Southeast and the Caribbean Area, and work with the PMC in Hawaii to provide vegetative solutions for the Pacific Basin.

The principal resource concern of the Brooksville PMC is improving the health of soils used for cropland and grazing lands. Other areas that we focus on are water quality, wildlife habitat, erosion control, and increased forage production. We are also expanding our plant materials training capabilities to meet the needs of NRCS personnel in our region.

#### PMC STAFF

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## Florida's "Cool Season" Tests Adaptability of Novel Cover Crops

When it comes to suitable cool-season cover crop options for producers in Florida, grasses such as cereal rye (*Secale cereale*) and oat (*Avena sativa*) are most prevalent throughout the state on account of their affordability and performance under the highly variable conditions of the state's winter. Apart from North Florida where soil and climate conditions are more conducive, cool-season forb and legume cover crop options are limited in most of the state. Current NRCS Florida guidance for Cover Crop (340) recommend *Brassica* spp., winter pea (*Pisum sativum*), burr medic (*Medicago* spp.), sweetclover (*Melilotus alba*), hairy vetch (*Vicia villosa*) and buckwheat (*Fagopyrum esculentum*) as suitable cool season forbs and legumes. Market availability and producer preferences favor *Brassica* spp., winter pea, and crimson clover (*Trifolium incarnata*) for most cool-season forb and legume cover crops, but their performance often leaves something to be desired.

Faced with the challenge to expand options for cool-season forb and legume cover crop options, the PMC carried the momentum from a 2022 preliminary evaluation of cool-season cover crops proposed by then State Agronomist, Roberto Luciano, and developed a study evaluating novel cool-season cover crops for central Florida. Data collected over the past two years reflected "ideal" (2024) and "likely" (2025) cool-season conditions whereby below-average winter rainfall in 2025 impacted most species (Figures 2 & 3). Notable among the novel species being evaluated are phacelia (*Phacelia tanacetifolia*) which provided considerable biomass along with prolific flowers for pollinator foraging despite dry conditions in 2025, and chickpea (*Cicer arietinum*) that showed potential to produce considerable biomass and canopy cover while traditionally utilized legumes (crimson clover, pea) fell short (Figures 2 & 3). In 2025, a heavy rainfall event shortly after planting followed by limited rainfall contributed to the failure of flax (*Linum usitatissimum*) which is a novel species under evaluation.

Another novel legume candidate, serradella (*Ornithopus sativus*) was added to the study in 2025 ahead of its debut on the southeastern cover crop seed market. With the expanded array of novel species being evaluated, it is anticipated that some will be identified for further evaluations intended to expand the list of recommended species for cool-season cover cropping.

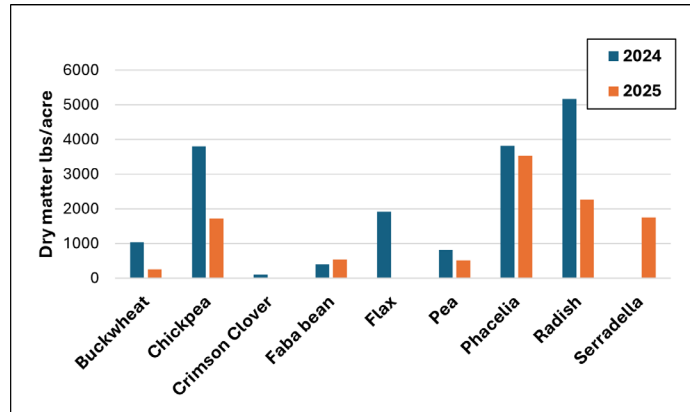


FIGURE 2. 2024 AND 2025 DRY MATTER YIELDS OF NOVEL COOL-SEASON COVER CROPS HARVESTED AT FLOWERING. A DRIER THAN NORMAL WINTER DURING 2025 CONTRIBUTED TO FAILURE OF CRIMSON CLOVER AND FLAX. SERRADELLA WAS ADDED TO THE STUDY IN 2025.



FIGURE 3. CHICKPEA (LEFT) AND RADISH (RIGHT) HAD EXCELLENT CANOPY COVER AT HARVEST IN 2024 (TOP) BUT WERE AFFECTED BY DRY CONDITIONS IN 2025 (BOTTOM).

## National Planting Date and Seeding Rate Study Updates

The PMC continues its participation in a nationally coordinated study investigating the effects of planting date and seeding rate of cool season cover crops. 2025 marked the second year of data collection for cereal rye and the first year for hairy vetch. As previously explained, hairy vetch is among the limited number of cool-season legume cover crop options for Florida and its debut in this study holds promise for maximizing its effective use to address natural resource concerns. Some of the challenges faced by Florida producers planting cool season cover crops were well exemplified during the 2024-2025 study year.

Legume plants yielding “free nitrogen” due to symbiosis with nitrogen fixing rhizobia is perhaps the top reason for cover cropping with legumes. Inoculation of seed with specific strains of rhizobia prior to planting is the best practice to promote nodulation but, as we found out, nodulation is not guaranteed. Both cultivars of hairy vetch (‘AU Merit’ and ‘Purple Bounty’) were inoculated prior to planting but within a month after each planting date, a shovel test to inspect roots for nodulation confirmed our suspicions from the nitrogen-deficient appearance in much of the plantings: no nodulation. Over time, some plots developed noticeable areas of lush green growth from a few plants (Figure 4) which were confirmed to have nodules at harvest. Unless a producer’s field has a history of cropping with peas or vetch, the soil is not likely to harbor a resident population of appropriate rhizobia and they may face a similar situation when planting hairy vetch for the first time. Greatest biomass yields (2,000-4,000 lbs/acre) resulted from our earliest (December) planting of ‘AU Merit’. Below average rainfall interacted with nodulation difficulties which resulted in many plots, predominantly ‘Purple Bounty’ and seeding rates on the lower end (5-10 lbs/acre), to fail and become weedy.

Similarly, below average rainfall affected the cereal rye component of this study with reduced yields relative to 2024, notably for November and January planted rye, corresponding with the dry periods that occurred early and late in the cool season. The most dramatic effect of the limited rainfall was observed among January planted ‘Wrens Abruzzi’ that struggled to produce 160 lbs/acre on average across seeding rates while both Wrens Abruzzi and FL 401 failed to exceed 30% canopy cover by 60 days after planting. In contrast with last year’s data, greatest dry matter production and canopy coverage at 60 days were observed for December rather than November planted rye. A reduction in seeding rate recommendations for timely planting of cereal rye seems likely based on data collected so far, but clear conclusions will be informed by additional years of data for hairy vetch and rye. With conditions such as they were in 2025, it would seem it can only get better from here!



**FIGURE 4. PLOTS OF ‘AU MERIT’ HAIRY VETCH (*VICIA VILLOSA*) WITH DISTINCT AREAS OF YELLOW AND GREEN FOLIAGE RESULTING FROM INCONSISTENT NODULATION. WITH NO RECENT HISTORY OF HAIRY VETCH PLANTED IN THIS FIELD, SEED WAS COATED WITH INOCULANT PRIOR TO PLANTING TO INTRODUCE NODULE FORMING RHIZOBIA.**

## An Active Year for Outreach and Partnerships

At the beginning of 2025, the PMC was contacted by a District Conservationist who was partnering with their county Soil and Water Conservation District along with state agencies and research entities to participate in their planned “Buzz and Bloom Day: A Pollinator Celebration!” event. The event was held at a popular state park renowned for its beautiful freshwater spring surrounded by well maintained native landscaping providing the perfect setting for the day’s activities focused on educating visitors about the importance of supporting pollinators. Study Leader Victor Guerra represented the PMC educating visitors on factors that they should consider when selecting and establishing plants for pollinators (Figure 1). Not long after this event, Victor represented the PMC at the Florida State Capitol Courtyard during the Taste of Florida Agriculture reception where a rainfall simulator demonstration was set up at the invitation of state agency staff who found the demonstration to be an effective tool to communicate the importance of cover cropping. With a modified setup to avoid a soaking mess, the rainfall simulator performed exactly as intended and caught the interest of many in attendance (Figure 5).



**FIGURE 5. A SUCCESSFUL RAINFALL SIMULATOR DEMONSTRATION EXHIBITED BY THE PMC DURING THE TASTE OF FLORIDA AGRICULTURE RECEPTION HELD AT THE FLORIDA STATE CAPITOL COURTYARD.**

Continuing the year’s trend of outside interest in PMC assistance for conservation activities, technical assistance and plant material distribution of Sea Islands Germplasm gulfhairawn muhly (*Muhlenbergia filipes* M.A. Curtis) were provided at the request of the Director of the Lowcountry Sweetgrass Restoration and Human Sustainability Initiative (LSRHSI). Along with land grant university and federal and state agency cooperation, LSRHSI aims to maintain and increase plantings of this culturally significant plant used for African-coiled basketry made by the Gullah/Geechee community around Mount Pleasant and Charleston, SC.

## Mimi Williams Reaches the Fork in the Road

After forty years of public service with the United States Department of Agriculture, PMC Manager Mimi Williams entered retirement in August 2025. Mimi’s passion for her profession was recognized by the many who sought her assistance and worked alongside her throughout the years. The freedom of retirement provided Mimi with more time to spend working herding dogs, enjoying nature walks, and horseback riding.



**FIGURE 5. VICTOR GUERRA (FAR LEFT), MARYANNE GONTER, JACOB SPARGER, AND MIMI WILLIAMS (FAR RIGHT) POSE FOR A FAREWELL PMC FAMILY PHOTO MARKING A MILESTONE WITH THE DEPARTURES OF MIMI WILLIAMS AND RETIRED PMC STAFFER MARYANNE GONTER WHO WORKED FROM THE PMC AS AN AGRICULTURE CONSERVATION EXPERIENCED SERVICES EMPLOYEE FOR NRCS FL.**

## Publications and Presentations

Guerra, V. 2025. Rainfall Simulator Demonstration. UF IFAS Soil Health Field Day. Live Oak, FL. February 2025.

Guerra, V. 2025. Rainfall Simulator Demonstration. Taste of Florida Agriculture Reception. Tallahassee, FL. March 2025.

Guerra, V. 2025. Outreach Exhibit Setup. Buzz & Bloom Day Pollinator Celebration. Dunnellon, FL. March 2025.

Guerra, V. 2025. Plant Growth, Livestock Physiology and Preferences, Florida Forages and Considerations. NRCS FL Foundations of Grazing in Florida Training. Gainesville, FL. September 2025.

USDA, NRCS, Brooksville Plant Materials Center. 2025. Florida PMC Tech Note Florida NRCS Cover Crop Grazing Management. Brooksville, FL. January 2025. 20 p.

Williams, M.J. 2025. USDA NRCS Climate Smart Agriculture. FAMU-BAERS NRCS Workshop. Brooksville, FL. January 2025.

Brooksville PMC Information is available online at  
<https://www.plant-materials.nrcs.usda.gov/flpmc>

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