

NRCS Appalachian Plant Materials Center 2023 Progress Report of Activities – January 2024

Adaptation of Pasture and Hayland Species for Both Mechanical and Ruminant Harvest in Appalachia (Year 3)

Year three of this study began and ended with a complete botanical composition and survivability of endophyte-infected tall fescue ('KY-31'), novel endophyte tall fescue ('BarOptima Plus'), orchardgrass ('Olathe') and a mixture of KY-31 tall fescue and white clover ('Alice') under four management practices consisting of overgrazing with high fertility, overgrazing with limited fertility, optimal grazing with high fertility, and optimal grazing with limited fertility (Fig. 1). Management practices were designed to simulate overgrazing with optimal grazing on pastures with and without fertility enhancements. Overgrazed plots were allowed to grow to an average height of 3"- 5" before being clipped to 1" height. Optimal grazing plots are allowed to grow to an average height of 8" - 12" before being clipped to a 4" height. This year we harvested approximately 700 plots. Moisture was above average for the area in 2023 providing abundant growth and productivity of the grasses and mixtures. Regardless of overgrazed or well managed simulations, we observed plots with added nutrients produce more biomass, in particular, the Novel endophyte and Alice white clover mixture. One observation that continued for a second year was all the overgrazed simulation plots are showing considerable growth of crabgrass (*Digitaria* spp.) the planted dominant species. Initial results from this study were presented at the Mid-Atlantic Crop Management School in Ocean City, MD in November of 2023. Initial results from this study were also accepted for presentation at the American Forage and Grassland Conference in January of 2024 in Mobile, AL. The study will continue for at least another before compiling final data.

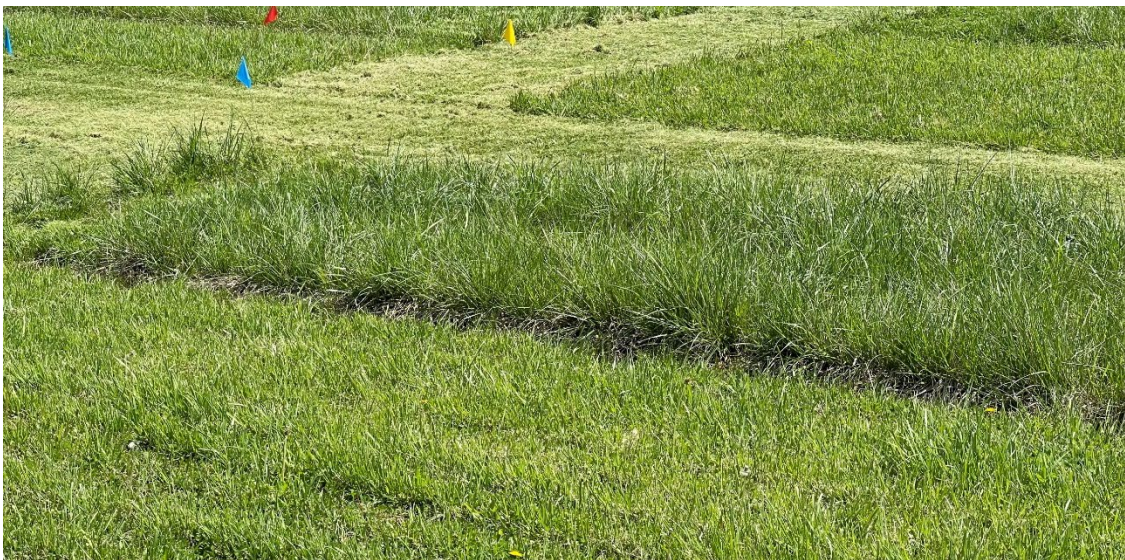


Figure 1. Pasture and hayland experimental plots in 2023.

Observation Planting Study

The Appalachian PMC has completed year one of its observational study in cooperation with six other plant materials centers (ETX, MS, GA, FL, MO & AR) to ascertain the potential area or region of adaptation of 29 conservation plant germplasm selections and releases. These include a wide variety of species such as herbaceous mimosa, ashy sunflower, gayfeather, swamp sunflower, big bluestem, eastern gamagrass, Indiangrass, little bluestem, splitbeard bluestem, paspalum, switchgrass, wildrye and velvet rosette (Fig. 2).

The year one evaluation data has been collected and is nearing completion to share with the other PMCs. Initial observations are showing some expected outcomes and a couple surprises. Results from year one evaluations will be summarized and provided soon. We will continue to collect plant adaptation and performance data for 5 years to assess their potential area of use.



Figure 2. Observation planting summer of 2023 at the Appalachian PMC

Presentations and Outreach

- Land Judging and Homesite Evaluation Contest – The APMC hosted the Southern WV contest, aided, and answered questions related to land use and soils located at the PMC. The contest was an opportunity for local 4-H and FFA students to visit and tour the PMC while participating in the contest as well.
- 2023 National Boy Scout Jamboree - Randall Lester, Study Leader – Randall provided on-site assistance to participants as part of the NRCS conservation station. There were over 50,000 students from across the United States who participated in the Jamboree. The PMC staff also provided approximately one ton of soil for construction of soil profiles on site.
- Statewide Grassland Evaluation Contest – The PMC provided assistance to 50+ students with plants and overseeing the Plant ID portion of the contest.
- NRCS TN Plant Materials Committee – Randall Lester attended the meeting and provided update on the work at the PMC.
- National PM Technician Meeting - Warren Haynes attended the training at the Elsberry, MOPMC and provided a short presentation on plot harvest methods.

The Appalachian Plant Materials Center

The Appalachian Plant Materials Center (APMC) provides service to areas in West Virginia, Tennessee, Kentucky, North Carolina, Virginia, Ohio, and Pennsylvania. The APMC provides vegetative solutions for soil health, pastureland and hayland management and improvement, cropland erosion, critical area erosion control, urban conservation, wildlife habitat enhancement, and water quality improvement.

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