USDA United States Department of Agriculture

NRCS Appalachian Plant Materials Center
2022 Progress Report of Activities – February 2023

Adaptation of Pasture and Hayland Species for Both Mechanical and Ruminant Harvest in Appalachia (Year 2)

As we entered year two of this study, a complete botanical composition was completed as we continue to look at the 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 selected treatments include overgrazing with high fertility, overgrazing with limited fertility, optimal grazing with high fertility, and optimal grazing with limited fertility. This study evaluates the effects of various management practices on forage species commonly grown in the Appalachian region. Management practices being utilized are designed simulate overgrazing with optimal grazing on pastures that have fertility enhanced compared to ones with no fertility enhancement. 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 over 700 plots of data. Initial observations are that regardless of overgrazed or well managed simulations, the plots with added nutrients produce more biomass. Another initial observation is that some of the overgrazed simulation plots are showing considerable growth of crabgrass (*Digitaria* spp.).

Figure 1. Pasture and hayland experimental plots in 2022.

Observation Planting Study

The Appalachian PMC is cooperating with six other plant materials centers (ETX, MS, GA, FL, MO & AR) to ascertain the potential area or region of adaptation of 29 plant germplasm selections. These include a wide variety of species including herbaceous mimosa, ashy sunflower, gayfeather, swamp sunflower, big bluestem, eastern gamagrass, Indiangrass, little bluestem, splitbeard bluestem, paspalum, switchgrass, wildrye and velvet rosette.

Seeds of each germplasm were shipped in March 2022 to the participating PMC's to be propagated in their respective greenhouses, with the exception of eastern gamagrass. Eastern gamagrass accessions/cultivars were lifted from existing stands and shipped as live plant material. Once seedlings had emerged, individual plants were transplanted to pots and then transplanted to the field as they developed sufficient root systems. Twenty plants of each germplasm were transplanted in single rows to the demonstration plot area and spaced at 1' intervals within the rows. The eastern gamagrass plants were spaced in 2' intervals within the 20' rows.

These plants will be evaluated for adaptation and performance for a period of 5 years to determine their potential area of use. Data to be collected includes percent stand, plant height, vigor, cold tolerance, insect and disease problems.

Figure 2. Observation planting in dormancy in January 2023 at the Appalachian PMC

Conservation Planner Training

In May of 2022, the Appalachian PMC hosted the West Virginia Conservation Planner Training Part 2. The PMC coordinated with the Ecological Sciences staff to provide instruction to 30+ conservation planners needing to complete the in-field portion of the planner course.

Figure 3. Planners work on compaction component Pasture Condition Score Evaluation.

Isaac Wolford, PMC Manager/Agronomist was an instructor for various portions of the course. Randall Lester provided logistical setup of various stations and coordinated the schedule of activities with the WV Ecological Science Staff. Warren Haynes served as the farmer representative and fielded questions as well as asked questions of the planners related to his expectations. This was a week-long training session and was considered a great success.

Presentations and Outreach

- Land Judging and Homesite Evaluation Contest – The APMC hosted the Southern WV contest and provided assistance 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.
- NRCS Regional CNMP Training – Isaac Wolford provided instruction for a section related to Nutrient Management as well as review of the current pasture study. This was a joint effort coordinated by the East National Technology Support Center (ENTSC).
- Statewide Grassland Evaluation Contest – Assistance was provided by providing plants and overseeing the Plant ID portion of the contest, with 30+ students participating.
- NRCS TN Plant Materials Committee Reboot TEAMS virtual meeting - Isaac Wolford with assistance from Allen Casey at the ENTSC.

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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