United States Department of Agriculture

2014 PROGRESS REPORT OF ACTIVITIES

NATURAL RESOURCES CONSERVATION SERVICE BROOKSVILLE PLANT MATERIALS CENTER

THE BROOKSVILLE PLANT MATERIALS CENTER

About the PMC

The national plant materials program is a part of the USDA, Natural Resources Conservations Service (NRCS). The Brooksville Plant Materials Center (PMC) is one of 27 PMCs, strategically located throughout the nation, that are working to deliver state-of-the-art plant science technology to meet identified resource needs.

The PMC is located 7 miles north of Brooksville, Florida on US 41, 15 miles inland from the Gulf of Mexico. There are approximately 52 acres of cultivated fields that are utilized for plant research and production and 126 acres of native woodland on the property. Our primary service area includes Florida, Puerto Rico, the US Virgin Islands, and the coastal areas of South Carolina, Georgia, and Alabama.

With the implementation of a PMC improvement effort in 2014, the principal resource concern on which this PMC is focusing its efforts is to improve soil health on cropland and grazing lands in the southeastern US. Other regional concerns that we will continue to address as time and resources permit are plants and technology to maintain and improve water quality, improve wildlife habitat, control erosion, and increase forage production. We will also be expanding our plant materials training capabilities to better meet the needs of agency personnel in our service area.

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NATIONAL SOIL HEALTH STUDY – SECOND YEAR


April 5, 2013

We completed the second cropping cycle of the national soil health study with harvest of the corn (*Zea mays*) from our study plots in August. The Brooksville PMC is one of 7 PMCs that are cooperating in this study examining the effect of various cover crop mixes and planting rates on soil health and fertility. Each site is following a similar protocol, although specific crops varied at some PMCs due to environmental constraints at the various locations.

The cover crop mixes planted at Brooksville ranged from a two-species mix of cereal rye (*Secale cereal*), and crimson clover (*Trifolium incarnatum*); a four - species mix of cereal rye, crimson clover, hairy vetch (*Vicia villosa*), and daikon radish (*Raphanus sativus*); and a six-species mix, which included the four previously listed species plus oats (*Avena sativa*) and rapeseed (*Brassica napus*). Each of these mixes were planted at seeding rates of 20, 40, and 60 seeds per square foot. The cover crops were planted November 12-13, 2013. Growth was mechanically terminated and the corn commodity crop was planted the same day in a single pass (below, right).

The system that we are using, which includes the cover crop treatments and corn crop being no-tilled in the study plots, has resulted in an increase in the soil health factors that we are measuring in these plots. The organic carbon, which is a measure of organic matter in the soil, increased from an average of 76 parts per million (ppm) at the beginning of the study to 99 ppm after the corn was harvested this year. Similarly, the soil health calculation developed by Dr. Rick Haney, USDA Agricultural Research Service, Temple, TX, to provide landowners with a simple numerical measure of the health of their soil, increased from 1.8 to 5.3 over the same period.

However, soil health calculations can range from 1 to over 30, so even with this increase, our plots are still at the lower end of the range for this estimate of soil health. And, although soil organic carbon increased, this equates to less than one one-hundredth of a percent of organic carbon being present in the soil. Since the soils on the planting site have a sandy texture and were derived from marine sediments, they are inherently infertile and low in organic matter. We have applied potassium and phosphorus fertilizer according to soil test recommendations. However, the study protocol does not allow the application of fertilizers containing nitrogen.


April 11, 2014

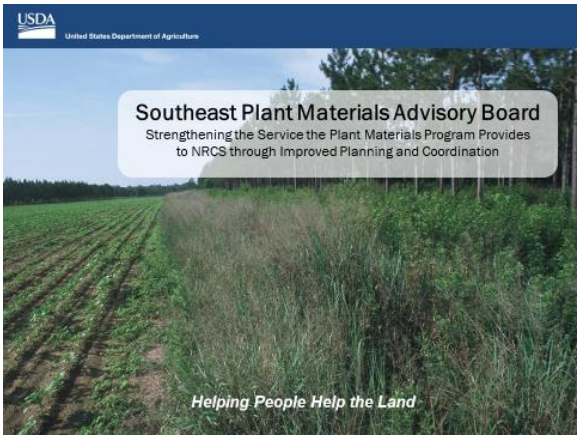
Growth of the cover crops in the second year of the study declined as can be seen by the difference in plant height compared to the top of the tractor hood in the two photos. The legumes in the cover crop mixes are not providing adequate nitrogen for growth of the grass cover crops, nor sufficient nitrogen for seed production in the subsequent corn crop. Plans are to alter the protocol after the next planting cycle is completed.

ASSESSMENT OF PLANT MATERIALS NEEDS AND OVERSIGHT

One of the major changes implemented as a result of the Plant Materials Improvement Effort, also known as the PMC 360, is the creation of a regional advisory board to ensure that the PMCs are addressing the high priority plant materials concerns in the area that they serve. The Southeast region extends from North Carolina, south to Florida and the Caribbean Area, and west to Tennessee and Mississippi. In addition to the Brooksville PMC, this area is served by the Jimmy Carter PMC in Americus, GA and the Jamie L. Whitten PMC in Coffeeville, MS.

The advisory board members include the state conservationists in each of these states and territories, the plant materials program leader at National Headquarters, and the plant materials specialist at the East National Technical Support Center. One PMC manager from the region is also on the board. Janet Grabowski was the manger representative for the advisory meeting held in August of 2014. During this meeting, the most pressing plant needs in the region were discussed.

So, how were these plant materials needs determined? In May, a needs assessment spreadsheet was distributed to each state in the region to be completed by their plant materials advisory committee. The committee members polled the NRCS field office and other technical staff to determine what information gaps needed to be addressed by the PMCs. Also, input was provided from each technical support center. The list for the Southeast Region totaled 133 separate entries.



By far, the most cited plant materials needs were related to cover crops, including selection of species and cultivars, seed mixes and planting rates, crop rotations, and cover crop termination issues. The second highest priority was pasture and hayland management, especially evaluating plants to improve forage quality, determining plant growth curves for native grasses, and testing additional species for specific purposes, such as to control parasites and provide browse for small ruminants. Additional priorities were plants to control erosion on critical areas, in cropland, and along streambanks, plants to improve pollinator and wildlife habitat, and evaluation of native plants and methods to establish them in conservation plantings. An additional priority was for PMCs to provide plant identification training to state field staff. The staff at the three PMCs have developed plans to address needs on the list by developing publications, research studies, training sessions, webinars, and other means. This needs assessment is an ongoing process that will require regular review and revision.

How can you get your plant materials needs on this list? By contacting members of your Plant Materials Committee and letting them know what your needs are. In Florida, these members are:

Henry Burkwhat, State Resource Conservationist (SRC), Chair
Mimi Williams, Agronomist/Plant Materials Specialist
Trent Mathews – Area 1
Doug Ulmer – Area 2
Pete Deal – Area 3
Sara May – Area 4

If you work in another state that is served by the Brooksville PMC, contact your State Resource Conservationist or other designated plant materials contact to determine who the committee member is that represents your field office.

BROOKSVILLE PMC TECHNOLOGY TRANSFER

Publications

Williams, M.J., J. Grabowski, and B. Williams. 2013. Developing Sources of Native Grass Seed for Revegetation in Florida. Rangelands 35: 93-97. Society for Range Management, Littleton, CO. (Digital copy available from author).

Grabowski, J.M. 2013. 2013 Brooksville Plant Materials Center Progress Report of Activities. Brooksville PMC, Brooksville, FL. December 2013. 3 p.

Grabowski, J and M.J. Williams. 2014. Cover Crop Mixes for Soil Health: Year 1 Progress Report. Brooksville PMC, Brooksville, FL May 2014. 13 p.

Presentations

Gonter, M.A. 2014. Working with Plants – Kids Activity. Today's Child VPK School. 12 Feb. 2014. Inverness, FL.

Gonter, M.A. 2014. NRCS Employee ATV Training (2 Sessions). Brooksville PMC. 19 and 20 Feb. 2014. Brooksville, FL.

Gonter, M.A. 2014. Introducing Children to Horticulture. Solid Rock Christian Academy. 21 Mar. 2014. Inverness, FL.

Grabowski, J.M., and M.A. Gonter. Kids Pollinator Activity Booth. Nature Coast Birding and Wildlife Festival. 22 Mar. 2014. FWC Wildlife and Education Area, Chinsegut Conservation Center. Brooksville FL.

Grabowski, J. 2014. PMC Information and Tour for Hernando County Master Gardeners. Brooksville PMC. 25 Apr. 2014. Brooksville, FL.

Connolly, J. 2014. Introducing Students to Pollinators. Sacred Heart & Early Childhood Education Center. 19 May 2014. Dade City, FL.

Grabowski, J. 2014. PMC Information and Tour for the Nature Coast Florida Nursery Growers and Landscape Association Brooksville PMC. 20 May 2014. Brooksville, FL

EARTH DAY CELEBRATION

The Fifth Annual Earth Day/National Wetlands Month Celebration was held at the PMC on May 9, 2014. About 150 adults and children attended the event. Everyone was introduced to earth-friendly topics by presenters from NRCS and 15 state agencies and conservation groups. Children harvested fresh vegetables from the PMC People's Garden for donation to a local charity that feeds the homeless in Brooksville.

All attendees had the opportunity to take home seedlings of native wildflowers produced at the PMC. A focal point of the event was the planting of a red maple seedling (right) in memory of the late Courtney Tye, who was a wildlife biologist with the Florida Fish and Wildlife Conservation Commission and had worked closely with Florida NRCS personnel.

Several children pitched in to assist NRCS staff members to fill the planting hole with soil.

PMC Information is Available Online at:
http://www.nrcs.usda.gov/wps/portal/nrcs/site/fl/home/ or
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/plants/