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Using cover crops: Hawaii farmer spotlight

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The southeastern region includes farmers who integrate cover crops into very different systems. Guest contributor Laila Jayyousi from the Hilo, Hawaii field office shares how two brothers make cover crops pay on their farm. Brothers Tung and Richard Huynh are among the hardest working farmers in the Pacific Island Area. They manage several farms throughout the Big Island of Hawaii along the Hamakua coast (Figure 1). Their crops of sweet potato, ginger, and corn are sold throughout Hawaii. They have also begun using a cover crop legume called sunn hemp. 'Tropic Sun' sunn hemp is a conservation cultivar that was released in 1982 by the Hawaii Plant Materials Center and the University of Hawaii for its superior growth and usefulness as a cover crop. Read more in the release brochure.

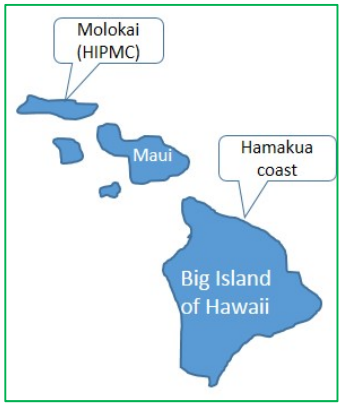


Figure 3: The Huynh brothers farm on the Hamakua coast.

Tung and Richard planted 19 acres of sunn hemp last year. They had some issues with birds eating the seeds after planting; however, the stand took pretty well. Once the cover crop flowers, they plan to mow and incorporate it into the soil. The crop is mowed to prevent seed development, as sunn hemp is a tropical plant. Sunn hemp does not usually set seed above 28 degrees latitude (roughly north of New Orleans, Louisiana).

Figure 3: Richard and Tung (right) Huynh produce crops that are distributed throughout Hawaii.

Figure 3: A field of sunn hemp begins to flower right before it is mowed.

Their goals are to increase soil organic matter, improve soil moisture and nutrient retention, and possibly reduce root-knot nematode populations that may damage their crops. Tung and Richard are also working with Dr. Koon-Hui Wang, a researcher with the University of Hawaii College of Tropical Agriculture and Human Resources. Dr. Koon-Hui Wang will evaluate the ability of sunn hemp to reduce root-knot nematode populations on the Huyunh farm.

Tung and Richard are innovative farmers that are interested in sustainable methods of farming to improve the quality of their soil and reduce negative impacts to the environment, while sharing what they learned with the community.

Upcoming Events—see you there!

September 15, 2016 at 8:30 am

-Wildlife Field Day @ the Jamie L. Whitten PMC in Coffeeville, MS (open to the public)
-Co-sponsored by Mississippi State Extension
-Register with Kyle Jeffreys at 662.675.2730

November 2, 2016

-Fall Cover Crop and Soil Health Training for NRCS employees @ the Jimmy Carter PMC in Americus, GA
-Contact PMC manager Richard Barrett for more information at 229.924.0042 ext. 103

Feature Article Series:
Conservation Strategies for Herbicide-Resistant Weeds

Herbicide resistant weeds are a threat to the increased usage of conservation tillage practices. Growers that once used only reduced-till methods are returning to conventional tillage to help control hard-to-manage herbicide-resistant weeds. The migration back to conventional tillage can be prevented by implementing a sound herbicide-resistant weed management program. Georgia PMC agronomist Nick McGhee discusses simple strategies to share with your growers.

"A successful program or strategy must take a comprehensive approach in order to control weeds that have already become resistant to certain herbicides and mitigate the evolution of potentially resistant weeds," he explains. The first step to management is understanding how resistance develops. In this issue, an explanation of how resistance occurs is explained. In a future issue, steps to take managing to reduce or mitigate resistance will be explained.

Figure 5: Planting soybeans into cover crop residue may limit weed emergence.

Figure 5: Pigweed invades cotton crop.

Understand how herbicide resistance occurs

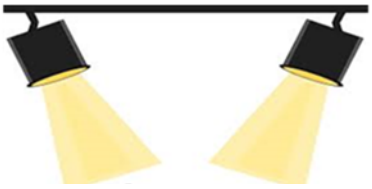
Weeds have a wide range of genetic variation, allowing individual plants to be susceptible or resistant to various selection pressures. Through herbicide use land managers constantly expose weed populations to selection pressure causing susceptible weeds to be set back or killed while the less susceptible weeds continue to flourish and reproduce. This occurs no matter the selection pressure applied to a population.

For example, if an area is mowed consistently, individual plants that are capable of growing and reproducing below the mowing height will eventually become predominant. The same is true in the case of herbicides. If one particular herbicidal selection pressure is consistently applied, the individual weeds that are capable of surviving the herbicide application due to genetic variation will become predominant. This results in a population that is resistant to a particular herbicide.

Growers that are aware of the selection pressures they are applying to the weeds on their farms can design a sound management program that will minimize their chances of developing herbicide resistant weeds. Within NRCS, the Conservation Stewardship Program (CSP) Plant Enhancement Activity (PLT) 19 guides growers and landowners on steps they can take to discourage herbicide-resistant weeds on their farms. In the next newsletter, specific steps of this enhancement will be discussed.

Native Warm-Season Grass Spotlight: Eastern Gamagrass

Florida PMC manager Janet Grabowski has been working with eastern gamagrass for a long time. Janet helped release the 'Highlander' eastern gamagrass cultivar from the Jamie L. Whitten PMC in Mississippi as an agronomist and has continued to promote this grass for a wide range of conservation uses. Janet shares what makes eastern gamagrass stand out from other native warm-season grasses. Table 1 shows a summary of eastern gamagrass characteristics.



Eastern Gamagrass

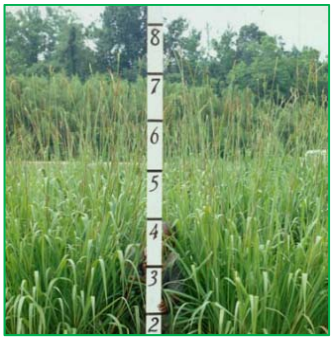


Figure 6: Eastern gamagrass seedheads reach heights of eight feet in Mississippi.

Figure 7: Stamens (male flowers; top left), pistils and cupules (female flowers; top right), mature seed (bottom).

Figure 8: Rapid spring growth provides forage before other grasses such as bermudagrass are ready for grazing.

History

"Prior to European settlement, eastern gamagrass was one of the dominant plants of grasslands in the eastern US as forage for American bison and whitetail deer," Janet explains. However, over-utilization by domestic livestock and conversion of grasslands to row crop production and other land uses almost eradicated this grass. It generally occurs only in small populations in areas that escaped the ravages of the cow and the plow.

Uses

Eastern gamagrass is a large, clump-forming grass that, contrary to its coarse appearance, has excellent palatability and digestibility (up to 65%). Plants green-up early in the spring and crude protein prior to flowering is over 15% (Figure 7), decreasing to 6-8% as the plant matures. Because of its quality and high productivity (3 to 7+ tons of dry matter per year), its primary use is for forage and biomass planting (Conservation Practice 512). It can be grazed or harvested for hay or silage.

Establishment and management

Seed dormancy (tendency of viable seed failing to readily germinate) can be overcome by exposure to cool-moist conditions, called stratification. This can be done in a seed cooler artificially, or planted in the fall for natural stratification during the winter. Lack of understanding of seed dormancy is a large contributor to poor gamagrass stand establishment among producers.

Eastern gamagrass **requires management** to successfully use it as a forage. Plants should not be cut or grazed shorter than a 6-8 inch stubble height (Florida types 8 to 10 inches). And, the plants need a minimum 28-day rest period before repeated grazing or harvesting; 45 days is even better, because continuous 28-day harvests under experimental conditions have damaged stands. Further information on eastern gamagrass can be found in the eastern gamagrass plant guide on the PLANTS database.

Table 1: Eastern gamagrass fast facts

Eastern gamagrass Plant Facts	Native warm-season perennial grass (Poaceae or grass family)
Planting date	Recommended: Plant seeds that have been artificially stratified (subjected to cool, moist conditions for 6-10 weeks) in late spring in the SE. Alternative (not recommended): In the upper SE, unstratified seed may be planted in the fall to naturally stratify with limited success.
Seeding rate	Varies according to purpose: target forage production is 1 seedling for every 2 ft of row. For pure stand, drill 6-8 lb PLS (pure live seed)/acre for pure stand . Reduce rate for mixes with other grasses and forbs, increase rate to 8-10 lb/acre when broadcasting.
Planting considerations	Plant 1-1.5 in deep, or deeper in sandy soils to prevent drying out, can be planted using row planter corn plates.
Mixes well with	For forage production, pure stands are best. For wildlife habitat, mixes well with indiangrass, native forbs, and bluestem grasses.
Cultivars adapted for the SE	•'Highlander' (Jamie L. Whitten PMC in MS) •'Nacogdoches' (East Texas PMC) •'Bumpers' (Booneville PMC in AR) *New selection from FL scheduled to be released later this year

Contact Us!

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- Jimmy Carter PMC (Georgia) (229) 924-0042
- Jamie L. Whitten PMC (Mississippi) (662) 675-2588
- National Plant Materials Website

Join the **SE Plant News NOW** email list today! Contact Alayna Jacobs at alayna.jacobs@ms.usda.gov

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