



## Aliens Attack NRCS-PMC

On February 3, 1999, President William J. Clinton signed an executive order that has the potential to affect the way NRCS and the Plant Materials Program recommends and uses plant materials. This executive order directs federal agencies to expand and coordinate their efforts to combat a serious environmental threat: the introduction and spread of alien plants and animals not native to the United States.

This executive order defines "alien species" as any species that is not native to a specific ecosystem and seeks to restrict their spread by seed or other biological material capable of propagating that species. This definition would include a wide range of plants currently used across the Mid-south, such as bermudagrass, bahiagrass, and autumn olive.

Currently the Jamie L. Whitten Plant Materials Center is working to develop fact sheets for the field offices about Native and Introduced Species. This fact sheet will also list the most common invasive plants for this area.

## Cover Crops for Cotton

The Jamie L. Whitten Plant Materials Center is currently in the final year of a two year Department of Energy research grant. The purpose of the project is to promote the use of leguminous cover crops as a nitrogen source for cotton. The demonstration evaluated the use of 'Americus' hairy vetch (*Vicia villosa*) and Austrian winter pea (*Pisum sativum*) as a cover crop for cotton grown in a no till system. Hairy vetch has been shown to supply as much as 75% of the needed nitrogen for cotton which reduces the need for commercial N inputs. Cover crops can also provide soil protection during the highly erosive fall through early spring period when fields are left fallow.

Two demonstration sites were planted in fields previously planted to corn (Site 1, Yalobusha Co.) and cotton (Site 2, Leflore Co.). Producers at both sites followed this year's cover crop with cotton. Site 1 was planted with a Marliss no-till drill on September 25, 1997, at 20 lbs per acre of hairy vetch and 30 lbs per acre of Austrian winter pea. Site 2 was broadcast on October 22, 1997, at the same rate. (Continued on page 3)

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### Special points of interest:

- *Invasive Order*
- *Hairy Vetch vs Austrian Winter Pea*
- *Eastern gamagrass Achilles' heel?*
- *What can the PMC do for me?*

## Inter Center Trial Completed

**E**astern gamagrass (*Tripsacum dactyloides*) is one of several warm season native grasses with potential for producing substantial yields of high quality, palatable forage. With this in mind, PMCs in the southern and southwestern U.S. began evaluating and selecting local strains of this grass from collections made in their service area. The Jamie L. Whitten PMC, along with PMCs in New Mexico, Texas, Arkansas and Florida selected thirteen accessions (selections) for potential cultivar release. Supporting thirteen cultivars of eastern gamagrass is not feasible in the commercial seed trade. Therefore, a study was conducted to compare yields of the thirteen accessions at the aforementioned PMCs and Georgia to identify those with the greatest forage potential over a broad region for cultivar release. In the table below are the results of dry matter yields of the thirteen eastern gamagrass accessions at Coffeeville in 1996-1998.

The accessions from Florida winter killed after the first year. All but one accession (9062680) were de-

Total dry matter yield by year and average of 13 eastern gamagrass accessions at Coffeeville, MS.

Accession	PMC	DM yield		
		1996	1997	1998
		-----lb/acre-----		
434493	Texas	12 528	12 525	†
9043629	Texas	9442	12 186	†
9043740	Texas	8754	13 420	†
9043762	Texas	11 311	†	
9055975	Florida	2032	*	
9059213	Florida	4971	*	
9059215	Florida	5950	*	
9058465	Arkansas	14 535	13 394	†
9058495	Arkansas	12 877	20 019	†
9058569	Arkansas	6859	12 101	†
9062708	Mississippi	12 017	15 388	†
9062680	Mississippi	12 747	23 604	12 000
9066165	New Mexico	14 149	12 120	†
Mean		9859	10 366	
LSD (0.05)		3724	4525	

\* winter killed in 1996-1997.

† plants killed by soil disease.

stroyed by *Rhizoctonia* and *Pythium*, two soil borne fungi in 1998. Dr. Jim Robbins, a research entomologist at the Mississippi Agriculture and Forestry Experiment Station in Leland, MS, will work with the PMC this spring to evaluate various soil treatments for its control. The silver lining in this dark cloud of chaos is that 9062680 selected by the Mississippi PMC has shown tolerance to these diseases and continued to produce favorable yields in 1998 despite below normal rainfall. This accession was collected in Montgomery Co., TN by Greg Brann who was the DC in Clarksville, TN, and now Grazingland Specialist in Nashville, TN. The average percent crude protein of this accession ranged from 7 to 14% and an estimated %TDN of 52 to 58%.

Bermudagrass and bahiagrass are the “measuring sticks” for perennial warm season forage grasses in the southern states. Therefore, any new forage grass is compared to them to see how it measures up before it is accepted as a “true” southern forage crop. A study at the PMC compared yield and quality of bermudagrass and bahiagrass with that of 9062680 when clipped on 30 and 45 day intervals. Although bahiagrass and bermudagrass produced higher yields and quality than eastern gamagrass when cut at 30 days, we found that eastern gamagrass produces more pounds of protein/acre in the 45 day clippings than bermudagrass and bahiagrass did in 30 day clippings. Results from this study will be highlighted in the next issue.

Despite the yield and quality potential of eastern gamagrass, its success will largely dependent on whether indeterminate low seed production, low seed quality and seed dormancy can be overcome. The PMC has active projects underway that seek ways to overcome these obstacles.

# Cover Crop Demonstration

(Continued from page 1)

Phosphorus and potassium were applied according to soil test results before planting. Percent canopy cover estimates were made at three week intervals starting in February and dry matter yields were determined before burndown of the cover crop. Percent N in the plant tissue and dry matter yield were used to determine total N on a pound per acre basis. From previous published reports a factor of 60% of the total N was used to determine availability. Measurements for the check plots were made in an adjoining field where no cover had been planted.

Site 2 experienced higher rainfall totals than Site 1 resulting in a lower canopy cover and dry matter yield for both crops due to the wet conditions. At both sites hairy vetch had a better percent canopy cover and dry matter yield than the Austrian winter pea.

No additional N was added to the cotton in Yalobusha County (Site 1). Both cover crops yielded more than

Site 1	% Cover			Dry Matter lb/acre	Total N lb/acre	Available N lb/acre
	19-Feb	9-Mar	6-Apr			
Hairy Vetch	45	74	94	3675	132	80
Winter Pea	20	27	58	3572	111	67
Check	33	32	30	N/A	N/A	N/A

  

Site 2	% Cover			Dry Matter lb/acre	Total N lb/acre	Available N lb/acre
	19-Feb	18-Mar	30-Mar			
Hairy Vetch	16	45	73	2215	69	41
Winter Pea	22	40	54	2178	68	41
Check	30	35	35	956	16	10

the check plot. In Leflore County (Site 2) 90 lbs of N were applied to all plots.

Site 1	Cotton leaf % N	Plant Ht. (in)	lbs seed cotton/A
Hairy Vetch	3.5	39	1764
Winter Pea	3.5	32	1372
Check	3.9	40	1241

  

Site 2	Cotton leaf % N	Plant Ht. (in)	lbs seed cotton/A
Hairy Vetch	3.6	48	470
Winter Pea	3.7	42	599
Check	3.8	46	650

Mississippi Cooperative Extension Service Area Specialist, Jay Phelps reported that due to below normal rainfall in Leflore Co. (Site 2), the additional N provided by the cover crops was not realized during the growing season. "To gain the full effect of the cover crops in this demonstration it would need to be continued for consecutive years on the same site," said Phelps.

In the South, the major limitation for using these cover crops is the cost of establishment each year. Cover crops used in no till cotton are chemically burned in early April before they are able to produce a seed crop. Cotton producers can also use commercial N fertilizers at a lower cost than planting these cover crops because of the high cost of seed. Current research at the PMC and at other locations are trying to address some of these concerns by examining reduced seeding rates, alternative cover crops, and reseeding methods..

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**PMC Highlights**

- October 6 - 30 people from Mississippi Extension Service and MS NRCS held a joint meeting at the PMC. A meal was provided by the district and a tour was provided.*
- October 23 - 9 representatives of the Mississippi Band of Choctaw Indians toured the PMC. A joint project was initiated to increase native stands of Switchcane.*
- November 3 - Field office personnel met at the PMC for WHIP training and native grass identification.*
- January 30 - Janet Grabowski presented poster presentation at the Southern Region of the American Society of Horticultural Science in Memphis TN.*

## Ask the Expert

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**Q. What can the Plant Materials Center do for me as a Conservationist?**

- A.** A wealth of plant information can be found at the PMC. The PMC staff is always anxious to assist field offices whether it be through dissemination of information for a Farm Bill Program or just answering questions about plants. Information can be delivered to the field offices in a number of ways. Newsletters, Technical Notes, Planting Guides and brochures are available from the PMC or on our Internet site. You can also call any of our qualified staff members for more specific information wide range of plant materials related topics.

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