

Your NRCS source for plant materials technology in the southeast

A publication from the Florida, Georgia, and Mississippi
Plant Materials Centers

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Cover Crop Adaptation Trials: Book your trip to the nearest PMC this winter!

Plant Materials Centers (PMCs) around the nation are testing many species of winter cover crops this year to find out which cultivars are best for producers in your area. This study includes over 20 cultivars of cereal rye and multiple cultivars of other species such as daikon radish.

This exciting project will allow field staff and landowners to choose the best-adapted cultivars for their needs.

Book a visit to your nearest PMC in December or January to get a good look at the different species. Bring your landowners, conservation district staff, or producers with cover crops on their contracts who are trying to decide what they want to plant.

Call your local PMC today to schedule a tour. Lookout for tour dates in Florida and Georgia.

December 9-10, 2015 Cover Crop Workshop in Mississippi

Book your visit to the Jamie L. Whitten PMC in Coffeeville, MS for a two-day comprehensive cover crop planning workshop on December 9-10, 2015.

This workshop is hosted by the NRCS-MS Ecological Sciences and PMC staff. Topics include conservation planning steps, cover crop species information, tour of cover crops, special guest speakers from Mississippi State University, and more.

Please email PMC manager Alayna Jacobs alayna.jacobs@ms.usda.gov to save your slot today. Workshop attendance is limited to 50.



Figure 1: Cover crop plots like the ones above at the Florida PMC in July 2015 yield information about cultivar qualities (pearl millet on left, sterile sorghum on right).

Can forage plant species help control nematodes in goats?

Many landowners have increasingly called on technical planning expertise of NRCS staff in regards to goat production. Here are some quick facts about the most limiting factor for successful production of goats: the internal parasite named barber pole worm (*Haemonchus contortus*; Figure 2).

Jamie L. Whitten PMC manager Alayna Jacobs taps the forage and goat experts to get some quick facts that can help NRCS staff talk with goat producers about conservation practices. Dr. Joan Burke, research animal scientist with the Agricultural Research Service (ARS), manages extensive organic goat and sheep operations in Arkansas and specializes in studying barber pole

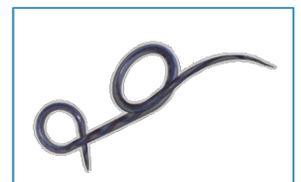


Figure 2: Barber pole worms are internal parasites that infect sheep and goats

worm effects on animal production. Dr. Rocky Lemus, extension forage specialist with the Mississippi State University (MSU), develops grazing plans for different livestock species, including goats, throughout North America.

How do goats become infected?

Goats ingest barber pole worm larvae that have emerged from fecal pellets while grazing, and heavily infected goats can become anemic very quickly and usually die.

Why can't producers just treat infections with deworming medication?

Overuse of wormers has caused the barber pole worm and other intestinal worms to become resistant to most of the dewormers on the market, so other management tools, particularly pasture management is critical.

How can optimum forage management limit infections?

Managing forage use and species available can help producers limit vulnerability to parasite infection in the southeast.

1) Monitor forage height

The most basic tenant of sound pasture management is to monitor forage height since goats more easily ingest worm larvae in pastures where forages are less than five inches tall. Dr. Lemus also recommends grazing each pasture only once per year. "For example," he explains, "take a hay crop from one pasture early in the season and graze another pasture. Later in the season, graze the pasture that was hayed, so goats are not exposed to fresh worm larvae."

2) Include high protein forages in pastures.

Goats can resist all parasites more effectively if they have adequate protein in their diet, but most southern perennial grasses can be low in protein (such as bahiagrass pastures). One key to good animal health is providing forages that are rich in protein, such as:

Black locust (*Robinia pseudoacacia*; Figure 3) and bristly locust (*Robinia hispida*)

These are native leguminous trees with proven resistance to goat browsing in silvopasture studies with goats in NC. "Bristly locust can be easily transplanted into goat pasture to provide additional browse," says Dr. Burke. Studies are underway now looking at the deworming properties of the condensed tannins in the plant.

(CAUTION: All parts of the plant, particularly the bark, contain a compound that is toxic to all livestock if too much is consumed. Horses are particularly susceptible.)



Figure 3: Goats browse nutritious black locust shrubs/trees (USDA-ARS photo)



Figure 4: Goats preferentially select curly dock while cattle avoid eating this species (USDA-ARS photo)

Curly dock (*Rumex crispus*; Figure 4)

Curly dock is a perennial pasture weed from the buckwheat family that thrives in poorly drained areas with compacted soil. Widely considered to have medicinal properties, but controlled grazing studies in goats have confirmed that it has no anthelmintic properties. Listed as a noxious weed in some states. (CAUTION: Contains oxalates, which in large quantities can be toxic. Also reported to accumulate nitrates.)



Figure 6: Chicory leaves (MS State photo)



Figure 5: Purple chicory blossoms (MS State photo)

3) Integrate plants that have been shown in controlled studies to have anthelmintic or natural deworming properties.

Dr. Burke's organic goat farm uses two plant species with proven qualities to discourage nematode infections:

Chicory (*Cichorium intybus*; Figures 5 & 6)

Chicory is a perennial forb in the Aster family introduced from Europe that is adapted north of the Coastal Plain. Forage quality is very high, but falls quickly after flowering. Deworming properties may attributed to sesquiterpene lactones in the plant. Dr. Burke cautions that, "Successful worm control results are not consistent and control may be only achieved by using some chicory varieties."

Serecia lespedeza (*Lespedeza cuneata*; Figures 7 & 8)

Serecia lespedeza is a nutritious perennial legume introduced from Southeast Asia. It has been widely planted in the Southeast for pasture and erosion control. It is now recommended because of the deworming properties of condensed tannins in the plant. Many producers feed serecia lespedeza hay or feed pelletized serecia lespedeza as a supplement, particularly where it cannot be grown (FL). (CAUTION: Can be invasive. Additional planting may not be recommended in all states.)



Figure 7: Goats tolerate tannins in serecia lespedeza. (USDA-ARS photo)



Figure 8: Blooming serecia lespedeza (MS State photo)

Check out more information from the National Sustainable Agriculture Information Service: [Tools for managing internal parasites in small ruminants: pasture management.](#)

Cool-season cover crops word search

Find the species that PMCs around the nation will be evaluating this year.



h	s	b	m	p	b	n	y	r	a	a	t	v	n	d
l	a	h	a	w	t	t	e	s	n	t	i	r	a	a
e	z	w	c	l	t	v	n	a	h	t	b	b	d	i
p	a	k	w	p	a	i	l	t	v	y	b	t	c	k
c	r	i	m	s	o	n	c	l	o	v	e	r	h	o
z	g	o	l	e	t	d	s	s	o	z	e	a	u	n
o	x	i	s	l	q	a	u	a	h	r	i	j	c	r
w	o	u	o	p	k	l	o	u	c	r	t	a	d	a
s	n	o	b	l	e	g	u	k	y	l	d	i	v	d
f	e	n	n	q	h	r	b	v	c	i	o	z	n	i
r	e	v	o	l	c	d	e	r	x	a	j	v	t	s
c	w	u	l	m	r	t	y	i	n	w	l	c	e	h
f	g	j	n	c	h	e	h	c	r	x	b	r	r	
k	t	v	n	h	d	e	f	e	n	d	e	r	e	w
z	f	e	y	p	w	s	u	u	k	a	i	a	l	z

1. Crimson clover
2. Red clover
3. Balansa clover
4. Hairy vetch
5. Austrian winter pea
6. Black oat
7. Cereal rye
8. Daikon radish
9. 'Dixie'
10. 'Tibbee'
11. 'Prosper'
12. 'Lana'
13. 'TNT'
14. 'Fenn'
15. 'Soil Saver'
16. 'Elbon'
17. 'Nitro'
18. 'Defender'
19. 'Graza'

Earn expert conservationist status:

Match the species names (1-8) with cultivar/variety names (9-19).

Answers listed below.

Answers: 'Dixie', 'Tibbee', 'Crimson clover', 'Prosper', 'Lana', 'TNT', 'hairy vetch', 'Fenn', 'Austrian winter pea', 'Soil Saver', 'black oat', 'Elbon', 'cereal rye', 'Nitro', 'Defender', 'Graza', 'daikon radish'

Tips for Designing Cover Crop Mixtures

Planning cover crops that can simultaneously fit into crop rotation intervals and solve targeted resource concerns can be tricky. Though seed companies advertise mixes with 5-12 different species, it is important to understand why different species are needed. Each species must be chosen for specific characteristics since seed costs heavily influence economic returns.

Georgia PMC manager Richard Barrett shares four steps to help talk with NRCs customers interested in planting cover crop mixes:



Figure 9: A seven-way mix blooms in Georgia: can you name the species?

1. Start simple

Plant a mixture of two or three plant species. Select plant species best suited to meet producer objectives. Gain knowledge and confidence and then move to mixes that are more complex.

2. Consider functional plant groups

Functional groups are a way to group similar plants together, such as grasses, legumes, and forbs, warm season, cool season, etc. Adding mixes with different functional groups diversifies soil microorganism biodiversity. Start by adding one plant from three functional groups (i.e., one grass, broadleaf, and legume species).

3. Match planting dates and maturity dates of different species

In order to give the cover crop mix the best chance for success, match plant species with overlapping recommended planting dates. If planting is delayed outside recommended timelines, look at available plant species to choose other plants with a later optimum planting dates. Consider bloom or flowering dates of species, as bloom dates vary considerably even between varieties or cultivars of the same species.

4. Be realistic about equipment and time limitations

Order seed early in case species need to be blended at the farm or planted in separate boxes in the seed drill. Plan labor and specialized equipment ahead of time so that planting and termination can occur within non-cash crop windows.

Contact Us!

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- [National Plant Materials Website](#)

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