Growing Cover Crop Use in the Southern Region

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Introduction

With support from Southern SARE, ag professionals in the southern region completed a one-year project to identify research and Extension priorities for cover crop use. The project also established the Southern Cover Crop Council which will help coordinate cover crop research and outreach throughout the region. To accomplish our objective, Florida agricultural professionals in the public, private and non-profit sectors identified barriers to adoption, challenges for those currently using cover crops, and priorities for research and outreach. Five consistent themes emerged from our questionnaire providing a framework for an integrated research and outreach approach to increase cover crop use in Florida.

Respondents

- Over half of the 13 total respondents represent North Florida
- About 70 percent work for a federal agency or university in a research or Extension capacity
- Most work with horticultural cropping systems
- About half work with agronomic cropping systems
- About half work with ornamental cropping systems
- Farmers and other ag professionals are underrepresented

Barriers

Respondents identified the three most important barriers keeping farmers who do ***not currently use cover crops*** from using them (Table 1). Four respondents had no experience with "non-users." Respondents selected three barriers most frequently:

1. Timing the establishment and termination of the cover crops in the cash crop cycle
2. Farmers are not certain of the long-term benefits on soil health
3. Cover crops are not seen as an effective alternative to chemical pest control.

Table 1. Reasons why non-users do not adopt cover crops in Florida

Item	Selected
Overall annual cost of planting & managing cover crops	2
Cost of buying and maintaining equipment needed	1
Hard to time establishing and terminating the cover crop with the cash crop cycle	**6**
Difficulty dealing with cover crop residue as organic mulch OR when preparing to install plastic mulch	1
Insufficient information available about nutrient budgets	1
Not enough good cover crop varieties for Florida conditions	1
Not convinced of the long-term benefits of cover crops on soil health	**5**
Insufficient information about the effects of using cover crops on diseases and pests	2
Does not provide an effective alternative to chemical pest control	**4**
The change is complex and seems overwhelming to farmers	2
Not enough long-term studies and data to justify the changes in practice	1

Challenges

Respondents identified the three most important challenges faced by farmers who ***do currently use cover crops*** (Table 2). There is greater variance but strong commonalities between the two sets of responses. The three most commonly identified challenges are:

1. Timing the establishment and termination of cover crops in the farmers' annual cropping cycle
2. Annual cost of planting and managing the cover crops
3. Farmers do not see the anticipated long-term benefits of cover crops on soil health.

Table 2. Challenges faced by users of cover crops in Florida

Item	Selected
Annual cost of planting & managing cover crops	**6**
Cost of buying and maintaining equipment is too high	3
Timing the establishment and termination of the cover crop with the cash crop cycle	**7**
Difficulty dealing with cover crop residue as organic mulch OR when preparing to install plastic mulch	2
Finding good information available about nutrient budgets	4
Finding a good cover crop variety (or varieties) for farming system	4
Does not see the long-term benefits of cover crops on soil health	**5**
Managing diseases and pests	2

Research Priorities

Respondents ranked six general areas for research. Table 3 indicates how often respondents ranked each of the six areas in the top three. Most commonly ranked in the top three priorities are:

1. Research about the effects of cover crops on the soil, including nutrient and water management
2. Pest, weed and disease management, including beneficial organisms
3. The economics of using cover crops
4. Breeding and selection of cover crop varieties and/or mixtures for Florida.

Table 3. General research priorities

Item	Times in Top Three
Breeding and selection of cover crop varieties and/or mixtures for FL	5
Effects of cover crops on the soil, including nutrient and water management	**12**
Pest, weed and disease management, including beneficial organisms	**8**
Economics of using cover crops	**6**
Cover crop management practices	2
Integrating cover crops into livestock operations, including grazing cover crops	1

Outreach Priorities

Respondents ranked six general types of activities for Extension and other outreach agents (Table 4). Only three of those consistently ranked highly (first, second or third):

1. On-farm demonstrations and/or trials
2. Field days
3. A website that is "one-stop shopping" for information on cover crops in Florida.

Table 4. Outreach priorities

Item	Times in Top Three
On-farm demonstrations and/or trials	**11**
Field days	**11**
Website that is "one-stop shopping" for information on cover crops in Florida	**9**
Workshops and other training about cover crops for farmers	3
Workshops and other training about cover crops for Extension agents, certified crop consultants, and other technical advisors	0
Printed information (fact sheets, manuals, newsletters, etc.	3

Specific Research/Outreach

We provided respondents with a list of specific topics for research and outreach identified at the 2016 Southern Region Cover Crops Conference held in North Carolina. There are 14 topics on that list (Table 5) and respondents selected their top five priorities. The high priority grouping consists of topics selected as priorities by seven to nine respondents. The moderate priority grouping consists of those selected by four to six respondents. The low priority grouping consists of items selected by three or fewer people.

Table 5. Specific topics for research and/or outreach, by priority grouping

Item	Grouping
Using cover crops for nematode management	**High Priority**
Economic costs and benefits of cover crop use	
How cover crops affect soil biology/health over short & long term	
Nutrient management with cover crops	
Cover crop varieties for FL, including specific varieties & mixtures	
Using cover crops for weed management	Moderate Priority
Using cover crops for disease management	
Using cover crops to manage beneficial insects, including pollinators	
Cover crop establishment, termination and residue management	
Using cover crops for insect pest management	Low Priority
Water management with cover crops	
Cover crop seed production to reduce cost and/or increase availability	
Other	
Multiple uses of cover crops such as grazing or harvesting a cash product	Never Selected

Summary

There are many consistencies among the responses to the various topics covered in this questionnaire. We identified five primary themes providing a framework for an integrated research and outreach approach to increase cover crop use in Florida.

1. Using cover crops for pest management (nematodes, insects, weeds, disease), including beneficial organisms
2. Developing residue, nutrient management, establishment and termination regimes
3. Determining the short and long-term economic and soil health benefits of using cover crops
4. Conducting more on-farm demos and trials and hosting more field days.
5. Developing a "one-stop shopping" website for cover crops in Florida.