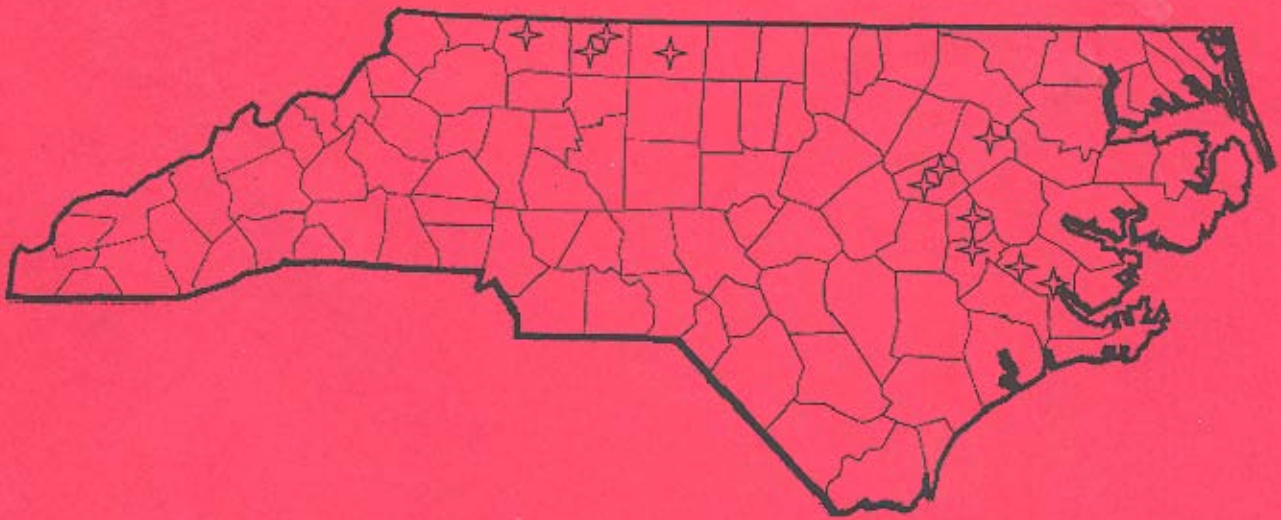


**North Carolina Combined  
Flue-Cured and Burley  
Tobacco Tour**

**July 19-21, 2010**



North Carolina Cooperative Extension Service  
North Carolina State University

## ACKNOWLEDGEMENTS

The Extension-Research Tobacco Program as currently conducted would not be possible without support from a number of sources beyond state and federal appropriations. The 2010 programs are being supported, in part, by the following:

### PLANT PATHOLOGY

AMVAC Chemical Corporation  
Bayer CropScience  
Chemtura  
Dow AgroScience  
DuPont, USA  
Hendrix & Dail  
N. C. Tobacco Foundation  
N. C. Tobacco Research Comm.  
Phillip Morris International  
Syngenta Crop Protection  
Tobacco Education and Research Council (TERC)  
Valent USA

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Altria Client Services  
NC Tobacco Research Comm.  
NC Tobacco Foundation  
NC Tobacco Trust Fund Commission  
Philip Morris International

### ENTOMOLOGY

Altria Client Services  
Bayer Crop Science  
Dow AgroSciences  
DuPont Crop Protection  
FMC Corporation  
N.C. Tobacco Foundation  
N. C. Tobacco Research Commission  
Philip Morris International  
Syngenta Crop Protection, Inc.  
Tobacco Education and Research Council, Inc.

### CROP SCIENCE

Alliance One International  
Altria Client Services  
Bayer CropScience  
Carolina Soil Incorporated  
Chemtura  
Cross Creek Seed Co.  
Drexel Chemical Company  
DuPont Chemical  
Fair Products  
FMC Corporation  
F. W. Rickard Seeds  
Gold Leaf Seed Company  
Helena Chemical  
JT International  
Lorillard Tobacco Company  
N.C. Tobacco Foundation  
N.C. Tobacco Research Comm.  
Philip Morris International  
Profigen  
Raynor Seed Company  
RJ Reynolds Tobacco Company  
Speight Seed Farm, Inc.  
Syngenta Corporation  
SQM North America  
Universal Leaf  
Valent USA

**NORTH CAROLINA COMBINED  
FLUE-CURED & BURLEY TOBACCO TOUR  
2010**

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Crop Science

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Biological & Agricultural Engineering

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July 2010

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This publication contains information (or results) from use patterns of pesticides, some of which are currently not covered by a registered label. Such results are included for informational purposes and should not be taken as recommendations for use. It is unlawful to use any pesticide in a manner inconsistent with label directions.



# **Distinguished Sponsors**

**Altria Client Services**

*Welcome Dinner \* Monday Evening*

**BeltWide Incorporated**

*Breakfast \* Tuesday morning*

**DuPont Crop Protection**

*Lunch \* Tuesday afternoon*

**RJ Reynolds Tobacco Company**

*Lunch \* Wednesday afternoon*

**Alliance One Tobacco USA**

**Bayer CropScience**

**Carolina Soils Co.**

**Chemtura Corp.**

**Cureco**

**FW Rickard Seeds**

**Gold Leaf Seed Co.**

**Hendix & Dail, Inc.**

**Syngenta**

**Universal Leaf North America US, Inc.**

**Workman Tobacco Seed**

*Tour refreshments (The Chuckwagon), Tour Flags & Tour Book*

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## 2010 TEST LOCATIONS

The field programs for this year included tests scattered throughout the tobacco area. Listed below are the various types of tests in the field, their location, cooperating growers, extension agents and station personnel who are responsible for them.

### Plant Pathology

<u>Location</u>	<u>Cooperator</u>	<u>Test Supervisor</u>
<b>Black Shank Variety Evaluation</b>		
Surry	Eddie Johnson	Joanna Radford
Iredell	Ralph Renager	Matthew Miller
Yadkin	Hassell Brown	Nancy Keith
UCPRS		Lewis Pitt
<b>Granville Wilt Variety Evaluation</b>		
Johnston	Larry Boyette	Bryant Spivey
Wayne	Kim Davis	Kevin Johnson
Wilson	Bryant & Garey Futrell	Norman Harrell
Wilson	Scott Brother's Farm	Norman Harrell
<b>Granville Wilt Variety x Fumigation Evaluation</b>		
Harnett	Kent Revel	Don Nicholson
<b>Black Shank Chemical Trials</b>		
Forsyth	Buck Byerly	Tim Hambrick
Rockingham	Mike Herbin	Will Strader
Wilson	Bryant & Garey Futrell	Norman Harrell
Surry	Eddie Johnson	Joanna Radford
Yadkin	Alex Shugart	Nancy Keith
UCPRS		Lewis Pitt
<b>Black Shank Chemical x Fertilizer Trial</b>		
Wilson	Ronald Lancaster	Norman Harrell
<b>Nematode Control by Variety x Fumigant</b>		
Johnston	Andy Penny	Bryant Spivey
<b>Nematode Control by Variety</b>		
Craven	David Parker	Mike Carroll
<b>Nematode Control by Fumigant</b>		
Stokes	Kent Fulp	Tim Hambrick
<b>Tomato Spotted Wilt Virus Monitoring</b>		
Craven		Mike Carroll
Duplin		Curtis Fountain
Johnston		Bryant Spivey
Jones		Jacob Morgan
Wilson		Norman Harrell

## Entomology

<u>Trial</u>	<u>Location</u>	<u>Grower Cooperator</u>	<u>County Agent</u>
<b>Actigard Timing/Website Beta Testing</b>	Craven County	Gary Amerson	Mike Carroll
	Duplin County	Warren Sloan	Curtis Fountain
<b>Wireworm Management</b>	Border Belt Tobacco Research Station Cumberland County		
<b>Tobacco Budworm Management in Seed Production</b>	Lower Coastal Plain Research Station Lenoir County		
	Forsyth County	R.J. Reynolds Tobacco	
<b>Movement and Longevity of New Insecticides</b>	Lower Coastal Plain Research Station Lenoir County		
	Upper Coastal Plain Research Station Edgecombe County		
<b>Neonicotinoid Longevity &amp; Late Season Insect Management</b>	Lower Coastal Plain Research Station Lenoir County		
	Upper Coastal Plain Research Station Edgecombe County		
<b>Aphid Threshold Revision</b>	Lower Coastal Plain Research Station Lenoir County		
	Upper Coastal Plain Research Station Edgecombe County		
	Oxford Tobacco Research Station Granville County		
<b>Tobacco Streak Virus Management</b>	Moore County	Duane Jackson	David Dycus (NCDA & CS Regional Agronomist)
<b>Tobacco Splitworm Feeding Biology and Plant Interactions</b>	Lower Coastal Plain Research Station Lenoir County		

	Oxford Tobacco Research Station Granville County		
<b>Unregistered Materials Trials (several)</b>	Upper Coastal Plain Research Station Edgecombe County		
<b>Foliar Insecticides Volume and Pressure Comparisons</b>	Oxford Tobacco Research Station Granville County		
<b>On Farm Comparisons of New Insecticides</b>	Stokes County	Danny Boles	Tim Hambrick



## Crop Science

<u>Location</u>	<u>Test Type</u>
<b>Whiteville</b> Lloyd Ransom Tobacco Supervisor	Herbicide Screening Study OVT; OVTA; RV; RFT Management Practices on Varieties PVH 1452 & CC 35 To Reduce Alkaloids in the Cured-Leaf
<b>Kinston</b> Randy Stancil Tobacco Supervisor	Regional Sucker Control Study Simulated Drift with Ignite, Clarity and Weedar 64 Study Evaluation of Various Suckercides for MH Free Tobacco Pesticide Residue Study Dark Air-Cured Study Flue-cured and Burley OVT; OVTA; RSP; RFT Efficacy & Selectivity of Spartan Charge & Command 3ME Effects of Liquid Fertilizers & Quadris Fungicide for Holdability
<b>Rocky Mount</b> Lewis Pitts  Tobacco Supervisor	Evaluation of Various Suckercides for MH Free Tobacco Fertilizer Study (Various Potassium Rates & Application Methods) Fertilizer Study (Various Potassium Rates) Simulated Hail Damage on Flue-Cured and Burley Tobacco Simulated Drift with Ignite, Clarity and Weedar-64 Study Flue-cured and Burley OVT; OVTA; RFT; RSP Herbicide Screening Study Effects of Liquid Fertilizers & Quadris Fungicide for Holdability Mepiquat Chloride for Sucker Control
<b>Oxford</b> Carl Watson  Tobacco Supervisor	Regional Sucker Control Study Fertilizer Study (Various Potassium Rates & Application Methods) Fertilizer Study (Various Potassium Rates) OVT; OVTA; RSP; RFT Effectiveness of Suckercides Pre-Mixed & Applied Over Time Effects of Liquid Fertilizers & Quadris Fungicide for Holdability
<b>Reidsville</b> Auman French Tobacco Supervisor	Dark Air-Cured Study Burley OVT; RQT Study Burley Regional Preliminary Study Burley Regional Sucker Control Study Burley Sucker Control Study Burley Pesticide Residue Study
<b>Laurel Springs</b> Keith Eller Tobacco Supervisor	Burley OVT; RQT Study Burley Regional Sucker Control Study Burley Regional Quality Study Burley Sucker Control Study Dark Air-Cured Study

**2010 Crop Science On-Farm Flue-Cured Extension Tests**

**Johnston Co.**  
Bryant Spivey  
County Extension Director

Sucker Control Study

Randy Benson (Grower)

**Greene Co.**  
Louie Johnson  
Extension Tobacco Agent

Mepiquat Chloride for  
Sucker Control

Jimmy Hill (Grower)  
Donnie Blizzard (Grower)

**North Carolina Flue-Cured & Burley Tobacco Tour  
Schedule & Driving Directions  
Eastern Tour \* Tuesday, July 20, 2010**

<u>Time</u>	<u>Direction</u>	<u>Miles</u>
<b>6:45am</b>	<b>Line up outside the Hilton Hotel -- New Bern 100 Middle Street New Bern, NC 28560</b>	
6:45	Left from parking lot onto Craven St	0.1
6:46	Right onto Front St.	0.1
6:47	Right on exit to US 70 W	0.5
6:53	Stay on US 70 W	5.8
6:53	Right at Exit 411 for NC Hwy 43	0.3
6:54	Right at end of off ramp onto NC Hwy 43	1.8
6:56	Left onto NC 55 W	1.8
6:59	Slight Right onto Beamon Rd	0.2
7:00	Right onto Stephenson Rd	0.6
7:01	Left onto Nina Ln	0.5
7:03	Arrive at test on left	
<b>7:05-7:45</b>	<b>Breakfast &amp; Nematode Variety Trial--David Parker Farm 300 Nina Ln. New Bern, NC 28562*</b>	
7:45	Depart test	0.2
7:46	Right on Stephenson Rd	0.7
8:01	Right on NC 55 W	12.5
8:04	Right on farm path	0.2
8:05	Arrive at test on Left	
<b>8:05-8:30</b>	<b>TSW Forecasting Demonstration--Cox Farm 7800 N. Hwy 55 Cove City, NC*</b>	
8:30	Right on NC 55 W to depart test	22.9
8:49	Left on NC 11 S/NC 55 W	0.8
8:51	Right at 1st stoplight onto Cunningham Rd	1.6
8:54	Right at stoplight on to NC 58	0.1
8:54	Right into Research Station	
8:55	Arrive at Barns on left	
<b>8:55-11:05</b>	<b>Lower Coastal Plains Research Station/Cunningham Research Farm 200 Cunningham Rd. Kinston, NC</b>	
<b>(8:55-9:30)</b>	<b>Wood Chip Fired Curing Barns</b>	
9:30	Leave barns and cross NC 58 to other side of Research Station	
9:35	Arrive at tests on Left	
<b>(9:35-10:35)</b>	<b>Pesticide Residue Study</b>	

**Dark Air-Cured Study**  
**Regional Sucker Control Study**  
**Evaluation of Various Suckercides for MH Free Tobacco**  
**Effects of Liquid Fertilizers & Quadris Fungicide for Holdability**  
**Tobacco Budworm Management in Seed Production**

10:35 Leave Crop Science and Entomology Tests  
Follow path to Entomology Test  
10:40 Arrive at Entomology Test on Left

**(10:40-11:05) Tobacco Splitworm Caging & Harvest Manipulation**

11:05	Depart Entomology Test	
	Follow path to NC 58	
11:10	Left on NC 58 to depart Research Station	2.5
11:14	Straight through stoplight at C.F. Harvey Rd	9.3
11:24	Straight through stoplight at 2nd St. to stay on NC 58 N	1.3
11:26	Straight through stoplight at W. Harper St.	0.2
11:27	Straight through stoplight at NC 13/NC 903	0.2
11:27	Straight through stoplight at Hull Rd.	1.0
11:28	Right to stay on NC 58 N	7.9
11:37	Right onto Lane Rd	1.3
11:39	Right at stopsign onto Speight's Bridge Rd	2.8
11:43	Left onto Appie Rd.	0.4
11:45	Arrive at field on Left	

**11:45-1:05 Lunch & NCDA&CS Fumigation Demonstration and Discussion**  
**408 Appie Rd. Walstonburg, NC\***

1:05pm	Left on Appie Rd. to depart field	0.4
1:06	Left on Sand Pit Rd.	5.3
1:13	Right at stopsign on NC 58/NC 111/NC 222	0.1
1:14	Right at stoplight to stay on NC 111/NC 222/Saratoga St.	4.2
1:19	Straight through stoplight	1.3
1:21	Left to stay on NC 111 N	2.9
1:25	Straight through stopsign at Holding's Cross Rd.	4.6
1:30	Straight through stopsign at NC 124	1.3
1:32	Straight through stopsign at N. Fountain Rd	1.4
1:34	Straight through stopsign at NC 42	1.9
1:37	Left at stopsign onto NC 43 N	4.1
1:42	Right on Jenkins Farm Rd.	1.9
1:44	Left on Nobles Mill Pond Rd	2.8
1:49	Arrive at UCPRS on Left	

**1:50-3:50 Upper Coastal Plains Research Station**  
**2811 Nobles Mill Pond Rd. Rocky Mount, NC**

**(1:50-2:45) Simulated Drift with Ignite, Clariety and Weedar-64 Study**

**Fertilizer Study  
Flue-Cured and Burley OVT**

2:45 Follow path to plant pathology test

**(2:50-3:15) Black Shank OVT**

3:15 Cross Nobles Mill Pond Rd on farm path to Entomology test

**(3:20-3:50) Follar Insecticide Longevity  
Aphid Threshold Revision**

3:50	Right on to Nobles Mill Pond Rd to depart UCPRS	1.0
3:52	Left on Antioch Rd	1.8
3:55	Right at stopsign onto Bullock School Rd	2.1
3:57	Straight through stoplight at NC 43 Hwy	3.8
4:02	Straight through stopsign at Old Wilson Rd.	1.0
4:04	Slight left at stopsign at US 301 Bus.	0.1
4:05	Left at stoplight on US 301 S	1.4
4:07	Straight through stoplight at Mill Branch Rd.	11.4
4:20	Straight through stoplight at Ward Blvd	0.2
4:21	Straight through stoplight at Marlow St.	0.3
4:22	Left at stoplight onto NC 58 S	1.7
4:24	Straight through stoplight at Libscomb St.	1.7
4:25	Straight through stoplight at Alt US 264/Charleston St.	2.8
4:28	Right on Evansdale Rd.	1.2
4:30	Right on farm path to test	0.2
4:35	Arrive at Lancaster BS test on Left	

**4:35-5:00 Black Shank Chemical Control x Fertilizer Study--Ronald Lancaster Farm  
4334 Evansdale Rd. Wilson, NC\***

5:00	Right on Evansdale Rd to depart test	0.2
5:01	Straight through stopsign at Old Stantonsburg Rd.	2.9
5:04	Left at stopsign on Frank Price Church Rd.	1.5
5:05	Right on Central St.	1.1
5:08	Left at stopsign on Church St.	1.4
5:10	Left at stopsign on NC 117 S	0.1
5:10	Right on Alton Rd.	3.3
5:15	Left on Little Rock Church Rd.	2.5
5:18	Left on Upper Black Creek Rd.	1.9
5:24	Right on NC 581 N	0.6
5:25	Left on Frank Rd.	0.8
5:27	Arrive at Scott Bros. GW test on Right	

**5:30-5:55 Granville Wilt Variety Evaluation--Scott Brothers Farm  
8950 Frank Rd. Kenly, NC\***

**North Carolina Flue-Cured & Burley Tobacco Tour  
Piedmont Tour \* Wednesday, July 21, 2010**

- 10:30am ***Upper Piedmont Research Station***  
**1944 Wentworth St. Reidsville, NC**  
Dark Air-Cured Tobacco  
Burley OVT  
Burley Sucker Control Study  
Burley Regional Sucker Control Study  
Burley Pesticide Residue Study  
Burley Regional Preliminary Study
- 11:45 ***Rockingham County Extension Office***  
**525 NC Hwy 65 Wentworth, NC**  
Lunch
- 1:45pm ***Danny & Tony Boles Farm, Stokes County***  
**1374 Clark Rd. Lawsonville, NC**  
On Farm Comparisons of New Insecticides
- 3:15 ***Smith Farm, Stokes County***  
**1622 Gentry Farm Rd. King, NC**  
NCDA&CS Fumigation Demonstration & Discussion
- 5:15 ***Eddie Johnson Farm, Surry County***  
**440 White Rd. Elkin, NC 28621**  
Black Shank Variety Evaluation  
Black Shank Variety x Chemical Control Trial



2010 Nematode Variety Trial, Craven County

<b>33</b>	<b>34</b>	<b>35</b>	<b>FIII</b>	<b>FIII</b>	<b>FIII</b>	<b>FIII</b>	<b>FIII</b>
2	3	1					
<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>
5	1	4	7	5	7	4	6
<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>
3	7	4	5	6	6	3	2
<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
4	2	6	3	7	5	2	1
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
6	5	1	7	4	3	2	1

**Nematode Variety Trial -- Craven County**

Rating Data Type	Stand Count	Vigor (0 - 100)
Rating Date	5/27/2010	7/6/2010
Entry No	Cv	
1	K 326	95.4 a                      75 a
2	PVH 2274	96.2 a                      72 a
3	XP 275	96.6 a                      84 a
4	XP 340	97 a                          80 a
5	XHN 44	101 a                        86 a
6	CC 13	98.4 a                      82 a
7	CC 33	92.2 a                      78 a
Replicate F	28.179	2.179
Replicate Prob(F)	0.0001	0.1033
Treatment F	1.178	0.902
Treatment Prob(F)	0.3508	0.5106

# Nematode Diagnostic Assay Report

Report No: 03825



Grower: **Radcliff, John**  
 NCSU Box 7405  
 Raleigh, NC 27695

Copies to:

Received: 01/04/2010 Completed: 05/11/2010 Farm: APRKER NEM Craven County [Links to Helpful Information](#)

## Nematologist's Comments

This field has high level of lesion and root-knot nematodes.

Field	Crop	Action Codes	Nema Notes	Nematodes/500 cc Soil				Nematodes/Gram Root			
				Nematode #	Nematode	#	Nematode #	Nematode #	Nematode #		
Field CRAV1:	tobacco	C		Root Knot	320**	Dagger	30				
				Lesion	650**	Ring	10				
				Stunt	200						
				Stubby Root	60						
Field CRAV2:	tobacco	C		Root Knot	420**	Stubby Root	30				
				Lesion	380**	Dagger	20				
				Stunt	360	Cyrt	10				
				Spiral	40						



Reprogramming of the laboratory-information-management system that makes this report possible is being funded through a grant from the North Carolina Tobacco Trust Fund Commission.

Thank you for using agronomic services to manage nutrients and safeguard environmental quality.  
 - Steve Troxler, Commissioner of Agriculture

## **Thrips flight forecasting and TSWV treatment timing**

*Craven and Duplin Counties*

Principle Investigators:

Hannah Burrack  
Clyde Sorenson  
Mark Brooks  
George Kennedy

Technician:

Anna Chapman

Graduate Student:

Amanda Boudine

Undergraduate Student:

Rebecca Cumbie

*Project description*

Using models developed from data collected over 10 years in North Carolina, we have developed a website that predicts tobacco thrips flight timing using local temperature and precipitation data. In 2010, we conducted field trials using this website to time treatments of Actigard®. Because local data is used in these models, flight timings, and therefore recommended treatment timings, will vary between areas.

*Purpose*

This website should only be used in fields with anticipated high TSWV risk. Risk is based on virus inoculum, thrips populations, and thrips flight timing. Thrips flights at or around transplant typically result in the greatest TSWV incidence.

*Progress to date*

We have identified several changes to be made to the website before it will be made publicly available. Overall TSWV incidence at our field trial locations was very low, although data from these trials have not yet been analyzed.

*Future directions*

During winter 2010-2011, we will be incorporating risk assessment tools into the website, validating predictions for SC, and adding thrips flight data from GA.

## TSWV and Thrips Exposure Forecast Tool for Tobacco

This site is appropriate for:

- Tobacco growers in NC.
- Understanding your estimated tobacco thrips and tomato spotted wilt exposure timing for the current year compared to previous years.
- Viewing estimated tobacco thrips and tomato spotted wilt exposure for previous years.

### Please Fill Out the Information Below

\* Denotes a required field.

#### Your Location: \*

Address, Nearest Cross Roads, or Zip Code:

OR

Latitude:  Longitude:

Note: A street address or latitude and longitude will give the most accurate representation of the conditions at your field.

Crop:  \*

#### Anticipated Planting Date:

Month  Day  If unknown, leave blank.

Greenhouse Treatment:

Historic incidence of loss per field:  If historic incidence unknown, leave blank.

- Get current TSWV risk assessment Note: this option should be used from April through May for the most benefit.
- Get an historical TSWV risk assessment for a specified year

For information on how to find your latitude/longitude using Google Earth, click [here](#)

Figure 1. Website data entry for TRC Farms.

Anticipated Planting Date: 2010-04-21

Crop: Flue-Cured Tobacco

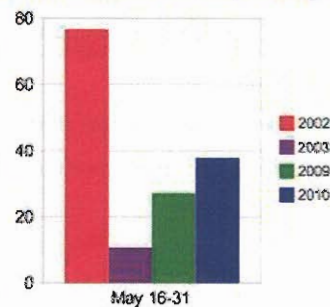
Current Treatment Used: Admire Pro (imidacloprid)

Historic Incidence: 10-25%

### Thrips Flights Dates

Year	Generation 3	Generation 4
2002	April 24	May 18
2003	May 22	June 12
2009 (previous year)	May 13	June 4
2010 (current year)	May 16	June 4

### Relative Number of Dispersing Thrips



This figure illustrates the relative numbers of thrips dispersing for 2002, 2003, 2009, and 2010 from May 16-31.

- You have told us that the historic incidence of TSWV in your field is 10-25%, and that you intend to use the following insecticides: Admire Pro (imidacloprid). The 3<sup>rd</sup> generation tobacco thrips flight is expected to begin on May 16. Your anticipated transplant date, April 21, is 25 days before this flight.
  - Because your anticipated transplant date is 25 days before the anticipated 3<sup>rd</sup> generation tobacco thrips flight, it may be necessary to preventatively treat for TSWV. A tray treatment of imidacloprid in combination with a foliar application of Actigard in the field will result in the greatest virus reduction. This Actigard application should be made 3 to 5 days before the predicted thrips flight on May 16.
  - The third generation of tobacco thrips was expected to begin dispersing to crop hosts on May 16.
- Your planting date is 25 days before the 3<sup>rd</sup> generation is expected to begin flying. A greenhouse Actigard application is expected to provide limited protection to your Flue-Cured Tobacco. If you choose to use a foliar Actigard treatment, you should apply the Actigard on May 13 because Actigard takes several days after application to become fully effective. The foliar Actigard treatment is expected to be most effective until May 27.

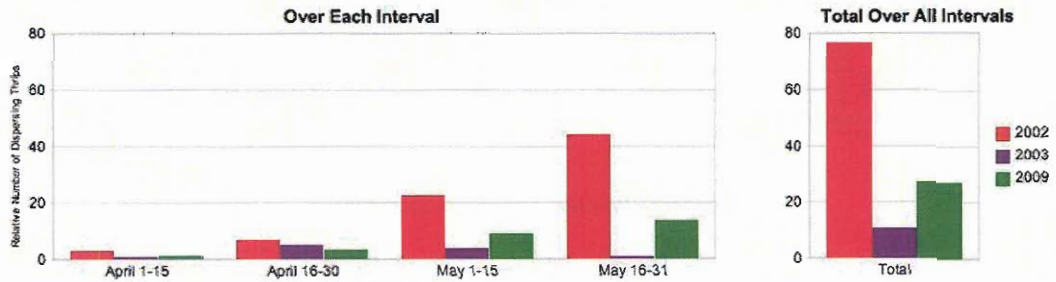
Figure 2. Current year search output (agent beta test screen).



because they disperse from weed hosts to tobacco when the tobacco is most susceptible to tomato spotted wilt.

- In most years, the third generation is most important. However, in very warm years, such as 2002, thrips generations occur earlier in the season than normal and both the third and four generations are important.
- The 3<sup>rd</sup> generation thrips flight was predicted to begin on April 24 in 2002, May 22 in 2003, and May 13 last year. The number of thrips flying was predicted to be 76 in 2002, 11 in 2003, and 27 last year.

### Relative Number of Dispersing Thrips



This figure compares the predicted number of thrips flights in each of the same years. TSWV incidence is a combination of the number of TSWV-infected weeds in the landscape, thrips population size, and thrips flight timing.

For a glossary of terms used on this page, click [here](#)

Figure 3. Historical search output.

## TSWV Prediction

- Weeds (host) Thrips (carriers); vary from year to year
- Winter (Dec, Jan, and Feb) weather – temp and precipitation – important to built up potential inoculum (virus in weeds and thrips)
- Spring important to thrips flights and virus spread
- Actigard in greenhouse may cause phyto but necessary in fields and years of high TSWV incidence

Pre-season Prediction (made in mid March)

Dec, Jan, and Feb weather – temp and precipitation

County	Weather Station	TSW risk		
		2008	2009	2010
Craven	Havelock	14 - 22	4 - 33	1 - 14
Duplin	Mount Olive	4 - 9	2 - 18	1 - 5
Sampson	Clinton	13 - 26	3 - 20	0.5 - 10
Lenoir	Kinston	4 - 11	3 - 24	1 - 12
Pitt	Ayden	1 - 4	2 - 14	0 - 3
Johnston	Clayton	0.6 - 3.5	0.3 - 4	0 - 0.5
Wilson	Sims	0 - 1	0.3 - 4	0 - 1

## Website for Preseason Prediction

Preseason TSWV - Windows Internet Explorer

http://hatteras.iseas.ncsu.edu/Rebecca/Clipreseason\_tswv/index.php

Preseason TSWV

Preseason TSWV for your location: 0.42  
The station used for this calculation is KRDU which is 15.25 miles from your location.

Map data ©2010 Google - Terms of Use

Click map to get coordinates OR Type in your Zip Code Select year

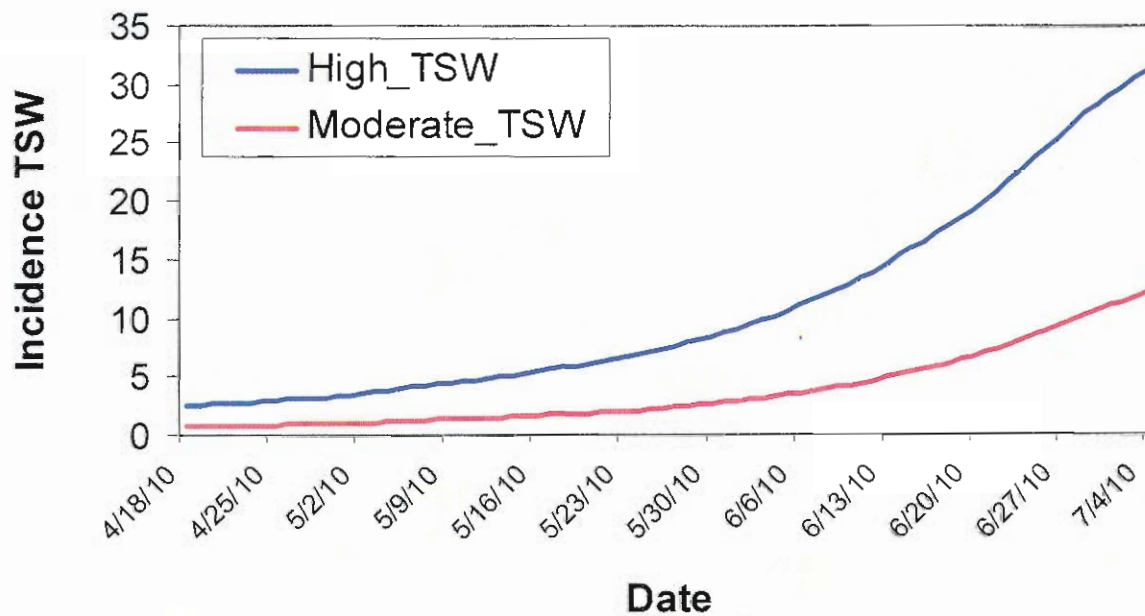
Lat:  OR Zip Code:  2010

Lon:

Submit

In-season Prediction (5-day lead)

1. Field history  
Low (<10%), Moderate (11-20%), High (21-30%), or Very High (>30%).
2. Degree Days (based on 10.5C) from transplant date and on



2010 REGIONAL TOBACCO GROWTH REGULATOR TEST  
 CUNNINGHAM RESEARCH STATION  
 KINSTON, NC

Rep III

312	311	310	309	308	307	306	305	304	303	302	301
12	10	9	4	11	3	5	6	2	8	7	1
201	202	203	204	205	206	207	208	209	210	211	212
6	11	2	5	4	9	3	8	10	7	12	1

Rep II

Wide alley

Rep IV

412	411	410	409	408	407	406	405	404	403	402	401
1	5	12	7	6	11	10	3	9	8	2	4
101	102	103	104	105	106	107	108	109	110	111	112
1	2	3	4	5	6	7	8	9	10	11	12

Rep I

Farm road

Design: Randomized Complete Block  
 Plot Size: 2-rows, 7.3' wide and 40' long.  
 Variety: NC 71 (GH Plants). Transplanted: 4-15-2010  
 Fertilization: Normal Research Station Cultural Practices.

# North Carolina State University

## 2010 REGIONAL SUCKER CONTROL TEST

JOE PRIEST LOREN FISHER SANDY STEWART SCOTT WHITLEY

Trial ID: SCK-10

Study Director:

Location: KINSTON, NC

Investigator: Joseph A Priest

Reps: 4

Plots: 7.3 by 40 feet

Spray vol: 50 gal/ac

Mix size: 3 gallons (min 1.6758)

Tt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep			
								1	2	3	4
1	TOPPED AND NOT SUCKERED							101	212	301	412
2	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	102	203	304	402
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 1.5 GPA & PRIME+ 0.5 GPA)TM	1.5		EC	2.25	lb ai/a	340.7 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
3	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	103	207	307	405
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	FLUPRO 0.5 GPA	1.2		EC	0.6	lb ai/a	113.6 ml/mx				
4	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	104	205	309	401
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	PRIME+ 0.5 GPA	1.2		EC	0.6	lb ai/a	113.6 ml/mx				
5	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	105	204	306	411
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	DREXALIN PLUS 0.5 GPA	1.2		EC	0.6	lb ai/a	113.6 ml/mx				
6	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	106	201	305	408
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	PRIME+ 0.5 GPA	1.2		EC	0.6	lb ai/a	113.6 ml/mx				
	2011 P+ Formulation to be marketed										
7	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	107	210	302	409
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 1.5 GPA & PRIME+ 0.5 GPA) TM	1.5		EC	2.25	lb ai/a	340.7 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
	2011 P+ Formulation to be marketed										
8	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	108	208	303	403
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 0.25 GPA & PRIME+ 0.5 GPA) TM	1.5		EC	0.375	lb ai/a	56.78 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
	(RMH 30 0.75 GPA & PRIME+ 0.25 GPA) TM	1.5		EC	1.125	lb ai/a	170.3 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	MH APPLIED AFTER 1ST HARVEST										
9	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	109	206	310	404
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 0.25 GPA & PRIME+ 0.5 GPA) TM	1.5		EC	0.375	lb ai/a	56.78 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
	(RMH 30 0.5 GPA & PRIME+ 0.25 GPA) TM	1.5		EC	0.75	lb ai/a	113.6 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	MH APPLIED AFTER 1ST HARVEST										
10	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	110	209	311	406
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 0.5 GPA & PRIME+ 0.25 GPA)TM	1.5		EC	0.75	lb ai/a	113.6 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	MH APPLIED AFTER 1ST HARVEST										
11	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	111	202	308	407
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	(RMH 30 1.0 GPA & PRIME+ 0.25 GPA)TM	1.5		EC	1.5	lb ai/a	227.1 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	MH APPLIED AFTER 1ST HARVEST										
12	OST 85 2.0 GPA	6.01		EC	12.02	lb ai/a	454.2 ml/mx	112	211	312	410
	OST 85 2.5 GPA	6.01		EC	15.03	lb ai/a	567.9 ml/mx				
	PRIME+ 0.5 GPA	1.2		EC	0.6	lb ai/a	113.6 ml/mx				
	RMH 30 1.0 GPA	1.5		EC	1.5	lb ai/a	227.1 ml/mx				
	MH APPLIED AFTER 1ST HARVEST										

**2010 PESTICIDE RESIDUE STUDY  
CUNNINGHAM RESEARCH STATION  
KINSTON, NC**

**REP IV**

<b>404</b> 4	<b>403</b> 1	<b>402</b> 3	<b>401</b> 2
<b>301</b> 3	<b>302</b> 4	<b>303</b> 2	<b>304</b> 1

**REP III**

**WIDE ALLEY**

**REP II**

<b>204</b> 2	<b>203</b> 1	<b>202</b> 4	<b>201</b> 3
<b>101</b> 1	<b>102</b> 2	<b>103</b> 3	<b>104</b> 4

**REP I**

**DESIGN: RANDOMIZED COMPLETE BLOCK**

**PLOT SIZE: 4-ROWS, 14.6'' WIDE AND 40' LONG. HARVEST 2 CENTER ROWS.**

**VARIETY: NC 71 (GH PLANTS). TRANSPLANTED: 4-15-10**

**FERTILIZATION: NORMAL RESEARCH STATION CULTURAL PRACTICES.**



# North Carolina State University

## 2010 PESTICIDE RESIDUE STUDY

LOREN FISHER SANDY STEWART JOE PRIEST SCOTT WHITLEY

Trial ID: PRK-10

Study Director:

Location: KINSTON, NC

Investigator: Joseph A Priest

Reps: 4

Plots: 7.3 by 45 feet

Spray vol: 20 gal/ac

Mix size: 2 gallons (min .75413)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep			
								1	2	3	4
1	BELT SC (FLUBENDIAMIDE) 4 FIELD APPLICATIONS (EACH 3 OZ/A)	4.0		SC	0.094	lb ai/a	8.895 ml/mx	101	203	304	403
2	BELAY SC (CLOTHIANIDIN) 4 FIELD APPLICATIONS (EACH 1.6 OZ/A)	2.13		SC	0.05	lb ai/a	8.885 ml/mx	102	204	303	401
3	CAPTURE LRF (BIFENTHRIN) 2 FIELD APPLICATIONS BEFORE LAYBY (EACH 8.5 OZ/A)	1.5		EC	0.1	lb ai/a	25.23 ml/mx	103	201	301	402
4	CORAGEN S (CHLORANTRANILIPROLE) TRANSPLANT H2O TREATMENT (7 OZ/A) 2 FIELD APPLICATIONS-(EACH 4.0 OZ/A)	1.67		SC	0.091	lb ai/a	20.62 ml/mx	104	202	302	404
		1.67		SC	0.052	lb ai/a	11.79 ml/mx				

Sort Order: Treatment

EVALUATION OF 11 DARK AIR-CURED VARIETIES FOR YIELD AND QUALITY

CUNNINGHAM RESEARCH STATION

KINSTON, NC

Rep III

311	Profigen 7302 5	310	Kentucky 160 3	309	KT- D4 8	308	Kentucky 171 4	307	Little Crittenden 2	306	KT- D8 10	305	NL Madole 1	304	Profigen 7312 6	303	Virginia 359 11	302	Profigen 7318 7	301	KT- D6 9
201	Profigen 7302 5	202	Profigen 7312 6	203	KT- D6 9	204	NL Madole 1	205	KT- D4 8	206	Profigen 7318 7	207	KT- D8 10	208	Virginia 359 11	209	Kentucky 171 4	210	Little Crittenden 2	211	Kentucky 160 3

Rep II

Rep IV

411	Virginia 359 11	410	Kentucky 171 4	409	KT- D6 9	408	Little Crittenden 2	407	KT- D4 8	406	Profigen 7312 6	405	Kentucky 160 3	404	KT- D8 10	403	Profigen 7302 5	402	NL Madole 1	401	Profigen 7318 7
101	NL Madole 1	102	Little Crittenden 2	103	Kentucky 160 3	104	Kentucky 171 4	105	Profigen 7302 5	106	Profigen 7312 6	107	Profigen 7318 7	108	KT- D4 8	109	KT- D6 9	110	KT- D8 10	111	Virginia 359 11

Rep I

DESIGN: Randomized Complete Block

PLOT SIZE: 2-rows, 7.3' wide and 50' long.

VARIETY: 11 Different Dark Air-Cured Varieties. TRANSPLANTED: 4-15-10

FERTILIZATION: Base fertilizer 500 lbs/a 8-0-24; sidedressing

**EVALUATION OF MH, OST AND FLUPRO FOR SUCKER CONTROL IN FLUE-CURED TOBACCO  
CUNNINGHAM RESEARCH STATION  
KINSTON, NC**

**Rep IV**

<b>409</b> <b>9</b>	<b>408</b> <b>5</b>	<b>407</b> <b>3</b>	<b>406</b> <b>1</b>	<b>405</b> <b>8</b>	<b>404</b> <b>4</b>	<b>403</b> <b>2</b>	<b>402</b> <b>6</b>	<b>401</b> <b>7</b>
<b>301</b> <b>4</b>	<b>302</b> <b>1</b>	<b>303</b> <b>8</b>	<b>304</b> <b>3</b>	<b>305</b> <b>6</b>	<b>306</b> <b>2</b>	<b>307</b> <b>7</b>	<b>308</b> <b>5</b>	<b>309</b> <b>9</b>

**Rep III**

**Rep II**

<b>209</b> <b>9</b>	<b>208</b> <b>6</b>	<b>207</b> <b>4</b>	<b>206</b> <b>2</b>	<b>205</b> <b>3</b>	<b>204</b> <b>7</b>	<b>203</b> <b>1</b>	<b>202</b> <b>5</b>	<b>201</b> <b>8</b>
<b>101</b> <b>1</b>	<b>102</b> <b>2</b>	<b>103</b> <b>3</b>	<b>104</b> <b>4</b>	<b>105</b> <b>5</b>	<b>106</b> <b>6</b>	<b>107</b> <b>7</b>	<b>108</b> <b>8</b>	<b>109</b> <b>9</b>

**Rep I**

**Design: Randomized Complete Block**

**Plot Size: 2-rows, 7.3' wide and 40' long.**

**Variety: NC 71 (GH Plants). Transplanted: 4-15-10**

**Fertilization: Normal Research Station Cultural Practices.**

# North Carolina State University

## EVALUATION OF ME, OST AND FLUPRO FOR SUCKER CONTROL IN FLUE-CURED TOBACCO LOREN FISHER SANDY STEWART JOE PRIEST SCOTT WHITLEY

Trial ID: CHEMK-10

Study Director:

Location: KINSTON, NC

Investigator: Joseph A Priest

Reps: 4

Plots: 7.33 by 40 feet

Spray vol: 50 gal/ac

Mix size: 3 gallons (min 1.3462)

Trit No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep			
								1	2	3	4
1	OST 2.0 /2.0 GPA							101	203	302	406
	(OST 1.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	6.01	lb ai/a	227.1 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(OST 1.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	6.01	lb ai/a	227.1 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(OST 1.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	6.01	lb ai/a	227.1 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
2	OST 2.0 /2.0 GPA							102	206	306	403
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
3	OST 2.0 /2.5 GPA							103	205	304	407
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
4	OST 2.0 /2.5 GPA							104	207	301	404
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(RMH-30 1.0 GPA & FLUPRO 0.25 GPA) TM	1.5		EC	1.5	lb ai/a	227.1 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
5	OST 2.0 /2.5 GPA							105	202	308	408
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(RMH-30 1.5 GPA & FLUPRO 0.25 GPA) TM	1.5		EC	2.25	lb ai/a	340.7 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
6	OST 2.0 /2.5 GPA							106	208	305	402
	(RMH-30 1.0 GPA & FLUPRO 0.5 GPA) TM	1.5		EC	1.5	lb ai/a	227.1 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
7	OST 2.0 /2.5 GPA							107	204	307	401
	(RMH-30 1.5 GPA & FLUPRO 0.5 GPA) TM	1.5		EC	2.25	lb ai/a	340.7 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
8	OST 2.0 /2.5 GPA							108	201	303	405
	(OST 2.0 GPA & FLUPRO 0.25 GPA) TM	6.01		EC	12.02	lb ai/a	454.2 ml/mx				
		1.2		EC	0.3	lb ai/a	56.78 ml/mx				
	(RMH-30 1.0 GPA & FLUPRO 0.5 GPA) TM	1.5		EC	1.5	lb ai/a	227.1 ml/mx				
		1.2		EC	0.6	lb ai/a	113.6 ml/mx				
9	TOPPED AND NOT SUCKERED							109	209	309	409

The Effects of Quadris on the Holdability of Flue-Cured Tobacco

Loren Fisher Sandy Stewart Joe Priest Scott Whitley

Trial ID: HK-10

Protocol ID:

Location: Kinston, Nc

Study Director:

Investigator: Joseph A Priest

Reps: 4

Plots: 3.67 by 40 feet

Spray vol: 20 gal/ac

Mix size: 1 gallons (min .26961)

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep			
							1	2	3	4
1	Quadris Applied 10 Days Before Normal Harvest Normal Harvest Timing	2.08	F		0.13 LB A/A	11.83 ml/mx	101	223	313	428
2	Quadris Applied 10 Days Before Normal Harvest 10 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	102	227	311	426
3	Quadris Applied 10 Days Before Normal Harvest 20 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	103	205	314	424
4	Quadris Applied 10 Days Before Normal Harvest 30 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	104	211	304	413
5	Quadris Applied At Normal Harvest Normal Harvest Timing	2.08	F		0.13 LB A/A	11.83 ml/mx	105	215	301	414
8	Quadris Applied At Normal Harvest 10 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	106	221	328	402
7	Quadris Applied At Normal Harvest 20 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	107	224	320	419
8	Quadris Applied At Normal Harvest 30 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	108	214	310	417
9	Quadris Applied 10 Days After Normal Harvest Normal Harvest Timing	2.08	F		0.13 LB A/A	11.83 ml/mx	109	220	318	410
10	Quadris Applied 10 Days After Normal Harvest 10 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	110	219	312	422
11	Quadris Applied 10 Days After Normal Harvest 20 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	111	213	322	403
12	Quadris Applied 10 Days After Normal Harvest 30 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	112	217	318	427
13	Quadris Applied 10 Days Before Normal Harvest & At Normal Harvest Normal Harvest Timing	2.08	F		0.13 LB A/A	11.83 ml/mx	113	218	321	401
14	Quadris Applied 10 Days Before Normal Harvest & At Normal Harvest 10 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	114	210	327	407
15	Quadris Applied 10 Days Before Normal Harvest & At Normal Harvest 20 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	115	225	323	420
16	Quadris Applied 10 Days Before Normal Harvest & At Normal Harvest 30 Day Harvest Delay	2.08	F		0.13 LB A/A	11.83 ml/mx	116	209	324	416
17	Quadris Applied At Normal Harvest & 10 Days After Normal Harvest Normal Harvest Timing	2.08	F		0.13 LB A/A	11.83 ml/mx	117	216	309	425

18 Quadris Applied At Normal Harvest & 10 Days After Normal Harvest 10 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	118	208	319	405
19 Quadris Applied At Normal Harvest & 10 Days After Normal Harvest 20 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	119	206	317	404
20 Quadris Applied At Normal Harvest & 10 Days After Normal Harvest 30 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	120	228	305	415
21 Quadris Applied 10 Days Before Normal Harvest & Applied At Normal Harvest & Applied 10 Days After Normal Harvest Normal Harvest Timing	2.08 F	0.13 LB A/A	11.83 ml/mx	121	222	325	412
22 Quadris Applied 10 Days Before Normal Harvest & Applied At Normal Harvest & Applied 10 Days After Normal Harvest 10 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	122	202	308	418
23 Quadris Applied 10 Days Before Normal Harvest & Applied At Normal Harvest & Applied 10 Days After Normal Harvest 20 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	123	201	328	423
24 Quadris Applied 10 Days Before Normal Harvest & Applied At Normal Harvest & Applied 10 Days After Normal Harvest 30 Day Harvest Delay	2.08 F	0.13 LB A/A	11.83 ml/mx	124	226	307	406
25 Non-Treated Normal Harvest Timing				125	207	302	408
26 Non-Treated 10 Day Harvest Delay				126	204	315	411
27 Non-Treated 20 Day Harvest Delay				127	203	306	409
28 Non-Treated 30 Day Harvest Delay				128	212	303	421

Sort Order: Treatment

Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment	Form	C Form	Type	Lot Code
354.844	ml	Quadris	2.08	F		

\* 'Per area' calculations based on spray volume= 20 gal/ac, mix size= 1 gallons (mix size basis).

\* Product amount calculations increased 25 % for overage adjustment.



**Tobacco Budworm Management in Seed Production**  
*Lower Coastal Plain Research Station*

**Principle Investigator:** Hannah Burrack

**Technician:** Anna Chapman

**Purpose**

To compare available materials for tobacco budworm management in tobacco seed production and reduce the amount of pesticide and number of applications necessary for effective budworm suppression in seed production.

<b>Treatments</b>	<b>Rate/acre</b>	<b>Application Method</b>
1. Tracer (spinosad)	1.8 fl oz	Applied weekly at first sign of tobacco budworm (TBW) larvae
2. Belt (flubendiamide)	3 fl oz	Applied biweekly at first sign of TBW larvae
3. Coragen (chlorantraniliprole)	5 fl oz	Applied biweekly at first sign of TBW larvae
4. Coragen (chlorantraniliprole)	7 fl oz	Transplant application
5. Coragen (chlorantraniliprole)	10 fl oz	Transplant application
6. Untreated Control		

Plots consist of 2, 50 ft rows and treatments were replicated 4 times each. Foliar treatments were first applied when budworms were found in the test plots (24 May 2010), and will be continued on a timed basis until seed maturity. All treatments were applied with a single solid cone nozzle using a CO<sub>2</sub> pressurized backpack sprayer with 60 psi pressure and in 30 gpa water. Spray was directed into the bud or the top of the plant, depending upon the growth stage.

Tobacco budworm (*Heliothis virescens*) are counted weekly on 20 plants in each plot (10 plants/row). The number of damaged flowers, damaged capsules, and consumed capsules is also counted weekly.

## Plot Map

401 6	402 5	403 2	404 4	405 3	406 1
301 3	302 5	303 4	304 2	305 1	306 6
201 1	202 2	203 6	204 3	205 4	206 5
101 3	102 1	103 4	104 2	105 6	106 5

**Block 1: 101-106**

**Block 2: 201-206**

**Block 3: 301-306**

**Block 4: 401-406**

## Results to Date

Foliar treatments have consistently fewer budworms than the control plots. Weekly applications of Tracer have resulted in the lowest budworm populations to date, although not significantly different from biweekly applications of Belt on any of the dates.

Systemic treatment results are more complicated. Systemic Coragen plots had fewer budworms than the untreated control on 14 June and 21 June but more than the 3 foliar treatments. Budworms in all plots decreased by 2 July, likely corresponding to the end of a generation. These plots will be assessed season long.

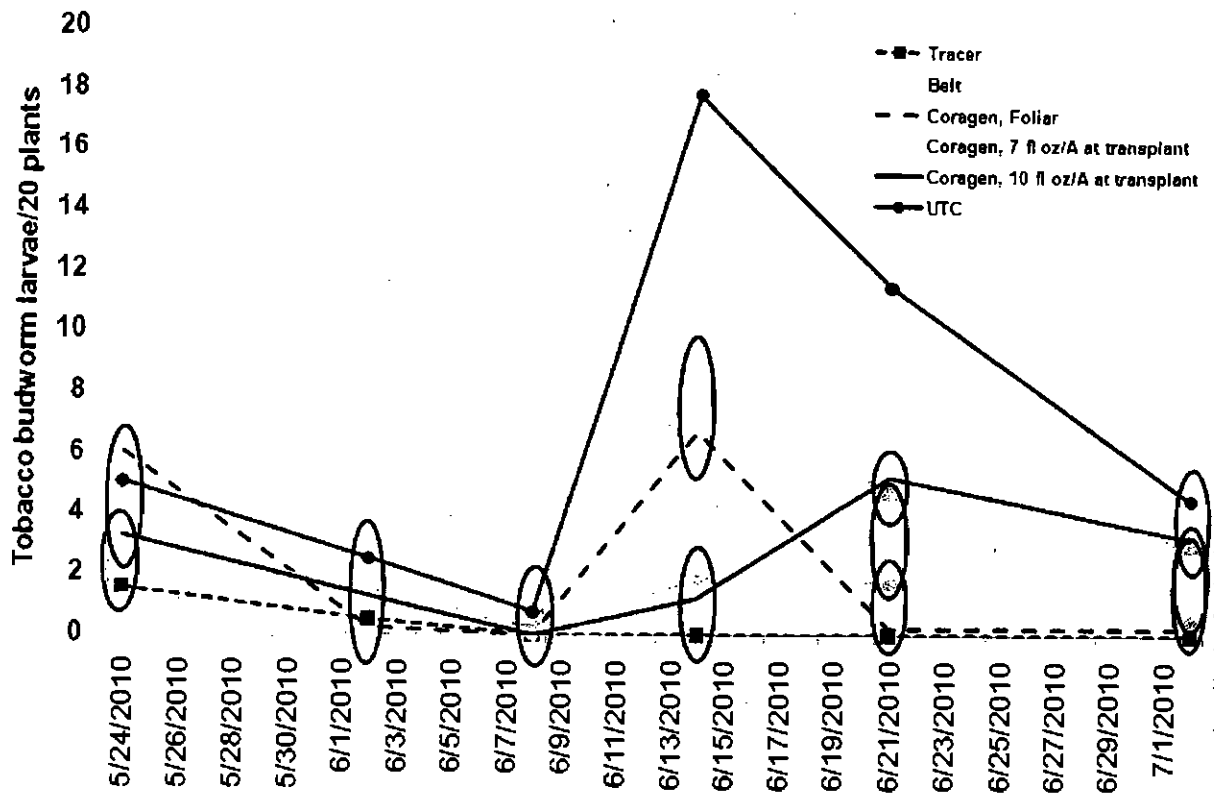


Figure 1. Tobacco budworm larvae per 20 plants.

**Tobacco Splitworm: Monitoring and Harvest Manipulation**  
*Lower Coastal Plains Research Center, Kinston, NC*

**Project Leader:** Monique Rivera

**Principle Investigator:** Hannah Burrack

**Purpose**

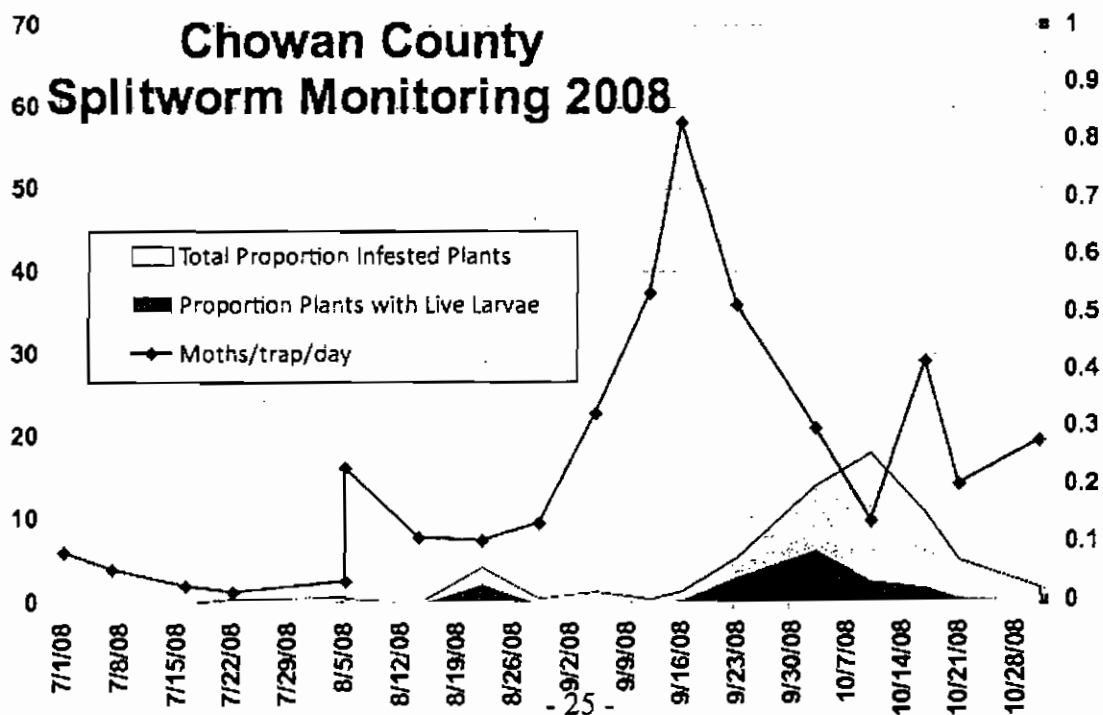
To use pheromone trap monitoring system to determine timing and annual number of splitworm generations over multiple seasons.

To simulate harvest to determine impact on splitworm establishment.

**Monitoring**

*Methods and results to date:*

The collaborative splitworm monitoring program in NC, VA, SC, and GA began the summer of 2008 and continues in its third season in 2010. Seventeen sites, in both grower fields and on station, are being monitored this season. VA, SC, and GA have four monitoring locations and in, NC 5 sites are established in the eastern region of the state (Figure 3). Each location has four pheromone traps and a weather station (Specware© tracking temperature and %relative humidity). Traps are placed around the edges of the field and adjacent to each trap, three rows of 100 plants are selected for observation of in-field damage. In North Carolina, two generations of splitworms feeding on tobacco occurred in both 2008 and 2009 (Figure 1 and 2). Two tobacco-feeding generations per season also occurred in Georgia (GA trap capture counts available online: <http://commodities.caes.uga.edu/fieldcrops/tobacco/>) over this monitoring period.



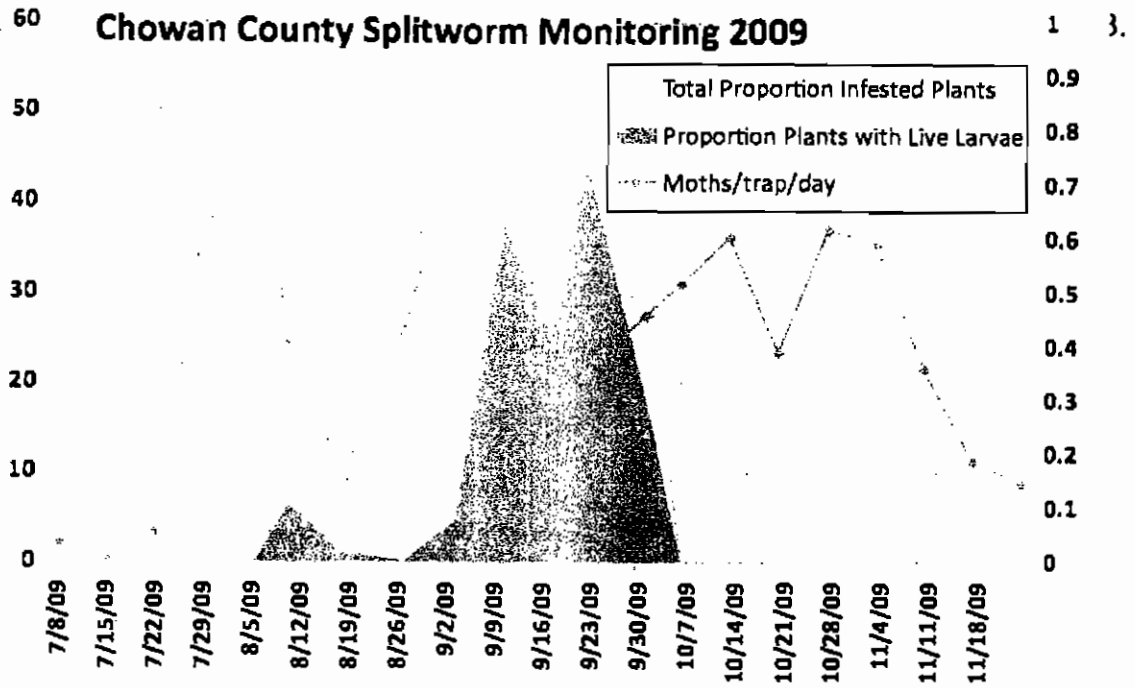


Figure 2: Trap Captures and in-field infestation from Chowan County, NC, 2009.

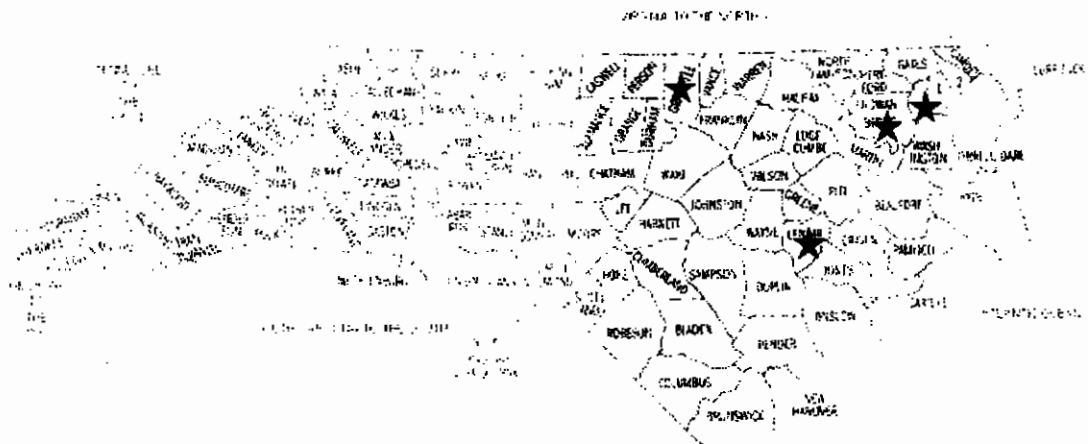


Figure 3: Location of splitworm monitoring sites in North Carolina for 2010.

## Harvest Manipulation

### *Methods and results to date:*

During observation of in-field damage in 2008, we noted splitworm damage first and sometimes only in the lower third and of the tobacco plant. Previous research on the placement of splitworm eggs in tobacco shows the female moth preferring to lay her eggs in the soil. We hypothesized that flue-cured harvest would decrease establishment of splitworms due to the increased distance just-hatched larvae would need to move to reach leaf material. To test this, in 2009 in Oxford, NC, we simulated flue-cured harvest by removing 0, 1, 2 or 3 layers of leaves of three consecutive plants and released 10 neonate larvae at the base of the middle plant's stalk observing, where, how many and how high on the plant splitworm mines formed. Each leaf removal treatment was replicated 30 times in Oxford last year. This experiment is being repeated later this year at the Oxford Tobacco Research Station and the Lower Coastal Plains Research Center. Last year, our 2 highest leaf removal treatments decreased spitworm establishment. This suggests that timeliness of harvest and curing of a field infested with splitworms would potentially decrease infestation.

In addition to this study, we are also caging 10 neonate larvae to upper, middle or lower tobacco stalk positions in Oxford, NC to see if splitworms are selecting the lower leaves of the plant because it increases performance.

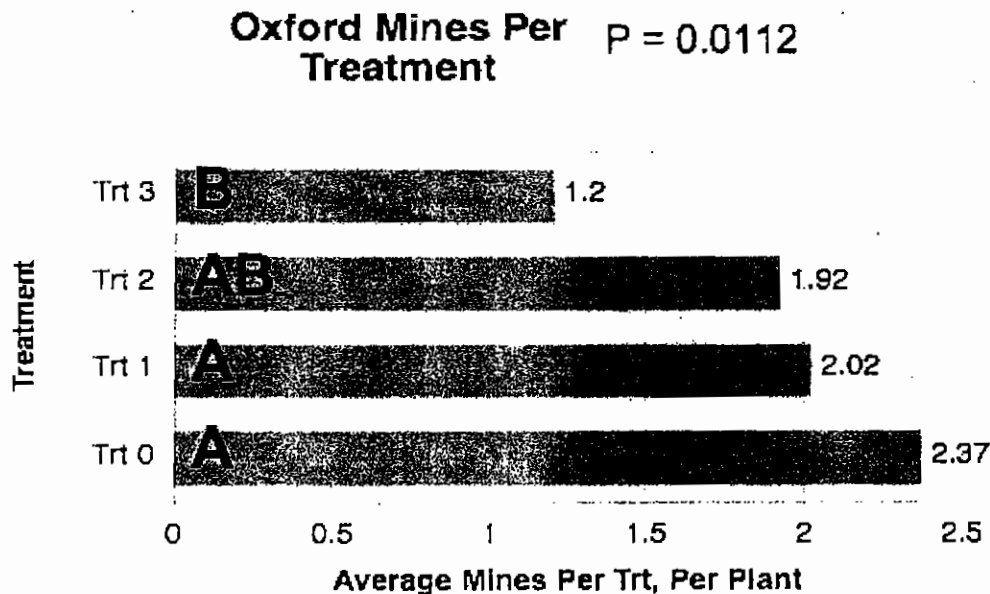


Figure 4: Harvest Manipulation Study at Oxford, NC, 2009. Removal of 0, 1, 2 or 3 levels of leaves (treatment) from tobacco plants.

## **NEW BYSTANDER RISK MITIGATION MEASURES (RMM) FOR SOIL FUMIGANTS**

The EPA released final Reregistration Eligibility Decisions (REDs) in 2009 for many soil fumigants that will have a significant impact on production practices for several key crops in North Carolina including tobacco, peanuts, strawberries, tomatoes and forestry seedlings. The new safety measures for soil fumigant pesticides are intended to increase exposure protection for agricultural workers and bystanders - people who live, work, or otherwise spend time near fields that are fumigated. The 2009 REDs apply to products that contain the following fumigant active ingredients:

- Chloropicrin
- Dazomet
- Metam sodium/potassium (including methyl isothiocyanate or MITC)
- Methyl bromide

Implementation of the REDs will be phased in from 2010 through 2012 according to the schedule below. What is actually required in the field depends on when revised labels make it to the marketplace. An applicator is only expected to follow the label directions on the products that are being applied.

### **Phase A: 2010 Labels – 2011 Implementation**

- Handler respiratory protection**
- Tarp perforation and removal restrictions**
- Reentry restrictions**
- Good Agricultural Practices (GAPs)**
- Fumigant Management Plans (FMPs)**
- Restricted Use Pesticide (RUP) classification**
- Registrant-provided handler information**

### **Phase B: 2011 Labels – 2012 Implementation**

- Buffers and buffer posting**
- Restrictions near difficult to evacuate sites**
- Emergency preparedness and response**
- Registrant-provided training and community outreach programs**

The fumigant industry and public agriculture support organizations are committed to providing comprehensive training that will cover all aspects of implementing the RMM.

During phase A, product manufacturers will provide growers with a training program for handlers that must be provided within 12 months prior to their participation in the fumigation process. This training will communicate essential information for mitigating exposure when working in or around fumigated fields.

With the release of phase B labels, registrants will be required to provide product-specific training to fumigant applicators every three years that will cover the provisions of the rules and how to calculate the distances of regulated areas. Your fumigant supplier will provide details on registrant-provided handler information and/or applicator training when you purchase product with the new labels.

In addition, the NC Tobacco Trust Fund Commission has provided the NC Agromedicine Institute (the Institute) with a RMM grant to develop a holistic training approach to help growers/applicators with the transition to the new Risk Mitigation Measures. This grant initiative has led to a close collaboration between medical/health professionals, regulatory personnel, crop production experts and pesticide educators that are dedicated to providing useful training and support materials that is relevant to the particular phase of implementing the RMM.

The training will include how to develop a fumigation plan that is best for your pest control needs, the details of the new RMM, how to calculate important parameters and a respiratory protection program (medical clearance, selection, fit, care, and purchase of respirators). Medical clearance and respirators will be made available to farms at a significantly reduced cost. The goal is to provide farms using fumigants with a 'one-stop-shop' for obtaining training, materials, and equipment necessary for complying with the new RMM.

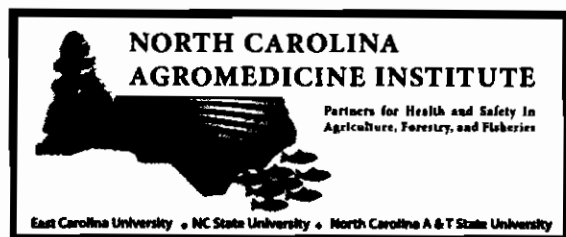
**Many events will have a sign-up sheet available. Please add your name so you can be informed of TTFC sponsored training when it is scheduled for your area!**

For more information, about the new RMM contact:

Bob Bruss  
Risk Assessment & Environmental Fate Team Manager  
Structural Pest Control & Pesticides Division  
North Carolina Depart. of Agriculture & Consumer Services  
1090 Mail Services Center  
Raleigh, NC 27699-1090  
919.733.3556 ext. 309  
[Bob.bruss@ncagr.gov](mailto:Bob.bruss@ncagr.gov)

For more information about the RMM grant from the NC Tobacco Trust Fund and/or to learn more about the NC Agromedicine Institute, contact:

Robin Tutor  
NC Agromedicine Institute  
1157 VOA Site C Road  
Greenville, NC 27834  
252.744.1045 (office)  
919.880.4225 (cell)  
[tutorr@ecu.edu](mailto:tutorr@ecu.edu)  
[www.ncagromedicine.org](http://www.ncagromedicine.org)





# Fumigant Mitigation Summary

## 2010 Labels – 2011 Implementation

- Handler respiratory protection
- Tarp perforation and removal restrictions
- Reentry restrictions
- Good Agricultural Practices (GAPs)
- Fumigant Management Plans (FMPs)
- RUP classification
- Registrant-provided handler information

# **Fumigant Mitigation Summary**

## **2011 Labels – 2012 Implementation**

- Buffers and buffer posting**
- Restrictions near difficult to evacuate sites**
- Emergency preparedness and response**
- Registrant-provided training and community outreach programs**



**North Carolina Flue-Cured Tobacco Tour  
Eastern Tour Fumigation Example – July 20<sup>th</sup>, 2010**



**Example A**

<b>Field Size:</b>	<b>25 Acres</b>	<b>10 Acres</b>	<b>10 Acres</b>
<b>Product:</b>	<b>Chlor-O-Pic</b>	<b>Chlor-O-Pic</b>	<b>Chlor-O-Pic</b>
<b>Method:</b>	<b>Shank Bed Untarped</b>	<b>Shank Bed Untarped</b>	<b>Shank Bed Untarped</b>
<b>Rate:</b>	<b>3 Gallons / Acre</b>	<b>3 Gallons / Acre</b>	<b>3 Gallons / Acre</b>
<b>Chloropicrin Applied:</b>	<b>41 Pounds / Acre</b>	<b>41 Pounds / Acre</b>	<b>41 Pounds / Acre</b>
<b>Soil Moisture @ 9 in. Depth</b>	<b>50 -69%</b>	<b>50-69%</b>	<b>≥ 70%</b>
<b>Buffer Zone:</b>	<b>388 Feet</b>	<b>175 Feet</b>	<b>88 Feet</b>
<b>Buffer Zone Monitoring:</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Sensory Monitoring, 4 Times / Day</b>
<b>Or Neighbor Notification:</b>	<b>Anyone Within 300 Feet of Buffer</b>	<b>Anyone Within 100 Feet of Buffer</b>	<b>Anyone Within 50 Feet of Buffer</b>
<b>Special Restrictions:</b>	<b>Not Within 0.25 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>

## Example B

	25 Acres	10 Acres	10 Acres
<b>Field Size:</b>			10 Acres
<b>Product:</b>	Telone C-17	Telone C-17	Telone C-17
<b>Method:</b>	Shank Bed Untarped	Shank Bed Untarped	Shank Bed Untarped
<b>Rate:</b>	10.5 Gallons / Acre	10.5 Gallons / Acre	10.5 Gallons / Acre
<b>Chloropicrin Applied:</b>	19 Pounds / Acre	19 Pounds / Acre	19 Pounds / Acre
<b>1,3-dichloropropene Applied:</b>	108 Pounds	108 Pounds	108 Pounds
<b>Soil Moisture @ 9 in. Depth</b>	50 -69%	50-69%	≥ 70%
<b>Buffer Zone:</b>	34 Feet	25 Feet	25 Feet
<b>Buffer Zone Monitoring:</b>	Sensory Monitoring, 4 Times / Day	Not Required*	Not Required*
<b><u>Or</u> Neighbor Notification:</b>	Anyone Within 50 Feet of Buffer	Not Required*	Not Required*
<b>Special Restrictions:</b>	Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site + Not Within 100 Feet of Any Occupied Structure	Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site + Not Within 100 Feet of Any Occupied Structure	Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site + Not Within 100 Feet of Any Occupied Structure

\*Special Provisions for Buffer Overlap

### Example C

<b>Field Size:</b>	<b>20 Acres</b>	<b>5 Acres</b>	<b>5 Acres</b>
<b>Product:</b>	<b>67-33 Soil Fumigant</b>	<b>67-33 Soil Fumigant</b>	<b>67-33 Soil Fumigant</b>
<b>Method:</b>	<b>Tarped Bedded</b>	<b>Tarped Bedded</b>	<b>Tarped Bedded</b>
<b>Rate:</b>	<b>12.5 Gallons / Acre</b>	<b>12.5 Gallons / Acre</b>	<b>10.75 Gallons / Acre</b>
<b>Methyl Bromide Applied:</b>	<b>117.25 Pounds / Acre</b>	<b>117.25 Pounds / Acre</b>	<b>100.5 Pounds / Acre</b>
<b>Chloropicrin Applied:</b>	<b>57.75 Pounds / Acre</b>	<b>57.75 Pounds / Acre</b>	<b>49.5 Pounds / Acre</b>
<b>Tarp:</b>	<b>Basic</b>	<b>Basic</b>	<b>VIF (60% Credit)</b>
<b>Buffer Zone:</b>	<b>323 Feet</b>	<b>94 Feet</b>	<b>30 Feet</b>
<b>Buffer Zone Monitoring:</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Sensory Monitoring, 4 Times / Day</b>
<b>Or Neighbor Notification:</b>	<b>Anyone Within 300 Feet of Buffer</b>	<b>Anyone Within 50 Feet of Buffer</b>	<b>Anyone Within 50 Feet of Buffer</b>
<b>Special Restrictions:</b>	<b>Not Within 0.25 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>

### Example D

<b>Field Size:</b>	<b>20 Acres</b>	<b>5 Acres</b>	<b>5 Acres</b>
<b>Product:</b>	<b>50-50 Soil Fumigant</b>	<b>50-50 Soil Fumigant</b>	<b>50-50 Soil Fumigant</b>
<b>Method:</b>	<b>Tarped Bedded</b>	<b>Tarped Bedded</b>	<b>Tarped Bedded</b>
<b>Rate:</b>	<b>14.3 Gallons / Acre</b>	<b>14.3 Gallons / Acre</b>	<b>12.5 Gallons / Acre</b>
<b>Methyl Bromide Applied:</b>	<b>100 Pounds / Acre</b>	<b>100 Pounds / Acre</b>	<b>87.5 Pounds / Acre</b>
<b>Chloropicrin Applied:</b>	<b>100 Pounds / Acre</b>	<b>100 Pounds / Acre</b>	<b>87.5 Pounds / Acre</b>
<b>Tarp:</b>	<b>Basic</b>	<b>Basic</b>	<b>VIF (60% Credit)</b>
<b>Buffer Zone:</b>	<b>215 Feet</b>	<b>69 Feet</b>	<b>25 Feet</b>
<b>Buffer Zone Monitoring:</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Sensory Monitoring, 4 Times / Day</b>	<b>Not Required*</b>
<b>Or Neighbor Notification:</b>	<b>Anyone Within 200 Feet of Buffer</b>	<b>Anyone Within 50 Feet of Buffer</b>	<b>Not Required*</b>
<b>Special Restrictions:</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>	<b>Not Within 0.125 Miles of Occupied Difficult-to-Evacuate Site</b>

\*Special Provisions for Buffer Overlap



**VARIOUS POTASSIUM RATES ON FLUE-CURED TOBACCO**  
**UPPER COASTAL PLAIN RESEARCH STATION**  
**ROCKY MOUNT, NC**  
**FIELD D-6 (UPPER SIDE)**  
**FERM1-10**

409 9	408 5	407 6	406 2	405 3	404 1
307 5	308 8	309 9	401 4	402 8	403 7

5' ALLEY

306 1	305 4	304 3	303 2	302 6	301 7
204 7	205 1	206 4	207 8	208 5	209 9

5' ALLEY

203 6	202 3	201 2	109 9	108 8	107 7
101 1	102 2	103 3	104 4	105 5	106 6

DESIGN: RCB

PLOT SIZE: 4-ROWS, 16' WIDE AND 40' LONG. HARVEST 2 CENTER ROWS FOR YIELD AND QUALITY.

VARIETY: NC 71 (GH PLANTS)

FERTILIZATION:

TRANSPLANTED: April 21, 2010

# North Carolina State University

Reps: 4

Plots: 16 by 40 feet

Trt No.	Treatment Name to Measure	Amt Product				Plot No.	By Rep			
		1	2	3	4		1	2	3	4
12	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 175 LBS/A 0-0-22 2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit	NA for Unit	NA for Unit	NA for Unit	112	213	316	403	
13	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 225 LBS/A 0-0-22 BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit	NA for Unit	NA for Unit	NA for Unit	113	215	311	415	
14	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 225 LBS/A 0-0-22 BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit	NA for Unit	NA for Unit	NA for Unit	114	207	304	407	
15	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 225 LBS/A 0-0-22 BANDED - JUST AFTER PLANTING	NA for Unit	NA for Unit	NA for Unit	NA for Unit	115	204	306	413	
16	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 225 LBS/A 0-0-22 2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit	NA for Unit	NA for Unit	NA for Unit	116	210	301	417	
17	BASE FERTILIZER - NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 0 LBS/A 0-0-22	NA for Unit	NA for Unit	NA for Unit	NA for Unit	117	212	313	409	

Sort Order: Treatment

POTASSIUM RATES AND APPLICATION METHODS ON FLUE-CURED TOBACCO  
 UPPER COASTAL PLAIN RESEARCH STATION  
 ROCKY MOUNT, NC  
 FIELD D-6 (UPPER SIDE)  
 FERRM1-10

					417	416	415	414	413	412	411	410
				16	2	13	5	15	4	1		
315	316	317	401	402	403	404	405	406	407	408	409	
6	12	8	10	11	12	6	3	7	14	8	17	

S' ALLEY

314	313	312	311	310	309	308	307	306	305	304	303
4	17	9	13	11	1	10	2	15	7	14	3
208	209	210	211	212	213	214	215	216	217	301	302
7	10	16	4	17	12	5	13	1	11	16	5

S' ALLEY

207	206	205	204	203	202	201	117	116	115	114	113
14	8	6	15	2	3	9	17	16	15	14	13
101	102	103	104	105	106	107	108	109	110	111	112
1	2	3	4	5	6	7	8	9	10	11	12

DESIGN: RCB  
 PLOT SIZE: 4-ROWS, 16' WIDE AND 40' LONG. HARVEST 2 CENTER ROWS FOR YIELD AND QUALITY.  
 VARIETY: NC 71  
 FERTILIZATION: 10.8 GAL/A of 30% UAN Sidedressed After Planting

Transplanted: April 21, 2010

# North Carolina State University

## VARIOUS POTASSIUM RATES & APPLICATION METHODS ON THE YIELD & QUALITY OF FC TOB.

Trial ID: FERRM1-10

Study Director: LOREN FISHER

Location: ROCKY MOUNT, NC

Investigator: Joseph A Priest

Reps: 4

Plots: 16 by 40 feet

Trt No.	Treatment Name	Amt Product to Measure	Plot No. By Rep			
			1	2	3	4
1	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 75 LBS/A 0-0-22 BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	101	216	309	411
2	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 75 LBS/A 0-0-22 BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	102	203	307	416
3	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 75 LBS/A 0-0-22 BANDED - JUST AFTER PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	103	202	303	405
4	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 75 LBS/A 0-0-22 2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit NA for Unit NA for Unit NA for Unit	104	211	314	412
5	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 125 LBS/A 0-0-22 BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	105	214	302	414
6	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 125 LBS/A 0-0-22 BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	106	205	315	404
7	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 125 LBS/A 0-0-22 BANDED - JUST AFTER PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	107	208	305	406
8	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 125 LBS/A 0-0-22 2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit NA for Unit NA for Unit NA for Unit	108	206	317	408
9	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 175 LBS/A 0-0-22 BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	109	201	312	410
10	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 175 LBS/A 0-0-22 BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	110	209	308	401
11	BASE FERTILIZER-NONE SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN 175 LBS/A 0-0-22 BANDED - JUST AFTER PLANTING	NA for Unit NA for Unit NA for Unit NA for Unit	111	217	310	402

**2010 Crop Response to Simulated Drift of Ignite, Clarity, and Weedar 64-Tobacco**  
**Upper Coastal Plain Research Station**  
**Rocky Mount, NC**

416 3	415 11	414 5	413 2	412 14	411 6	410 1	409 16
401 9	402 10	403 12	404 15	405 13	406 8	407 7	408 4

REP IV  
(5' alley)

316 4	315 16	314 3	313 5	312 1	311 7	310 12	309 2
301 14	302 9	303 11	304 10	305 6	306 13	307 15	308 8

REP III  
(5' alley)

216 7	215 15	214 13	213 4	212 8	211 1	210 6	209 11
201 12	202 2	203 14	204 5	205 9	206 10	207 16	208 3

REP II  
(5' alley)

116 16	115 15	114 14	113 13	112 12	111 11	110 10	109 9
101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8

REP I  
(farm road)

DESIGN: RCB Transplanted: April 22, 2010  
 PLOT SIZE: 1-ROW, 4' WIDE AND 40' LONG. COMMON GUARD ROW BETWEEN PLOTS.  
 VARIETY: NC-71 (GH PLANTS). Transplanted  
 FERTILIZATION: NORMAL RESEARCH STATION CULTURAL PRACTICES

# North Carolina State University

## Crop Response to Simulated Drift of Ignite, Clarity, and Weedar 64 on Tobacco

Jenny Johnson Loren Fisher David Jordan

Trial ID: HDRM-10

Study Director:

Location: ROCKY MOUNT, NC

Investigator: Joseph A Priest

Reps: 4

Plots: 4 by 40 feet

Spray vol: 15 gal/ac

Mix size: 1 gallons (min .22039)

Tt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep			
								1	2	3	4
1	IGNITE (GLUFOSINATE) (1.8 PT)	2.34		SL	0.27	lb ai/a	29.12 ml/mx	101	211	312	410
2	IGNITE (GLUFOSINATE) (1.8 PT)	2.34		SL	0.13	lb ai/a	14.02 ml/mx	102	202	309	413
3	IGNITE (GLUFOSINATE) (1.8 PT)	2.34		SL	0.067	lb ai/a	7.225 ml/mx	103	208	314	416
4	IGNITE (GLUFOSINATE) (1.8 PT)	2.34		SL	0.033	lb ai/a	3.559 ml/mx	104	213	316	408
5	IGNITE (GLUFOSINATE) (1.8 PT)	2.34		SL	0.017	lb ai/a	1.833 ml/mx	105	204	313	414
6	CLARITY (DICAMBA) (.5 PT)	4		SL	0.125	lb ai/a	7.885 ml/mx	106	210	305	411
7	CLARITY (DICAMBA) (.5 PT)	4		SL	0.03125	lb ai/a	1.971 ml/mx	107	216	311	407
8	CLARITY (DICAMBA) (.5 PT)	4		SL	0.0078	lb ai/a	0.4921 ml/mx	108	212	308	406
9	CLARITY (DICAMBA) (.5 PT)	4		SL	0.00195	lb ai/a	0.123 ml/mx	109	205	302	401
10	CLARITY (DICAMBA) (.5 PT)	4		SL	.000488	lb ai/a	.03078 ml/mx	110	206	304	402
11	WEEDAR 64 (2,4-D) (1 PT)	3.8		SL	0.24	lb ai/a	15.94 ml/mx	111	209	303	415
12	WEEDAR 64 (2,4-D) (1 PT)	3.8		SL	0.06	lb ai/a	3.984 ml/mx	112	201	310	403
13	WEEDAR 64 (2,4-D) (1 PT)	3.8		SL	0.015	lb ai/a	0.9961 ml/mx	113	214	306	405
14	WEEDAR 64 (2,4-D) (1 PT)	3.8		SL	0.00375	lb ai/a	0.249 ml/mx	114	203	301	412
15	WEEDAR 64 (2,4-D) (1 PT)	3.8		SL	0.00093	lb ai/a	.06176 ml/mx	115	215	307	404
16	UNTREATED-CHECK							116	207	315	409

Sort Order: Treatment

2010 OFFICIAL VARIETY TEST  
 UPPER COASTAL PLAIN TOBACCO RESEARCH STATION, ROCKY MOUNT, NC  
 RM-OVT

REP I		REP II		REP III			
Plot	Entry	Plot	Entry	Plot	Entry	41 entries replicated three times	
101	1	201	4	301	33	in one-row plots with 20	
102	2	202	15	302	19	harvested plants in each plot.	
103	3	203	18	303	34		
104	4	204	39	304	13	Rep I - Plots 101 - 141	
105	5	205	37	305	20	Rep II - Plots 201 - 241	
106	6	206	27	306	27	Rep III - Plots 301 - 341	
107	7	207	26	307	23		
108	8	208	25	308	39		
109	9	209	24	309	7		
110	10	210	5	310	28		
111	11	211	11	311	15		
112	12	212	34	312	37		
113	13	213	28	313	9		
114	14	214	2	314	17		
115	15	215	36	315	6		
116	16	216	14	316	22		
117	17	217	22	317	4		
118	18	218	7	318	18		
119	19	219	35	319	14		
120	20	220	12	320	31		
121	21	221	19	321	41		
122	22	222	31	322	40		
123	23	223	1	323	25		
124	24	224	16	324	32		
125	25	225	30	325	3		
126	26	226	32	326	16		
127	27	227	40	327	29		
128	28	228	10	328	11		
129	29	229	8	329	5		
130	30	230	9	330	24		
131	31	231	3	331	30		
132	32	232	41	332	35		
133	33	233	20	333	1		
134	34	234	33	334	10		
135	35	235	6	335	38		
136	36	236	21	336	8		
137	37	237	17	337	12		
138	38	238	13	338	26		
139	39	239	29	339	36		
140	40	240	23	340	2		
141	41	241	38	341	21		

2010 NORTH CAROLINA FLUE-CURED TOBACCO VARIETY TEST												
Commercial Varieties												
Trl. No.	Variety or Line	Generation or Year of Release	Pedigree	Disease Resistance <sup>1</sup>						Bn. Sp.	Virus	Sponsor
				BS	GW	FW	RK	Sp.	Virus			
1	CC 85	2007	Hybrid	R	R		MJR				CC	
2	K 149	1988	[(G-28 X 354) X (CB-139 X F-105) X (G-28 X 354)] McNair 399	M	H		R				GL	
3	CC 700	2005	Hybrid	R	R		TCNR				CC	
4	CC 35	2007	Hybrid	R	R		MJR				CC	
5	K 326	1981	McNair 225 (McNair 30 X NC 95)	L	L		R				GLCCRA	
6	GF 318	2008	Hybrid	R	R		R				GF	
7	RG 17	1993	K 326 X K 399	L	M		R				Rickard	
8	PVH 1118	2004	Hybrid	R	R		TCNR				Rickard	
9	RGH 51	1998	Hybrid	R	R		R				Rickard	
10	PVH 1596	2008	Hybrid	R	R		R				Proffgen	
11	GL 939	1992	McN 928 X 80241	R	R		R				GL	
12	K 394	1983	Speight G-28 X McNair 944	H	M						GL	
13	NC 297	1998	Hybrid	R	R		R			TMV	GL	
14	K 399	1979	(C-139 X C-319) X NC 95								GL	
15	Speight 220	2002	(K 346 X Sp 117)(SP 118 X K 346)	R	R		R				SPT	
16	NC 102	2001	Hybrid	R	R					TMV/PVY	Rickard	
17	PVH 1452	2006	Hybrid	R	R		TCNR				Proffgen	
18	GL 366	2009	Hybrid	R	R						GL	
19	Speight 225	2003	(Sp 168 X K 346)(SPA 65 X SP 168)	R	R		R				SPT	
20	GF 52	2007	Hybrid	R	R		R			TMV	GF	
21	Speight 236	2005	(SP 168 X SP 166)(SP 179 X SP 177)	R	R		R				SPT	
22	CC 37	2008	Hybrid	R	R		TCNR MJR			TMV	CC	
23	NC 198	2002	Hybrid	R	L		R				GL	
24	NC 291	1997	Hybrid	R	R		TCNR			PVY/TEV	CC	
25	NC 55	1994	(K 348 X DH 1220) X (K 326 X Coker 371-Gold)	L	L		R			PVY/TEV	GL	
26	CC 27	2003	Hybrid	R	R		TCNR			TMV	CC	
27	NC 608	1998	NC 729 X NC 82	R	R		R				Raynor	
28	NC 471	2003	Hybrid	R	R					TMV	Raynor	
29	NC 299	2001	Hybrid	R	R		TCNR				CC	
30	NC 71	1995	Hybrid	H	M		R				Rickard	
31	Speight 188	1998	Coker 371G X Spl. G 118	H	H		R				SPT	
32	GL 338	2009	Hybrid	R	R						GL	
33	CC 67	2008	Hybrid	R	R		TCNR			TMV	CC	
34	CC 13	2005	Hybrid	R	R		MJR				CC	
35	PVH 2277	2009	Hybrid	R	R						Proffgen	
36	K 346	1988	McNair 928 X 80241	H	H		R				GL	
37	NC 72	1998	Hybrid	H	L		R				Rickard	
38	Speight 227	2003	(SP 151 X K 346)(SP 202 X K 346)	R	R		R				SPT	
39	CC 33	2008	Hybrid	R	R		MJR				CC	
40	NC82	2007	Hybrid	R	R		TCNR				NC	
41	PVH 2110	2005	Hybrid								Proffgen	

<sup>1</sup>Resistance: H - High; M - Moderate; L - Low; R - Resistance; T - Tolerant; Su - Susceptible  
Diseases: BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; RK - Root Knot; Bn. Sp. - Brown spot;  
TMV - Tobacco Mosaic Virus; PVY - Potato Virus Y; TSWV - Tomato Spotted Wilt Virus;  
TCN - Tobacco Cyst Nematode; TEV - Tobacco Etch Virus; M - Meloidogyne javanica  
<sup>2</sup>Non flowering genotypes: Should be lopped at 16 harvestable leaves



2010 ADVANCED BREEDING LINES  
 UPPER COASTAL PLAIN TOBACCO RESEARCH STATION, ROCKY MOUNT, NC  
 RM-OVTA

REP I		REP II		REP III			
Plot	Entry	Plot	Entry	Plot	Entry	16 entries replicated three times	
101	1	201	9	301	7	one-row plots with 20 harvested	
102	2	202	4	302	8	plants in each plot.	
103	3	203	16	303	13		
104	4	204	10	304	6	Rep I - Plots 101 - 116	
105	5	205	5	305	1	Rep II - Plots 201 - 216	
106	6	206	1	306	2	Rep III - Plots 301 - 316	
107	7	207	11	307	10		
108	8	208	12	308	16		
109	9	209	8	309	15		
110	10	210	7	310	11		
111	11	211	15	311	9		
112	12	212	13	312	12		
113	13	213	14	313	3		
114	14	214	6	314	5		
115	15	215	3	315	14		
116	16	216	2	316	4		

**2010 NORTH CAROLINA FLUE-CURED OFFICIAL TOBACCO VARIETY TEST**

**Advanced Breeding Lines**

Trt. No.	Variety or Line	Generation or Year of Release	Pedigree	Disease Resistance <sup>1</sup>						
				BS	GW	FW	RK	Bn Sp.	Virus	Sponsor
1	NC 2326	1965	(Hicks X 9102)(Hicks)Hicks)Hicks)	L	SU	M				NC
2	NC 95	1961	(C-139 X Bel.4-30)X(C-139 X Hicks)	L	H	M				NC
3	K 326	1981	McNair 225(McNair 30 X NC 95)	L	L		R			GL
4	NCEX39	F1	Hybrid	R	R		TCN/R1&3			NC
5	CU 135	F1	Hybrid							SC
6	NCEX38	F1	Hybrid	R	R		TCN/R1&3		TMV	NC
7	CU 140	F1	Hybrid							SC
8	CU 138	F1	Hybrid							SC
9	NCEX35			R	R		R1&3			NC
10	CU 143	F1	Hybrid							SC
11	NCEX36	F1	Hybrid	R	R		TCN/R1&3			NC
12	CU 145	F1	Hybrid							SC
13	GL 395	F1	Hybrid	R	R		R			GL
14	NCEX37	F1	Hybrid	R	R		TCN/R1&3			NC
15	NCEX40	F1	Hybrid	R	R		TCN/R1&3			NC
16	NC TG 160	F1	Hybrid	R	R		TCN/R1&3			NC

<sup>1</sup>Resistance; H - High; M - Moderate; L - Low; R - Resistance; T - Tolerant; Su - Susceptible  
Diseases: BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; RK - Root Knot; Bn. Sp. - Brown spot;  
TMV - Tobacco Mosaic Virus; PVY - Potato Virus y; TSWV - Tomato Spotted Wilt Virus;  
TCN - Tobacco Cyst Nematode; TEV - Tobacco Etch Virus; M.j - Meloidogyne javanica

2010 REGIONAL FARM TEST  
 UPPER COASTAL TOBACCO RESEARCH STATION, ROCKY MOUNT, NC  
 RM-RFT

REP I		
Plot	Entry	
101	1	
102	2	
103	3	
104	4	
105	5	
106	6	
107	7	
108	8	
109	9	
110	10	
111	11	
112	12	
113	13	
114	14	
115	15	

REP II		
Plot	Entry	
201	9	
202	13	
203	5	
204	7	
205	12	
206	3	
207	6	
208	10	
209	14	
210	4	
211	11	
212	8	
213	15	
214	1	
215	2	

REP III		
Plot	Entry	
301	9	
302	2	
303	15	
304	14	
305	4	
306	3	
307	7	
308	11	
309	1	
310	8	
311	6	
312	13	
313	5	
314	12	
315	10	

REP IV		
Plot	Entry	
401	4	
402	7	
403	5	
404	11	
405	13	
406	8	
407	14	
408	2	
409	12	
410	3	
411	6	
412	15	
413	1	
414	9	
415	10	

REP V		
Plot	Entry	
501	6	
502	9	
503	5	
504	11	
505	2	
506	10	
507	1	
508	12	
509	13	
510	7	
511	3	
512	8	
513	14	
514	15	
515	4	

REP VI		
Plot	Entry	
601	10	
602	7	
603	3	
604	14	
605	2	
606	13	
607	9	
608	11	
609	8	
610	15	
611	12	
612	5	
613	1	
614	6	
615	4	

15 entries replicated six times in one-row plots with 20 harvested plants in each plot.

**2010 FLUE-CURED REGIONAL FARM TEST  
GEORGIA, SOUTH CAROLINA, NORTH CAROLINA, AND VIRGINIA**

Trt. No.	Variety or Line	Generation or Year of Release	Pedigree	Disease Resistance <sup>1</sup>							Sponsor
				BS	GW	FW	RK	Bn Sp.	Virus		
<u>REGIONAL FARM TEST</u>											
1	NC 2326	1965	(Hicks X 9102)(Hicks)Hicks)Hicks)	L	SU	M				NC	
2	NC 95	1961	(C-139 X Bel.4-30)X(C-139 X Hicks)	L	H	M	R			NC	
3	GL EX328	F1	Hybrid	R	R		R		TMV	GL	
4	CC 304	F1	Hybrid	R	R		R		TMV	CC	
5	GL 395	F1	Hybrid	R	R		R			GL	
6	AOV 911	F1	Hybrid						TMV	AO	
7	NCEX25	F1	Hybrid	R			R			NC	
8	NCEX10	F1	Hybrid	R	R		TCN/R			NC	
9	XP 248	F1	Hybrid		R		R1			Profigen	
10	CU 110	F1	Hybrid							SC	
11	NCEX24	F1	Hybrid	R	R		TCN/R			NC	
12	XP 275	F1	Hybrid		R		R1		PYV/TMV	Profigen	
13	CU 75	F1	Hybrid							SC	
14	ULT 142	F1	Hybrid						PVY	ULT	
15	ULT 112	F1	Hybrid						TMV	ULT	

<sup>1</sup>Resistance; H - High; M - Moderate; L - Low; R - Resistance; T - Tolerant; Su - Susceptible  
Diseases: BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; RK - Root Knot; Bn. Sp. - Brown spot;  
TMV - Tobacco Mosaic Virus; PVY - Potato Virus 'y'; TSWV - Tomato Spotted Wilt Virus;  
TCN - Tobacco Cyst Nematode; TEV - Tobacco Etch Virus; M.j - Meloidogyne javanica

2010 REGIONAL SMALL PLOT TEST  
 UPPER COASTAL PLAIN TOBACCO RESEARCH STATION, ROCKY MOUNT, NC  
 RM-RSP

REP I		REP II		REP III		
Plot	Entry	Plot	Entry	Plot	Entry	
101	1	201	17	301	2	31 entries replicated three times
102	2	202	2	302	16	one-row plots with 20 harvested
103	3	203	22	303	31	plants in each plot.
104	4	204	30	304	15	Rep I - Plots 101 - 131
105	5	205	28	305	7	Rep II - Plots 201 - 231
106	6	206	14	306	12	Rep III - Plots 301 - 331
107	7	207	25	307	30	
108	8	208	6	308	9	
109	9	209	24	309	29	
110	10	210	20	310	4	
111	11	211	13	311	21	
112	12	212	7	312	8	
113	13	213	3	313	18	
114	14	214	27	314	13	
115	15	215	29	315	5	
116	16	216	10	316	28	
117	17	217	16	317	25	
118	18	218	15	318	6	
119	19	219	26	319	27	
120	20	220	8	320	3	
121	21	221	19	321	22	
122	22	222	12	322	24	
123	23	223	23	323	23	
124	24	224	18	324	1	
125	25	225	4	325	19	
126	26	226	9	326	26	
127	27	227	5	327	10	
128	28	228	1	328	14	
129	29	229	11	329	20	
130	30	230	21	330	17	
131	31	231	31	331	11	

**2010 FLUE-CURED REGIONAL SMALL PLOT TEST  
GEORGIA, SOUTH CAROLINA, NORTH CAROLINA, AND VIRGINIA**

Trt. No.	Variety or Line	Generation or Year of Release	Pedigree	Disease Resistance <sup>1</sup>				Bn Sp.	Virus	Sponsor
				BS	GW	FW	RK			
1	NC 2326	1965	(Hicks X 9102)(Hicks)Hicks)Hicks)	L	SU	M				NC
2	NC 95	1961	(C-139 X Bel.4-30)(C-139 X Hicks)	L	H	M	R			NC
3	K 326	1981	McNair 225 (McNair 30 X NC95)	L	L		R			GL
4	NCEX30	F1		R	R		TCNR			NC
5	XHN 44	F1	Hybrid				R1&2			Profigen
6	CC 1093	F1	Hybrid	R	R		R			CC
7	CU 144	F1	Hybrid							SC
8	CU 137	F1	Hybrid							SC
9	GL EX 322	F1	Hybrid	R	R		R			GL
10	NCEX33	F1	Hybrid	R	R		TCNR			NC
11	NCEX29	F1	Hybrid	R	R		TCNR			NC
12	NCEX32	F1	Hybrid	R	R		TCNR			NC
13	GL EX 339	F1	Hybrid	R	R		R			GL
14	PXH 2	F1	Hybrid		R		R1		TMV	Profigen
15	CC 1063	F1	Hybrid	R	R		R			CC
16	GL EX 321	F1	Hybrid	R	R		R			GL
17	NCEX34	F1	Hybrid	R	R		TCNR			NC
18	NCEX31			R	R		TCNR			NC
19	GF 157	F8	NC 82 X 2012	R	R		R			GF
20	CU 141	F1	Hybrid							SC
21	GL EX 362	F1	Hybrid	R	R		R		PVY	GL
22	CC 26	F1	Hybrid	R	R		R			CC
23	PXH 3	F1	Hybrid		R		R1		TMV	Profigen
24	NCTG 156	F1	Hybrid	R	R		TCNR1&3			NC
25	GL EX 320	F1	Hybrid	R	R		R			GL
26	CU 136	F1	Hybrid							SC
27	PXH 1	F1	Hybrid	R1	R					Profigen
28	NCTG 158	F1	Hybrid	R	R		TCNR1&3			NC
29	CU 139	F1	Hybrid							SC
30	ULT 123 Exp	F1	Hybrid						TMV	ULT
31	ULT 143 Exp	F1	Hybrid						PVY	ULT

<sup>1</sup>Resistance; H - High; M - Moderate; L - Low; R - Resistance; T - Tolerant; Su - Susceptible  
Diseases: BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; RK - Root Knot; Bn. Sp. - Brown spot;  
TMV - Tobacco Mosaic Virus; PVY - Potato Virus Y; TSWV - Tomato Spotted Wilt Virus;  
TCN - Tobacco Cyst Nematode; TEV - Tobacco Etch Virus; MJ - Meloidogyne javanica  
<sup>2</sup>Non flowering genotypes: Should be topped at 18 harvestable leaves

**2010 OFFICIAL VARIETY TEST ON BURLEY TOBACCO (O.V.T.)  
UPPER COASTAL PLAIN RESEARCH STATION – ROCKY MOUNT, N.C.  
NORTH CAROLINA STATE UNIVERSITY CROP SCIENCE DEPARTMENT**

**LOREN FISHER   SANDY STEWART   SCOTT WHITLEY   JOE PRIEST**

**REP. 3**

G U A R D	316 2  NC 6 LC	315 9  TN 86 LC	314 13  R 610 LC	313 4  KT 200 LC	312 16  CC B67	311 6  KT 206 LC	310 15  CC B66	309 12  HB 3307 LC	G U A R D
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G U A R D	301 8  KT 210 LC	302 11  TN 97 LC	303 1  NC 5 LC	304 7  KT 209 LC	305 14  R 630 LC	306 5  KT 204 LC	307 3  NC 7 LC	308 10  TN 90 LC	G U A R D
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**WIDE ALLEY**

**REP. 2**

G U A R D	216 7  KT 209 LC	215 4  KT 200 LC	214 12  HB 3307 LC	213 11  TN 97 LC	212 9  TN 86 LC	211 1  NC 5 LC	210 5  KT 204 LC	209 15  CC B66	G U A R D
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G U A R D	201 13  R 610 LC	202 10  TN 90 LC	203 6  KT 206 LC	204 8  KT 210 LC	205 3  NC 7 LC	206 16  CC B67	207 2  NC 6 LC	208 14  R 630 LC	G U A R D
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**WIDE ALLEY**

**REP. 1**

G U A R D	116 16  CC B67	115 15  CC B66	114 14  R 630 LC	113 13  R 610 LC	112 12  HB 3307 LC	111 11  TN 97 LC	110 10  TN 90 LC	109 9  TN 86 LC	G U A R D
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G U A R D	101 1  NC 5 LC	102 2  NC 6 LC	103 3  NC 7 LC	104 4  KT 200 LC	105 5  KT 204 LC	106 6  KT 206 LC	107 7  KT 209 LC	108 8  KT 210 LC	G U A R D
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< - 18 ROWS - >

**PLOT SIZE:** 2 ROWS x 33 FT.  
**NO. OF REPETITIONS:** 3  
**NO. OF GUARD ROWS:** 2, 1 ON EACH SIDE OF TEST  
**ROW SPACING:** 48 IN.  
**PLANT SPACING:** 18 IN.  
**TRANSPLANT DATE:** 4-19-2010





		Rating Date 6/14/2010 7/7/2010					Rating Date 6/14/2010 7/7/2010		
		Rating Data Type		% BS	% BS	Rating Data Type		% BS	% BS
OVT/C	Entry No	Cv.				Entry No	Cv.		
	1	CC 65	7.6 efg	23 l-z		33	CC 67	0 g	18.2 o-A
	2	K 149	1.5 fg	26 k-x		34	CC 13	0 g	13.6 r-A
	3	CC 700	1.5 fg	23 l-z		35	PVH 2277	3 fg	13.6 r-A
	4	CC 35	28.8 c	39 e-o		36	K 346	1.5 fg	12.1 s-A
	5	K 326	1.5 fg	24 k-y		37	NC 72	0 g	25.8 k-x
	6	GF 318	0 g	21 m-A		38	SP 227	0 g	9.1 u-A
	7	RG 17	3 fg	20 n-A		39	CC 33	1.5 fg	10.6 t-A
	8	PVH 1118	1.5 fg	6.1 w-A		40	NC 92	9.1 ef	60.6 b-e
	9	RGH 51	3 fg	32 l-t		41	PVH 2110	4.5 fg	28.8 j-v
	10	PVH 1596	0 g	4.5 x-A	OVT/A	42	NC 2326	6.1 efg	28.8 j-v
	11	GL 939	0 g	6.1 w-A		43	NC 95	0 g	36.4 g-q
	12	K 394	0 g	7.6 v-A		44	K 326	0 g	27.3 j-w
	13	NC 297	1.5 fg	49 d-j		45	NCEX 39	0 g	3 yzA
	14	K 399	0 g	14 r-A		46	CU 135	0 g	7.6 v-A
	15	SP 220	1.5 fg	9.1 u-A		47	NCEX 38	0 g	4.5 x-A
	16	NC 102	0 g	32 l-t		48	CU 140	1.5 fg	28.8 j-v
	17	PVH 1452	1.5 fg	7.6 v-A		49	CU 138	0 g	4.5 x-A
	18	GL 368	7.6 efg	61 b-e		50	NCEX 35	1.5 fg	6.1 w-A
	19	SP 225	0 g	6.1 w-A		51	CU 143	1.5 fg	18.2 o-A
	20	GF 52	4.5 fg	53 d-i		52	NCEX 36	0 g	9.1 u-A
	21	SP 236	0 g	0 A		53	CU 145	7.6 efg	53 d-i
	22	CC 37	1.5 fg	38 f-p		54	GL 395	0 g	10.6 t-A
	23	NC 196	0 g	20 n-A		55	NCEX 37	0 g	34.8 h-r
	24	NC 291	3 fg	46 d-k		56	NCEX 40	0 g	6.1 w-A
	25	NC 55	0 g	41 e-n		57	NCTG160	3 fg	13.6 r-A
	26	CC 27	0 g	21 m-A	RFT	58	NC 2326	3 fg	36.4 g-q
	27	NC 606	1.5 fg	11 t-A		59	NC 95	0 g	31.8 l-t
	28	NC 471	0 g	11 t-A		60	GLEX 328	1.5 fg	33.3 h-s
	29	NC 299	1.5 fg	17 p-A		61	CC 304	0 g	10.6 t-A
	30	NC 71	0 g	7.6 v-A		62	GL 395	0 g	16.7 p-A
	31	SP 168	1.5 fg	3 yzA		63	AOV 911	4.5 fg	53 d-t
	32	GL 338	1.5 fg	12 s-A		64	NCEX 25	3 fg	4.5 x-A

	65	NCEX 10	1.5 fg	29 j-v	91	GF 157	4.5 fg	25.8 k-x
	66	XP 248	0 g	6.1 w-A	92	CU 141	0 g	7.6 v-A
	67	CU 110	1.5 fg	30 j-u	93	GLEX 362	0 g	9.1 u-A
	68	NCEX 24	0 g	7.6 v-A	94	CC 26	7.6 efg	36.4 g-q
	69	XP 275	6.1 efg	65 bcd	95	PXH 3	18.2 d	77.3 bc
	70	CU 75	0 g	21 m-A	96	NCTG 156	0 g	21.2 m-A
	71	ULT 142	0 g	24 k-y	97	GLEX 320	0 g	1.5 zA
	72	ULT 112	9.1 ef	58 c-g	98	CU 136	0 g	34.8 h-r
RSP	73	NC 2326	1.5 fg	42 e-m	99	PXH 1	0 g	24.2 k-y
	74	NC 95	4.5 fg	44 d-l	100	NCTG 158	1.5 fg	22.7 l-z
	75	K 326	6.1 efg	59 b-f	101	CU 139	0 g	13.6 r-A
	76	NCEX 30	0 g	4.5 x-A	102	ULT 123	6.1 efg	40.9 e-n
	77	XHN 44	13.6 de	80 ab	105	NC 1071	92.4 a	100 a
	78	CC 1093	0 g	27 j-w	106	NC 1071	97 a	100 a
	79	CU 144	0 g	7.6 v-A	107	NC 1071	93.9 a	100 a
	80	CU 137	0 g	29 j-v				
	81	GLEX 322	0 g	4.5 x-A				
	82	NCEX 33	0 g	14 r-A				
	83	NCEX 29	3 fg	32 h				
	84	NCEX 32	1.5 fg	23 t-z				
	85	GLEX 339	0 g	21 m-A				
	86	PXH 2	0 g	55 d-h				
	87	CC 1063	1.5 fg	4.5 x-A				
	88	GLEX 321	0 g	4.5 x-A				
	89	NCEX 34	0 g	15 q-A				
	90	NCEX 31	1.5 fg	26 k-x				
	Replicate F		8.991	6.9				
	Replicate Prob(F)		0.0002	0.0012				
	Treatment F		31.809	7.917				
	Treatment Prob(F)		0.0001	0.0001				

**Insecticide Longevity trials for Budworm/Hornworm management**  
 Upper Coastal Plain Research Station, Rocky Mount, NC  
 Cunningham Research Station, Kinston, NC

**Project Leader:** Richard Reeves

**Principle Investigator:** Hannah Burrack

**Purpose**

To determine efficacy of new lepidopteran active ingredients for management of tobacco budworm (*Heliothis virescens*) and the tobacco hornworm complex (*Manduca* spp.) in comparison to a standard.

To determine the longevity of same materials.

**Treatments:**

- |                       |             |                        |
|-----------------------|-------------|------------------------|
| 1. Tracer             | 1.8 fl oz/A | Foliar spray 30 gpa    |
| 2. Belt               | 3 oz/A      | Foliar spray, 30 gpa   |
| 3. Belt               | 3 oz/A      | Stalk spray, 50 gpa    |
| 4. Coragen            | 5 oz/A      | Foliar spray, 30 gpa   |
| 5. Coragen            | 4 oz/A      | Stalk spray, 50 gpa    |
| 6. Belt               | 3 oz/A      | Transplant application |
| 7. Belt               | 12 oz/A     | Transplant application |
| 8. Coragen            | 5 oz/A      | Transplant application |
| 9. Coragen            | 7 oz/A      | Transplant application |
| 10. Untreated control |             |                        |

**Plot Map:**

401 1	402 4	403 8	404 9	405 5	406 10	407 2	408 3	409 6	410 7
301 10	302 6	303 9	304 3	305 4	306 7	307 8	308 1	309 5	310 2
201 5	202 6	203 8	204 9	205 4	206 2	207 1	208 3	209 7	210 10
101 1	102 9	103 5	104 8	105 3	106 4	107 10	108 2	109 7	110 6

**Methods:**

Plots are 6, 50-foot rows, approximately 25 plants each. Each treatment was replicated 4 times in a randomized complete block design. All plants were treated with Admire Pro (imidacloprid) in the greenhouse (0.8 fl oz/1000 plants). Transplant applications were applied in 2 oz. mixed solution immediately following transplant (4/28). Foliar spray applications were applied using a single nozzle directed to the top of the plant at 30gpa rate. Stalk spray treatments were applied at a 50gpa rate using a three nozzle boom, with one center nozzle and two nozzles at the outside directed at 45° toward the plant. Ten (10) plants each in one row per plot were infested weekly with tobacco budworms

to determine efficacy and longevity beginning 31 May (4 weeks after transplant). The first infestation (row 1) occurred 1 day pretreatment, the 2<sup>nd</sup> (row 2) 7 days after treatment (DAT), the 3<sup>rd</sup> (row 3) at 14 DAT, the 4<sup>th</sup> (row 4) 21 DAT. Mortality and defoliation data were collected 3, 7, and 14 days after infestation (DAI) for rows 1-4 until flowering. Samples of leaf tissue from rows 5 and 6 were assayed in the lab for budworm mortality and defoliation due to flowering and topping constraints. Treatments (except transplant applications) and methods will be repeated for monitoring insecticide longevity for control of late-season infestations of hornworms.

2010 Black Shank Chemical Control x Fertilizer Trial Wilson County

25	26	27	28	29	30	31	32	33	34	35	36
2	3	9	7	9	4	6	8	2	3	5	1
13	14	15	16	17	18	19	20	21	22	23	24
8	5	6	1	9	2	6	4	5	1	7	8
1	2	3	4	5	6	7	8	9	10	11	12
9	5	2	6	8	1	3	4	7	4	7	3

2-row plots

**Black Shank Chemical Control x Fertilizer Study -- Wilson County**

Rating Data Type				StdCount	% BS	% BS	% BS	
Rating Unit				PLANT	PLANT	PLANT	PLANT	
Rating Date				5/13/2010	6/18/2010	6/25/2010	7/8/2010	
Trt No.	Treatment	Rate	Rate Unit	Grow stg				
1	Untreated Check				26.3 a	21.9 ab	47.5 b	76 abc
2	10-34-0	14.7 LB/A		atran	26.8 a	26.2 a	74.7 a	87.8 a
3	10-34-0 Ridomil Gold	14.7 LB/A 0.25 PT/A		atran atran	26.8 a	13 bc	42.9 b	69.1 bc
4	Ridomil Gold Ridomil Gold	0.25 PT/A 1 PT/A		atran 1st cult	26.5 a	11.3 bc	54.8 b	73 abc
5	Ridomil Gold Ridomil Gold Ridomil Gold	0.25 PT/A 1 PT/A 1 PT/A		atran 1st cult layby	26.8 a	8.3 c	42.1 b	63.2 cd
6	Ridomil Gold Presidio Ridomil Gold Presidio Ridomil Gold	0.25 PT/A 4 FL OZ/A 0.5 PT/A 4 FL OZ/A 0.5 PT/A		atran 1st cult 1st cult layby layby	26.5 a	2.9 c	19.7 c	48.2 de
7	Ridomil Gold Presidio Ridomil Gold Presidio Ridomil Gold	0.25 PT/A 4 FL OZ/A 1 PT/A 4 FL OZ/A 1 PT/A		atran 1st cult 1st cult layby layby	26.3 a	0.9 c	15.3 c	35.3 e
8	Ridomil Gold Presidio Presidio	0.25 PT/A 4 FL OZ/A 4 FL OZ/A		atran 1st cult layby	27 a	5.6 c	14.8 c	39.8 e
9	Telone C-17 10-34-0 Ridomil Gold	10.5 GAL/A 14.7 LB/A 1 PT/A		earlypre atran 1st cult	27 a	8.3 c	58.3 ab	83.3 ab
Replicate F					0.545	1.485	3.609	0.941
Replicate Prob(F)					0.6559	0.2439	0.0278	0.4364
Treatment F					0.697	3.942	9.928	11.081
Treatment Prob(F)					0.6908	0.0042	0.0001	0.0001



**Granville Wilt Variety Evaluation -- Wilson County**

Rating Date	5/13/2010	6/4/2010	6/18/2010	7/8/2010	
Rating Data Type	Stand Count	% GW	% GW	% GW	
Entry No Cv					
1	CC 65	26 a	9.4 a	36 a	46.3 ab
2	CC 700	25.8 a	5.7 a	17.2 c-g	36.9 a-e
3	CC 35	25.8 a	10.9 a	37.3 a	42.7 abc
4	GF 318	25.8 a	1 a	12.8 efg	18.8 efg
5	PVH 1118	26.3 a	10.4 a	31 abc	42.5 abc
6	PVH 1596	25.5 a	5.9 a	13.8 efg	17.6 efg
7	K 394	25.8 a	4.8 a	34.7 a	36.5 a-e
8	NC 102	26.5 a	9.5 a	33.3 ab	37.1 a-e
9	PVH 1452	26.3 a	4.7 a	8.6 fg	20.2 d-g
10	GL 368	26.3 a	10.4 a	29.4 a-d	29.6 a-g
11	GF 52	25.3 a	7.7 a	26.7 a-e	34.5 a-e
12	SP 236	25.8 a	1.9 a	8.7 fg	9.6 fg
13	CC 37	25.3 a	1 a	12.2 efg	26.4 a-g
14	NC 196	25.8 a	7.5 a	23.9 a-f	30.4 a-f
15	NC 291	25.3 a	6.7 a	37.5 a	48.3 a
16	NC 471	26.8 a	2.9 a	10.4 fg	17.8 efg
17	NC 299	26 a	9.5 a	30.9 abc	41.6 a-d
18	GL 338	25.5 a	3 a	9.7 fg	17.7 efg
19	CC 67	26.3 a	0.9 a	7.6 g	7.6 g
20	CC 13	25.8 a	6.5 a	18.5 b-g	21.5 c-g
21	PVH 2277	25.5 a	7 a	17.5 c-g	19.3 efg
22	CC 33	26.8 a	6.5 a	14.9 d-g	25.1 b-g
23	NC 92	26.5 a	6.7 a	22.8 a-g	33.2 a-e
24	PVH 2110	26.3 a	2.9 a	23 a-g	34.5 a-e
25	NCEX 25	26.3 a	6.7 a	22 a-g	25.7 b-g

Replicate F	1.302	0.682	7.473	11.882
Replicate Prob(F)	0.2805	0.5658	0.0002	0.0001
Treatment F	0.568	1.066	3.333	2.097
Treatment Prob(F)	0.939	0.4024	0.0001	0.0085

a or do not significantly differ (P=.05, LSD)  
 / Treatment P(F) is significant at mean comparison OSL.



**2010 DARK-AIR CURED VARIETY TRIAL  
UPPER PIEDMONT RESEARCH STATION – REIDSVILLE, N.C.  
NORTH CAROLINA STATE UNIVERSITY CROP SCIENCE DEPARTMENT**

**LOREN FISHER SANDY STEWART JOE PRIEST SCOTT WHITLEY**

230' REP. 4

401 7	402 1	403 5	404 10	405 3	406 6	407 8	408 2	409 9	410 4	411 11
PD 7318 LC	NL MODOLE LC	PD 7302 LC	KT D8 LC	KY 160	PD 7312 LC	KT D4 LC	LITTLE CRIT- TENDEN	KT D6 LC	KY 171 LC	VA 359

180'

170' REP. 3

301 9	302 7	303 11	304 6	305 1	306 10	307 2	308 4	309 8	310 3	311 5
KT D6 LC	PD 7318 LC	VA 359	PD 7312 LC	NL MODOLE LC	KT D8 LC	LITTLE CRIT- TENDEN	KY 171 LC	KT D4 LC	KY 160	PD 7302 LC

120'

110' REP. 2

201 5	202 6	203 9	204 1	205 8	206 7	207 10	208 11	209 4	210 2	211 3
PD 7302 LC	PD 7312 LC	KT D6 LC	NL MODOLE LC	KT D4 LC	PD 7318 LC	KT D8 LC	VA 359	KY 171 LC	LITTLE CRIT- TENDEN	KY 160

60'

50' REP. 1

101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8	109 9	110 10	111 11
NL MODOLE LC	LITTLE CRIT- TENDEN	KY 160	KY 171 LC	PD 7302 LC	PD 7312 LC	PD 7318 LC	KT D4 LC	KT D6 LC	KT D8 LC	VA 359

0'

< - 24 ROWS - >

96 FT.

**PLOT SIZE:** 2 ROWS x 50 FT.  
**NO. OF REPETITIONS:** 4  
**NO. OF GUARD ROWS:** 2, ONE ON EACH SIDE OF TEST  
**ROW SPACING:** 48 IN.  
**PLANT SPACING:** 28 IN.  
**ALLEY LENGTH:** 10 FT.  
**NITROGEN RATE:** 250 LBS./ACRE  
**TOTAL ACREAGE:** 96 FT. x 230 FT. = 0.51 ACRE

**TRANSPLANTING DATE:**

**2010 OFFICIAL VARIETY TEST ON BURLEY TOBACCO (O.V.T.)  
UPPER PIEDMONT RESEARCH STATION – REIDSVILLE, N.C.  
NORTH CAROLINA STATE UNIVERSITY CROP SCIENCE DEPARTMENT**

**LOREN FISHER SANDY STEWART SCOTT WHITLEY JOE PRIEST**

248'

**REP. 3**

G	309	310	311	312	313	314	315	316	G
U	2	9	13	4	16	6	15	12	U
A									A
R	NC 6 LC	TN 86 LC	R 610 LC	KT 200	CC B67	KT 206	CC B66	HB 3307	R
D				LC		LC		LC	D

215

205'

G	301	302	303	304	305	306	307	308	G
U	8	11	1	7	14	5	3	10	U
A									A
R	KT 210	TN 97 LC	NC 5 LC	KT 209	R 630 LC	KT 204	NC 7 LC	TN 90 LC	R
D	LC			LC		LC			D

172'

162'

**REP. 2**

G	209	210	211	212	213	214	215	216	G
U	7	4	12	11	9	1	5	15	U
A									A
R	KT 209	KT 200	HB 3307	TN 97 LC	TN 86 LC	NC 5 LC	KT 204	CC B66	R
D	LC	LC	LC				LC		D

129'

119'

G	201	202	203	204	205	206	207	208	G
U	13	10	6	8	3	16	2	14	U
A									A
R	R 610 LC	TN 90 LC	KT 206	KT 210	NC 7 LC	CC B67	NC 6 LC	R 630 LC	R
D			LC	LC					D

86'

76'

**REP. 1**

G	109	110	111	112	113	114	115	116	G
U	9	10	11	12	13	14	15	16	U
A									A
R	TN 86 LC	TN 90 LC	TN 97 LC	HB 3307	R 610 LC	R 630 LC	CC B66	CC B67	R
D				LC					D

43'

33'

G	101	102	103	104	105	106	107	108	G
U	1	2	3	4	5	6	7	8	U
A									A
R	NC 5 LC	NC 6 LC	NC 7 LC	KT 200	KT 204	KT 206	KT 209	KT 210	R
D				LC	LC	LC	LC	LC	D

0'

<- 18 ROWS ->

72 FT.

**PLOT SIZE:**  
**NO. OF REPETITIONS:**  
**NO. OF GUARD ROWS:**  
**ROW SPACING:**  
**PLANT SPACING:**  
**ALLEY LENGTH:**  
**ACREAGE:**

2 ROWS x 33 FT.  
3  
2, 1 ON EACH SIDE OF TEST  
48 IN.  
18 IN.  
10 FT.  
18 ROWS (72 FT.) x 248 FT. = 0.41 ACRE

**TRANSPLANTING DATE:** 5/4/2010  
**NITROGEN RATE:** 275 LBS./A.  
8-16-24

**2010 BURLEY TOBACCO REGIONAL SUCKER CONTROL TEST  
UPPER PIEDMONT RESEARCH STATION – REIDSVILLE, N.C.**

LOREN FISHER   SANDY STEWART   JOE PRIEST   SCOTT WHITLEY

162'

401 3	402 6	403 1	404 8	405 10	406 7	407 5	408 9	409 4	410 2
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129'

119'

301 8	302 9	303 2	304 5	305 3	306 1	307 4	308 10	309 6	310 7
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86'

76'

201 4	202 10	203 7	204 6	205 9	206 8	207 2	208 3	209 1	210 5
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43'

33'

101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8	109 9	110 10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

0'

< - 22 ROWS - >  
88 FT.

NO. OF REPETITIONS: 4  
INDIVIDUAL PLOT SIZE: 2 ROWS x 33 FT.  
GUARD ROWS: 1, ONE ON EACH SIDE OF TEST  
ROW SPACING: 4 FT.  
PLANT SPACING: 18 IN.  
ALLEY LENGTH: 10 FT.  
TOTAL ACREAGE: 88 FT. x 161 FT. = **0.33 ACRE**

**2010 BURLEY REGIONAL SUCKER CONTROL TEST - UPPER PIEDMONT RESEARCH STATION -  
REIDSVILLE, N.C.**

**Protocol ID: 10BRSCREID**

**Location: REIDSVILLE, N.C.**

**Study Director: LOREN FISHER/JOE PRIEST/SCOTT WHITLEY**

**Investigator: Joseph A Priest**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Description
1	TOPPED, NOT SUCKERED						
2	ROYAL MH-30 @ 2.0 GPA	1.5	EC	3.0	LB A/A	AT	
3	ROYAL MH-30 @ 1.5 GPA	1.5	EC	2.25	LB A/A	AT	
4	ROYAL MH-30 @ 1.5 GPA + PRIME PLUS @ 0.5 GPA (TM)	1.5	EC	2.25	LB A/A	AT	
		1.2	EC	0.6	LB A/A	AT	
5	ROYAL MH-30 @ 1.5 GPA + DREXALIN PLUS @ 0.5 GPA (TM)	1.5	EC	2.25	LB A/A	AT	
		1.2	EC	0.6	LB A/A	AT	
6	ROYAL MH-30 @ 1.0 GPA + BUTRALIN @ 0.5 GPA (TM)	1.5	EC	1.5	LB A/A	AT	
		1.2	EC	0.6	LB A/A	AT	
7	PRIME PLUS @ 1.0 GPA (CURRENT FORMULATION)	1.2	EC	1.2	LB A/A	AT	
8	PRIME PLUS @ 1.0 GPA (OLD FORMULATION)	1.2	EC	1.2	LB A/A	AT	
9	DREXALIN PLUS @ 1.0 GPA	1.2	EC	1.2	LB A/A	AT	
10	BUTRALIN @ 1.0 GPA	1.2	EC	1.2	LB A/A	AT	

Replications: 4, Design: Randomized Complete Block, Treatment units: US standard, Treated plot size Width: 8 feet, Treated plot size Length: 33 feet, Application volume: 50 gal/ac, Mix size: 2.5 gallons, Format definitions: G-A117.DEF, G-A117.FRM

**2010 PESTICIDE RESIDUE STUDY ON BURELY TOBACCO  
UPPER PIEDMONT RESEARCH STATION  
REIDSVILLE, NC**

401 4	402 3	403 1	404 2	405 5
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REP IV

SMALL ALLEY

301 3	302 5	303 2	304 1	305 4
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REP III

SMALL ALLEY

201 5	202 4	203 1	204 2	205 3
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REP II

SMALL ALLEY

101 1	102 2	103 3	104 4	105 5
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REP I

**DESIGN: RCB**

**PLOT SIZE: 4-ROWS, 33' LONG. Will COLLECT RESIDUE SAMPLES ON 2 CENTER ROWS.**

**VARIETY: KT 204 (GH PLANTS). TRANSPLANTED:5-4-10**

**FERTILIZATION: NORMAL RESEARCH STATION CULTURAL PRACTICES ON BURLEY TOBACCO.**

# North Carolina State University

2010 PESTICIDE RESIDUE STUDY ON BURLEY TOBACCO  
LOREN FISHER SANDY STEWART JOE PRIEST SCOTT WHITLEY

Trial ID: BUR-10

Protocol ID:

Location: REIDSVILLE, NC

Study Director:

Investigator: Joseph A Priest

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Appl Description
1	BELT SC (FLUBENDIAMIDE) 4 FIELD APPLICATIONS (EACH 3 OZ/A)	4.0	SC	0.094	LB A/A			
2	BELAY SC (CLOTHIANIDIN) 4 FIELD APPLICATIONS (EACH 1.6 OZ/A)	2.13	SC	0.05	LB A/A			
3	CAPTURE LRF (BIFENTHRIN) 2 FIELD APPLICATIONS BEFORE LAYBY (EACH 8.5 OZ/A)	1.5	EC	0.1	LB A/A			
4	CORAGEN S (CHLORANTRANILIPROLE) TRANSPLANT H2O TREATMENT (7 OZ/A) 2 FIELD APPLICATIONS-(EACH 4.0 OZ/A)	1.67	SC	0.091	LB A/A			
		1.67	SC	0.052	LB A/A			

Replications: 4, Untreated treatments: 1, Design: Randomized Complete Block, Treatment units: US standard, Treated plot size Width: 16 feet, Treated plot size Length: 33 feet, Application volume: 20 gal/ac, Mix size: 2 gallons, Mix overage: 25%, Format definitions: G-A117.DEF, G-A117.FRM

Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
4.313	ml	BELT SC (FLUBENDIAMIDE)	4.0	SC	
4.308	ml	BELAY SC (CLOTHIANIDIN)	2.13	SC	
12.234	ml	CAPTURE LRF (BIFENTHRIN)	1.5	EC	
10.000	ml	CORAGEN S (CHLORANTRANILIPROLE)	1.67	SC	
5.714	ml	2 FIELD APPLICATIONS-(EACH 4.0 OZ/A)	1.67	SC	

\* 'Per area' calculations based on 4 replicates of 16 by 33 feet plots (area of one treatment).

\* 'Per area' calculations based on spray volume= 20 gal/ac, mix size= 2 gallons (mix size basis).

**2010 BURLEY TOBACCO REGIONAL QUALITY TEST (R.Q.T.)  
UPPER PIEDMONT RESEARCH STATION – REIDSVILLE, N.C.  
NORTH CAROLINA STATE UNIVERSITY CROP SCIENCE DEPARTMENT**

**LOREN FISHER   SANDY STEWART   SCOTT WHITLEY**

155'

**REP. 3**

301 8	302 4	303 9	304 6	305 1	306 3	307 10	308 5	309 2	310 7
ULT 698	ULT 612	EHB169P	EHB162P	KY 14 LC	HB4488P	EHB167P	GF 9050	VA 509	ULT 611

110'

100'

**REP. 2**

201 3	202 5	203 7	204 10	205 8	206 2	207 9	208 1	209 6	210 4
HB4488P	GF 9050	ULT 611	EHB167P	ULT 698	VA 509	EHB169P	KY 14 LC	EHB162P	ULT 612

55'

45'

**REP. 1**

101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8	109 9	110 10
KY 14 LC	VA 509	HB4488P	ULT 612	GF 9050	EHB162P	ULT 611	ULT 698	EHB169P	EHB167P

0'

< - 22 ROWS - >  
88 FT.

**PLOT SIZE:** 2 ROWS x 45 FT.  
**NO. OF REPETITIONS:** 3  
**NO. OF GUARD ROWS:** 2, 1 ON EACH SIDE OF TEST  
**ROW SPACING:** 48 IN.  
**PLANT SPACING:** 18 IN.  
**ALLEY LENGTH:** 10 FT.  
**ACREAGE:** 22 ROWS (88 FT.) x 155 FT. = 0.31 ACRE

**TRANSPLANTING DATE:** 5/27/2010  
**NITROGEN RATE:** 275 LBS./A. 8-16-24

**Lepidopteran management with newer insecticides**  
*Stokes County*

**Principle Investigator:** Hannah Burrack

**Technician:** Anna Chapman

**Extension Cooperator:** Tim Hambrick

**Grower Cooperators:** Danny and Tony Boles

**Purpose**

To compare available materials and application methods for tobacco budworm and tobacco/tomato hornworm management in flue cured tobacco.

**Treatments**

- |                 |                          |  |
|-----------------|--------------------------|--|
| 1. Tracer       | 1.8 fl oz/A              | Foliar application                                       |
| 2. Belt         | 3 oz/A                   | Foliar application                                       |
| 3. Coragen      | 5 oz/A                   | Foliar application                                       |
| 4. Coragen      | 7 oz/A                   | Transplant application                                   |
| 5. Coragen      | 7 oz/A                   | At first cultivation                                     |
| 6. Coragen + MH | 5 fl oz/A + labeled rate | Foliar, field (post topping,<br>sucker control tank mix) |
| 7. Belt + MH    | 3 fl oz/A + labeled rate | Foliar, field (post topping,<br>sucker control tank mix) |
| 8. UTC          |                          |  |

**Plot Map**

401 3	402 1	403 7	404 2	405 8	406 4	407 5	408 6
301 6	302 8	303 7	304 3	305 2	306 1	307 5	308 4
201 7	202 4	203 3	204 1	205 5	206 6	207 8	208 2
101 2	102 8	103 3	104 7	105 1	106 6	107 5	108 4

**Methods**

Plots were established and tobacco seedlings (var. NC 196) were planted on 3 May 2010. Immediately after transplant



On 27 May, Treatment 5 (a soil application of Coragen) was applied and all plots were cultivated by the grower. A large population of tobacco/tomato hornworms was noted during the second week of June, but heavy rains prevented assessment at this time. All plots were assessed for native tobacco budworm and tobacco/tomato hornworms on 24 June, and only tomato hornworm larvae were present in the field. The total number of budworms and the number of hornworm damaged plants were counted in Rows 2 & 3 for each plot. There were insufficient hornworms to compare treatments, but budworms and the number of hornworm damaged plants were analyzed via ANOVA (SAS Proc GLM, means separated via Tukey).

Because overall tobacco budworm populations were low and non uniform, 10 plants each in Rows 2 & 3 (20 plants/plot) were infested with laboratory reared budworm larvae obtained from BioServ Laboratories (Frenchtown, NJ) after counts were made on 24 June. Two hours after infesting, all foliar applications (Treatments 1, 2, and 3) were made. Post treatments counts were taken 4, 7, and 14 days after treatment (28 June, 1 July, and 8 July). Post treatment assessments included budworm mortality and leaf area loss counts. Data were analyzed via ANOVA (SAS Proc Mixed, means separated via LSD).

### Results to Date

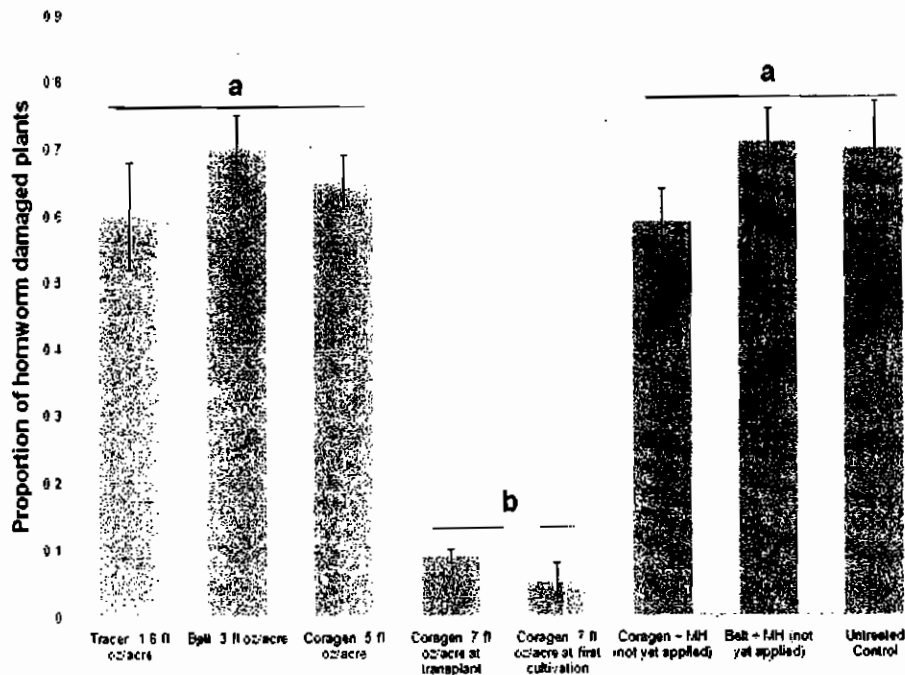


Figure 1. Hornworm damaged plants in all plots, 24 June (26 days after transplant). Means indicated by the same letter are not significantly different ( $\alpha = 0.05$ , Tukey's HSD).

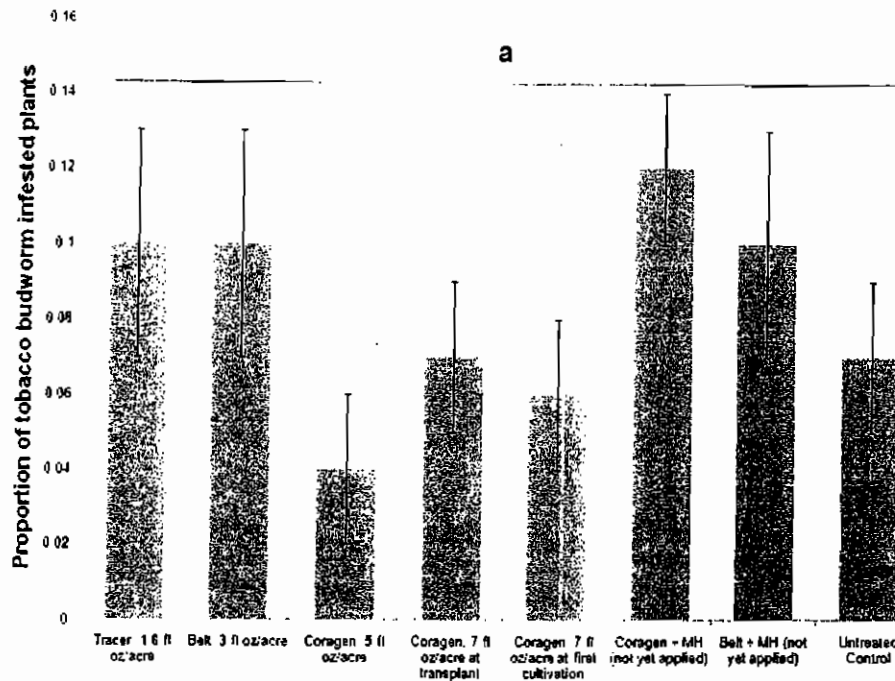


Figure 2. Proportion of tobacco budworm infested plants per plot, 24 June (26 days after transplant). Means indicated by the same letter are not significantly different ( $\alpha = 0.05$ , Tukey's HSD).

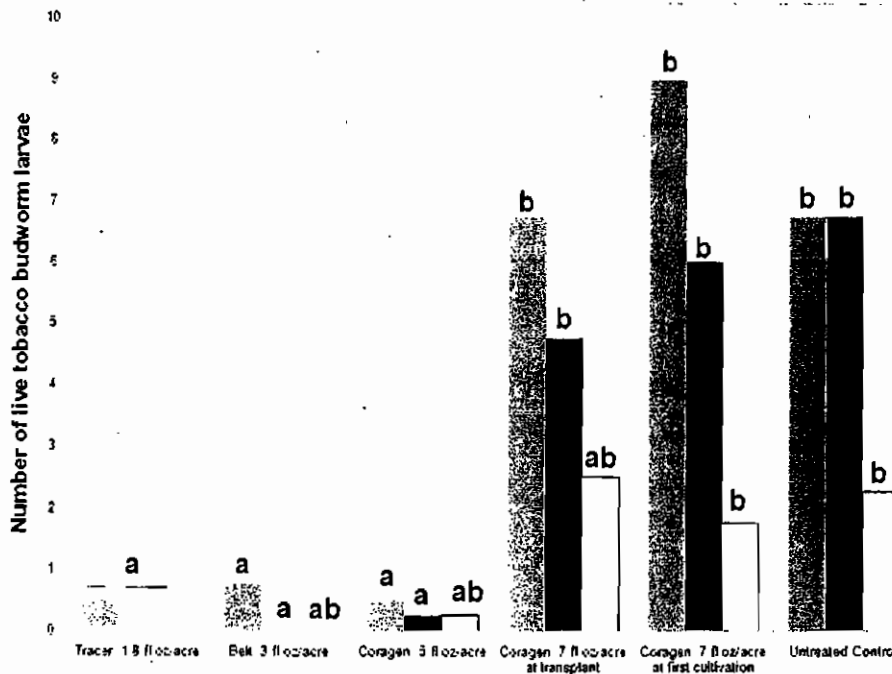


Figure 3. Live tobacco budworm larvae (of 20 total released) in foliar or soil treated plots 4, 7, and 14 days after foliar applications were made. Means indicated by the same letter are not significantly different ( $\alpha = 0.05$ , LSD).

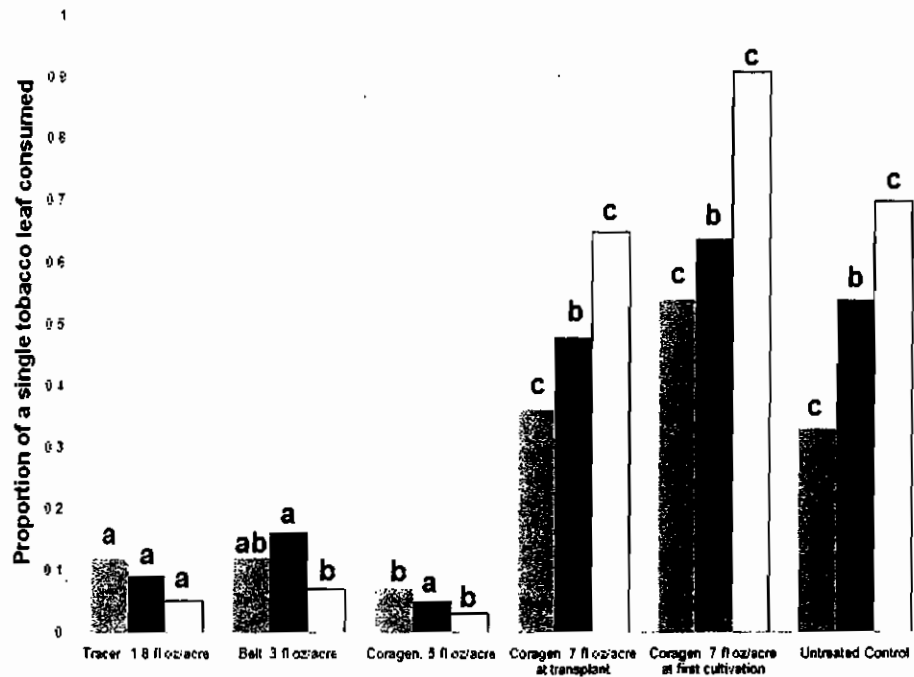


Figure 4. Proportion of a single leaf consumed by tobacco budworm larvae (data collected on the top 7 leaves of each plant) for foliar or soil treated plots 4, 7, and 14 days after foliar applications were made. Means indicated by the same letter are not significantly different ( $\alpha = 0.05$ , LSD).

2010 Black Shank Variety Evaluation -- Surry County

Rep 4	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
	19	25	14	10	9	5	4	17	21	8	7	13	3	1	23	18	22	6	15	20
Rep 3	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
	24	5	7	18	19	13	15	2	23	16	14	11	22	9	10	16	12	24	11	2
Rep 2	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	18	21	7	12	3	17	24	20	2	19	6	17	21	8	3	12	4	25	1	1
Rep 1	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	7	4	19	12	18	15	4	9	23	11	14	1	5	6	10	8	16	13	22	25
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	13	5	15	22	16	23	17	3	20	9	2	25	21	24	6	10	11	14	1	8

**Black Shank Variety Evaluation -- Surry County**

Rating Date		6/8/2010	7/6/2010
Rating Data Type		Stand Ct	% BS
Entry No	Cv.		
1	CC 65	25 abc	0 c
2	CC 700	21.8 cde	0 c
3	CC 35	23.3 b-e	0 c
4	K 326	19.5 e	7.2 b
5	GF 318	25.8 abc	2 bc
6	PVH 1118	22 cde	2.2 bc
7	PVH 1596	27.5 a	1.8 bc
8	NC 102	24.5 a-d	1.1 c
9	PVH 1452	23.3 b-e	0 c
10	GL 368	25.8 abc	0.9 c
11	GF 52	22.3 b-e	0 c
12	SP 236	25.3 abc	0.9 c
13	CC 37	20.8 de	3.3 bc
14	NC 196	23 b-e	0 c
15	NC 299	22.5 b-e	1.2 bc
16	GL 338	24.5 a-d	0 c
17	CC 67	19.8 e	1.9 bc
18	CC 13	24 a-d	3.3 bc
19	PVH 2277	23.3 b-e	2.1 bc
20	K 346	21.8 cde	0 c
21	CC 33	25.3 abc	2.9 bc
22	NC 92	26.3 ab	1.1 c
23	PVH 2110	25.5 abc	5.1 bc
24	NC 1071	24.5 a-d	14 a
25	L8	23 b-e	1.1 c
Replicate F		2.378	0.454
Replicate Prob(F)		0.0769	0.7153
Treatment F		1.857	2.066
Treatment Prob(F)		0.0234	0.0097

2010 Black Shank Variety x Chemical Control Trial -- Surry County

ARM 2	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	4	1	2	3	7	5	6	8	2	3	1	4	8	6	7	5
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	2	3	4	8	7	6	5	3	2	4	1	5	7	8	6
ARM 1	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	3	2	4	1	6	7	5	8	11	9	12	10	3	2	1	4
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	10	9	11	12	4	1	3	2	8	5	7	6	11	10	9	12
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	6	7	5	8	12	11	9	10	1	2	3	4	7	8	6	5

**Black Shank Variety x Chemical Control Trial (ARM 1) -- Surry County**

Rating Data Type				Stand Ct	% BS
Rating Date				6/8/2010	7/6/2010
Trt No	Treatment	Rate	Rate Ur	Grow Stg	
1	CC 35 Untreated Check				22 a 0 a
2	CC 35 + Ridomil Gold	0.25 PT/A		atran	24.3 a 0 a
3	CC 35 + Ridomil Gold	1 PT/A		1st Cult	21.8 a 0 a
4	CC 35 + Ridomil Gold	1 PT/A		Layby	22 a 0 a
5	K 346 + Untreated Check				22 a 0 a
6	K 346 + Ridomil Gold	0.25 PT/A		atran	25.3 a 0 a
7	K 346 + Ridomil Gold	1 PT/A		1st Cult	22.8 a 0 a
8	K 346 + Ridomil Gold	1 PT/A		Layby	23.8 a 0 a
9	SP 236 + Untreated Check				21.3 a 0 a
10	SP 236 + Ridomil Gold	0.25 PT/A		atran	25.3 a 0 a
11	SP 236 + Ridomil Gold	1 PT/A		1st Cult	23.3 a 0.9 a
12	SP 236 + Ridomil Gold	1 PT/A		Layby	19.8 a 0 a
Replicate F				1.329	1
Replicate Prob(F)				0.2855	0.4079
Treatment F				1.048	1
Treatment Prob(F)				0.4349	0.4715

**Black Shank Variety x Chemical Control Trial (ARM 2) -- Surry County**

Rating Data Type					Stand Ct	% BS
Rating Date					6/8/2010	7/6/2010
Trt No	Treatment	Rate	Rate	Grow stg		
1	NC 196 Untreated Check				22.5 a	0 a
2	NC 196 + Ridomil Gold Ridomil Gold Ridomil Gold	0.25	PT/A	attran 1st Cult Layby	22.3 a	0 a
3	NC 196 + Ridomil Gold Ridomil Gold	1	PT/A	1st Cult Layby	21 a	0 a
4	NC 196 + Ridomil Gold	1.5	PT/A	1st Cult	20.5 a	0 a
5	K 326 + Untreated Check				23.3 a	3.1 a
6	K 326 + Ridomil Gold Ridomil Gold Ridomil Gold	0.25	PT/A	attran 1st Cult Layby	22 a	0 a
7	K 326 + Ridomil Gold Ridomil Gold	1	PT/A	1st Cult Layby	22.5 a	0 a
8	K 326 + Ridomil Gold	1.5	PT/A	1st Cult	23.5 a	0 a
Replicate F					0.471	1
Replicate Prob(F)					0.7065	0.4155
Treatment F					0.211	2.553
Treatment Prob(F)					0.9784	0.0516



## **TRAFFIC MANAGERS**

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