Eastern North Carolina Combined Flue-Cured and Burley Tobacco Tour

July 20-21, 2009

North Carolina Cooperative Extension Service

North Carolina State University

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PLANT PATHOLOGY

Altria Client Services
AMVAC Chemical Corporation
Bayer CropScience
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United Phosphorus Inc.
Universal Leaf
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NORTH CAROLINA COMBINED FLUE-CURED & BURLEY TOBACCO TOUR 2009

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Crop Science

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Biological & Agricultural Engineering

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Entomology:
Anna V. Chapman

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July 2009

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*Welcome Dinner * Monday evening*

BeltWide Incorporated
*Breakfast * Tuesday morning*

RJ Reynolds Tobacco Company
*Lunch * Tuesday afternoon*

Alliance One Tobacco USA
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Universal Leaf North America US, Inc.
US Tobacco Co-op, Inc.

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

2009 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.

Location	Cooperator	Test Supervisor
	Plant Pathology	
Black Shank Variety Evaluation		
Surry	Eddie Johnson	Joanna Radford
Wilkes	Toby Speaks	Matthew Miller
Yadkin	Hassell Brown	Nancy Keith
UCPRS		Lewis Pitt
Granville Wilt Variety Evaluation		
Edgecombe	Jeff Lancaster	Art Bradley
Black Shank Chemical Trials		
Forsyth	Buck Byerly	Tim Hambrick
Johnston	Randy Edwards	Bryant Spivey
Rockingham	Wayne & Byron Ellington	Rickey Williams
Rockingham	Mike Herbin	Rickey Williams
Wilson	Garey Futrell	Norman Harrell
Yadkin	Alex Shugart	Nancy Keith
UCPRS		Lewis Pitt
Fumigant Nematode Control		
Hoke	Eddie Baker	Keith Walters
Organic Nematode Control		
Moore	Billy Carter	Taylor Williams
Tomato Spotted Wilt Virus Chemical Control Demonstration		
Craven	Mike Roach	Mike Carroll
Tomato Spotted Wilt Virus Monitoring		
Duplin		Curtis Fountain
Edgecombe		Art Bradley
Johnston		Bryant Spivey
Jones		Jacob Morgan
Pitt		Mitch Smith
Sampson		Tray Bridgers
Sampson		Tray Bridgers
Wilson		Norman Harrell

Entomology

Location	Cooperator	Test Supervisor
TSWV Suppression/Foliar Actigard Timing		
Craven County	Gary Amerson	Mike Carroll
Duplin County	Warren Sloan	Curtis Fountain
Organic Aphid Mangement		
Rockingham County	Mike McKinney	Ricky Williams/Scott Shoulars
Neonicotiniod Phytotoxicity, Insect Control, and TSWV Supression		
Wilson County	Joey Holland	Norman Harrell/Bryant Spivey
Wireworm Control		
Border Belt Tobacco Research Station/Columbus County		Jimmy Ray Horton
Budworm Control/New Insecticide Test		
Central Crops Research Station/Johnston County		Philip Bunn
Stokes County	David McKinney	Tim Hambrick
Wilson County	Joey Holland	Norman Harrell/Bryant Spivey
Hornworm Control		
Central Crops Research Station/Johnston County		Philip Bunn

Crop Science

Location	Test Type
Whiteville Ray Horton Superintent	Herbicide Screening Study OVT; OVTA; RSP; RV; RFT
Kinston Randy Stancil Tobacco Supervisor	Regional Sucker Control Study Simulated Drift with Ignite, Clarity and Weedar 64 Study Evaluation of Suckercides for Sucker Control Study Pesticide Residue Study Dark Air-Cured Study Flue-cured and Burley OVT; OVTA; RSP; RFT; THA Evaluation of CJX-0202 Adjuvant for Sucker Control Study
Rocky Mount Study Lewis Pitts Methods) Tobacco Supervisor Tobacco	Evaluation of CJX-0202 Adjuvant for Sucker Control Fertilizer Study (Various Potassium Rates & Application Fertilizer Study (Various Potassium Rates) Simulated Hail Damage on Flue-Cured and Burley Simulated Drift with Ignite, Clarity and Weedar-64 Study Flue-cured and Burley OVT; OVTA; RFT
Clayton Philip Bunn Tobacco Supervisor	OVT; OVTA
Oxford Carl Watson Methods) Tobacco Supervisor	Regional Sucker Control Study Fertilizer Study (Various Potassium Rates & Application Fertilizer Study (Various Potassium Rates) OVT; OVTA; RSP; RFT Effectiveness of Suckercides Pre-Mixed & Applied Over Time
Reidsville Auman French Tobacco Supervisor	Dark Air-Cured Study Burley OVT Study Burley Regional Quality Study Burley Regional Preliminary Study Burley Regional Sucker Control Study Burley Sucker Control Study

Location	Test Type	
Laurel Springs Tony Bare Tobacco Supervisor	Burley OVT Study Burley Regional Sucker Control Study Burley Regional Quality Study Burley Sucker Control Study Dark Air-Cured Study	
Stokes Co. (Grower) Tim Hamrick (Grower) Extension Agent	Phosphorous Study (Flue-Cured) Fertilizer Study with Nutrisphere (Burley)	Hunter Farms Jones Farm
Johnston/Wilson Co. (Grower) Bryant Spivey County Extension Director Norman Harrell Extension Agent	Sucker Control Study (Flue-Cured) Fertilizer Study	Holland Farms

North Carolina Flue-Cured & Burley Tobacco Tour
Driving Directions and Schedule

Monday July 20

Time		Miles
2:00 pm	**NCSU Campus**	
	Ag Engineering - Automated Wood Chip Fired Hot Water System for Curing	
	NO TRAFFIC PROTECTION * ON YOUR OWN	
	From NCSU Campus to Doubletree Hotel, Rocky Mount, NC	
	Left out of parking lot onto Varsity Dr	0.1
	Right onto Western Blvd	0.8
	Right onto ramp for I 440 E/US 1 N	10.8
	Take exit 14 to merge onto US 264 E/US 64 E	46.8
	Continue to follow US 64 E	
	Take exit 466 for Winstead Ave	0.3
	Right onto Winstead Ave	0.1
	Left at light to Doubletree Inn	
	Registration and Welcome Dinner - Doubletree Hotel	
	651 N. Winstead Ave. Rocky Mount, NC 27804	
4:30	Registration	
6:00	Cash Bar Opens	
7:00	Welcome Dinner	

Tuesday July 21

	From Doubletree Hotel to Upper Coastal Plains Research Station	
	2811 Nobles Mill Pond Rd, Rocky Mount, NC 27801	
	NO TRAFFIC PROTECTION * ON YOUR OWN	
	Right onto N. Winstead Ave	
	Right to merge onto US-64	10.5
	Take exit 478 for Kingsboro Rd	0.4
	Right onto Kingsboro Rd	2.0
	Right at stopsign onto Howard Ave	0.6
	Right at stopsign onto Nobles Mill Pond Rd	0.3
	Right at first dirt path into research station	
8:00 am	Breakfast	
	Crop Science - Potassium Fertilizer Study	
	Crop Science - Simulated Herbicide Drift Study	
	Plant Path - Black Shank OVT & Black Shank Chemical Trial	
10:35	**Depart Upper Coastal Plains Research Station**	

TRAFFIC PROTECTION BEGINS

Left on Nobles Millpond Road	1.0
Left on Antioch Rd	1.8
Right on Bullock School Road	2.1
Straight through stoplight at NC-43	3.8
Straight through stopsign at Old Wilson Rd	0.2
Arrive at field on right	

10:50 **Lancaster Farm - Edgecombe County**

861 E. Tarboro Rd. Rocky Mount, NC 27801

Plant Path - Granville Wilt Variety Trial

11:20 **Depart Lancaster Farm**

Right on Tarboro Rd	0.7
Slight Left at stopsign and procede to stoplight at NC 301	0.1
Left at stoplight onto NC 301	1.4
Straight through stoplight at Sharpsburg	11.4
Straight through stoplight at NC 58	0.2
Straight through stoplight at Marlow Street	0.3
Straight through stoplight at NC 264-A	0.2
Straight through stoplight at Ln St	0.1
Straight through stoplight at New Bern Rd	0.3
Straight through stoplight at Black Creek Rd	0.5
Straight through stoplight at Thorne Ave	0.4
Straight through stoplight at Purina Cir	0.4
Right at stoplight onto Goldsboro Rd	0.2
Arrive at Wilson County Agriculture Center on Left	

11:45 **Wilson County Ag. Center - Wilson County**

1806 SW Goldsboro St. Wilson, NC 27893

Lunch

12:55 **Depart Wilson County Ag. Center**

Right out of Ag. Center onto Goldsboro Rd	0.2
Right at stoplight on to NC 301	0.1
Straight through stoplight at Wilco Blvd	1.1
Straight through stoplight at Forest Hills Rd	1.9
Straight through stoplight at NC 264-W	0.2
Straight through stoplight at NC 264-E	0.2
Straight through stoplight at NC 117	0.2
Straight through stoplight at Interstate 795	2.9
Straight through stoplight at Raeford Rd	0.5
Straight through stoplight at Lucama Rd	3.0
Right onto Oscar Loop	
Immediate Left onto Simpson Rd	0.7
Arrive at Scott Farms on Left	

1:10 pm **Scott Farms - Wilson County**
7965 Simpson Rd. Lucama, NC 27851

Ag. Engineering - Adjustable Speed Control System to Reduce Electrical Energy Consumption During Curing

1:55 **Depart Scott Farms**

Left out of Scott Farms onto Simpson Rd	1.2
Left at stopsign onto St. Mary's Church Rd	0.5
Left onto NC 581	1.0
Straight through stopsign at NC 301	3.3
Right at stopsign onto NC 581-S	1.7
Left onto NC 222	4.6
Right at stopsign onto Wilson St	0.1
Left at stoplight onto E. Main St	0.1
Straight through stoplight at Sycamore St	6.0
Right at stoplight onto Faro Rd	0.5
Left at Lindell Rd	4.1
Right at stopsign onto NC 58	5.2
Left on Sheppard's Ferry Rd	0.6
Arrive at Blizzard Farms on Left	

2:40 **Blizzard Farms - Greene County**
546 Sheppard Ferry Rd. Snow Hill, NC 28580

Entomology - Split Worm Demonstation

3:10 **Depart Blizzard Farms**

Right out of field onto Sheppard's Ferry Rd	0.6
Left onto NC 58	3.9
Left at stopsign onto NC 58/NC 13	1.0
Straight through stoplight at Hull Rd	0.1
Straight through stoplight at Martin Luther King Jr. Dr	0.2
Straight through stoplight at Harper St	1.3
Straight through stoplight at NC 258	9.3
Straight through stoplight at C.E. Harvey Rd	2.1
Arrive at Lower Coast Plains Research Station on Right	

3:40 **Lower Coastal Plains Research Station - Lenoir County**
200 Cunningham Rd. Kinston, NC 28501

Crop Science - Sucker Control Study, Pesticide Residue Study, Dark Air-Cured Study, Flue-Cured & Burley OVT
Entomology - TSWV Trial

6:00 Adjourn Tour

Welcome North Carolina State University and the Department of Biological and Agricultural Engineering's Advanced Curing and Drying System Demonstration Barns

For over 60 years, our department has led the efforts in the tobacco mechanization research. In the 1950's and 60', faculty in our department accepted the challenge to reduce the cost and drudgery of flue-cured tobacco by developing both mechanical harvesting and bulk curing. In the 1970's and 80's, faculty work focused on energy efficiency and the beginnings of automatic controls. In the 1990's, the standards for the tobacco bale and the baler was developed and demonstrated along with the heat exchanger retrofit projects. In recent years, work has centered on various methods to increase energy efficiency and automatic control of the curing process.

The barns and the associated heating system shown here are the accumulation and embodiment of as many of the energy, labor, cost and time saving ideas as possible. Many of these ideas were suggested by growers, manufacturers, equipment suppliers and years of research on bulk curing.

About the Barns

Structure: These are two full-size ten-box barns capable of curing up to 35,000 pounds of green tobacco each in a regular 6-7 day curing schedule. The barns employ a common wall design that saves approximately 50% of the pad space as well as reducing the cost of the barn. The walls are of commercially available locking panels with 3½ inches of foam insulation sandwiched between a layer of Louisiana Pacific exterior sheathing and an internal layer of ½ inch oriented strand particle board. This gives the barns approximately 3 times the insulation of the best commercially available barns. The panels may be rapidly assembled on-site with few tools and little skilled labor. Also, the concrete pad is insulated with ¾ inch thick foam panels which has been shown to save as much as 5% on energy costs.

The top of the barns is covered with a one-piece vinyl membrane identical to those used on many commercial buildings. The vertically raised, bi-fold loading doors are designed to eliminate the threshold allowing the barns to be entered with a small fork lift for loading and unloading.

Fans: Each barn is equipped with a 15 hp Aero-Vent direct-drive bladed fan capable of moving 20,000 cfm at 0.5 inches of water pressure. This fan capacity is sufficient to adequately move air through individual boxes loaded with green tobacco in excess of 3500 pounds. Each fan is equipped with a Toshiba variable frequency drive which allows for an infinite variation in air flow. Over a decade of research has shown that once past the yellowing stage, air flow may be substantially reduced with no effect on quality or length of cure. Reducing the air flow by 50% results in a reduction in electrical power consumption by more than 85%.

Heating System: Heat for the barn is provided by a wood fired Taylor Water Stove rated at ½ million Btu/hr. The 200 degree F water is circulated into each barn by a ¾ hp pump controlled by the barn thermostat. Hot water is only circulated when heat is needed in the barn. The risk of a barn fire or the exposure of the curing leaf to NOX is negligible. Inside the barn, heat is extracted from the hot water by a large low resistance single pass radiator rated at 450,000 Btu per hour.

Instrumentation and Controls: Although these barns are fully capable of curing a full load of tobacco, they are primarily research barns. Almost all of the instrumentation for collection of the curing data and much of the control equipment (and cost) would not be found on the production version.

Data Collected:

Weight. The barns are equipped with an electronic scale system capable of reading and recording the weight of the full load of tobacco continually throughout the curing cycle.

Electrical Power. The electrical power supplied to the fans in terms of kilowatt-hours will be continually read and recorded.

Heat: The weight of the wood consumed in the water stove as well as the heat supplied to each barn and extracted by the radiators (temperature drop and flow in gallons per minute)will be continually read and recorded.

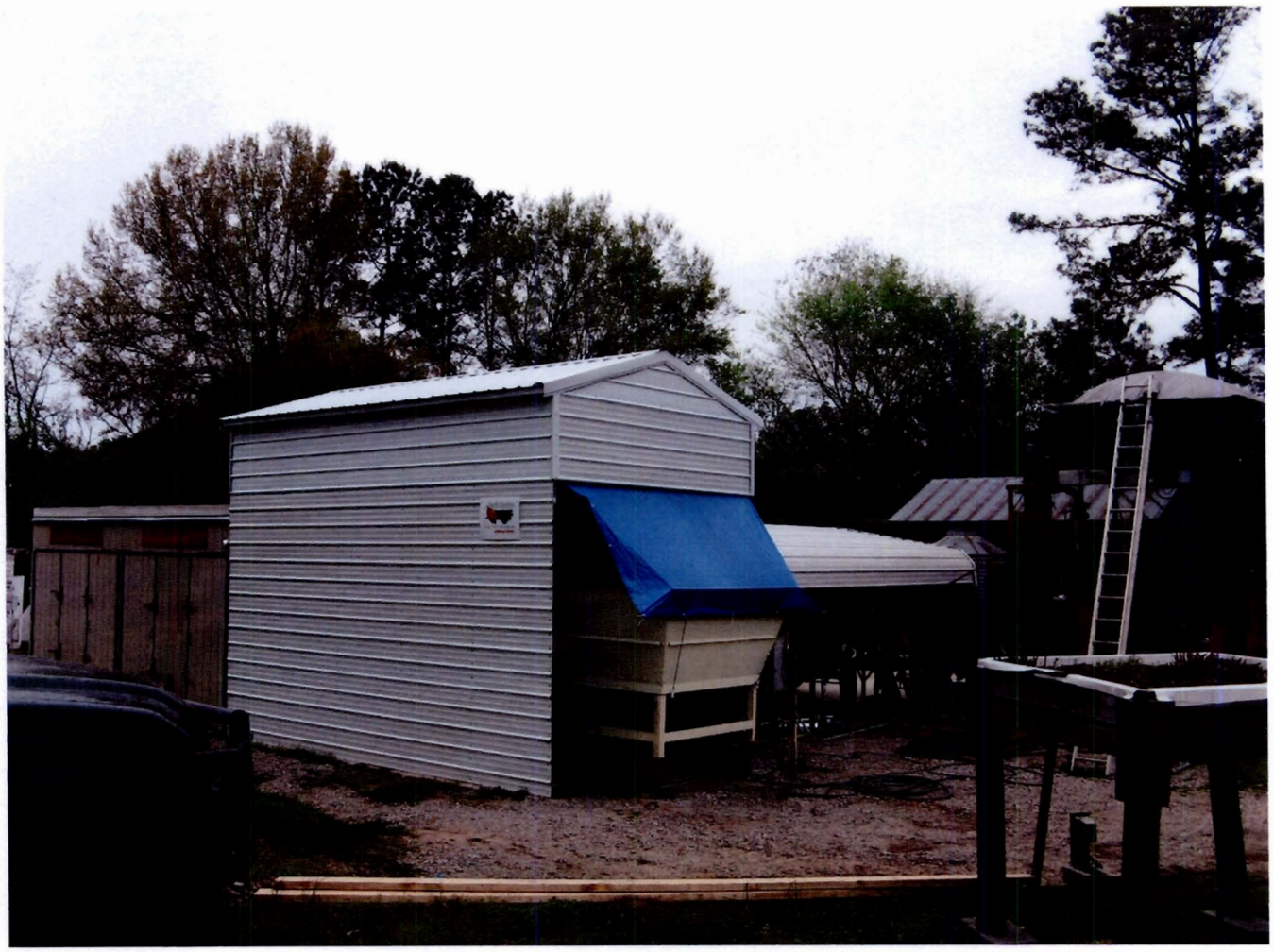
Curing Controller: Each barn is equipped with an electronic Cureco curing controller that will maintain the specified dry-bulb temperature by turning on and off the pumps and the wet-bulb temperature by modulating the air intake louvers.

Wireless Link: In addition to the above, the controller will employ a wireless link to computers inside Weaver Labs that will continually monitor and record the curing parameters and issue alarms if necessary. And as a further backup, someone will be on site 24/7 throughout the curing cycle to fuel the water stove and assist in data collection.

The barns have aircraft hangar type doors with no thresholds for easy access.

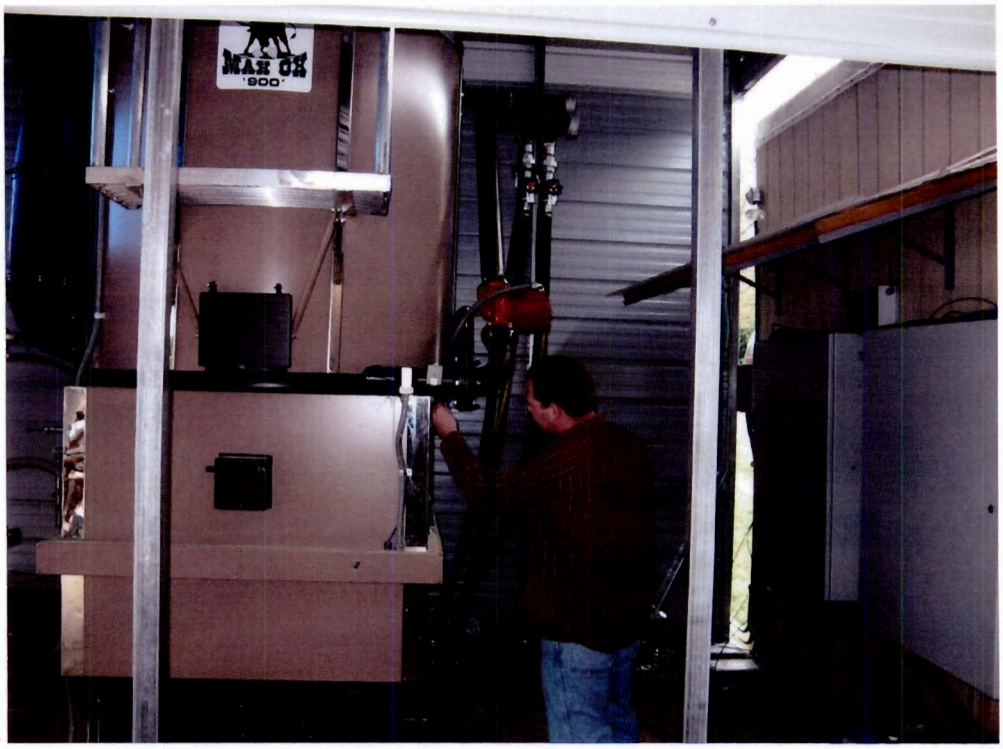
Fully Automatic Biomass Heating System

Through a generous grant from the **North Carolina Trust Fund Commission,** this year we have added a biomass fueled hot water boiler system suitable for curing tobacco. This system is rated at 900,000 Btu, is fully automatic and computerized with all the pollution control equipment required by state and federal agencies. It is a package unit, suitable for rapid installation and use. At 900,000 Btu per hour, this unit will adequately provide heat for as many as six full sized barns or as much as 15,000 square feet of greenhouse space. Although initially installed and tested here at Weaver labs during the summer of 2009, it will be moved in 2010 to the Kinston Research Station and used for the 2010 season and thereafter. This unit was manufactured by Total Energy Solutions, LLC of Elizabethtown, PA.. We have also built and tested the 2 ton wood chip stoker system that is connected to the boiler.

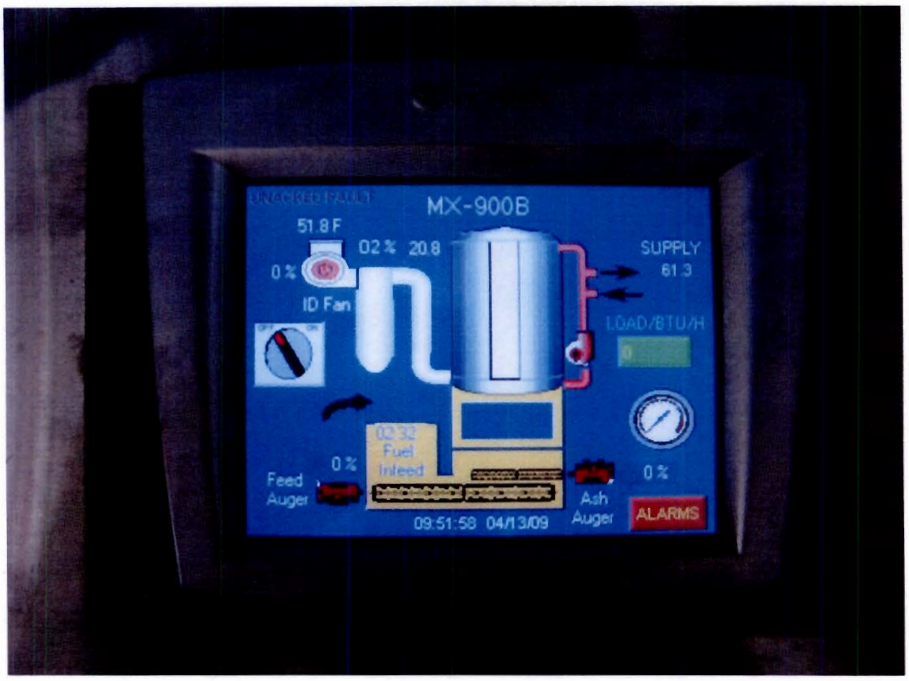


The metal building use to house the boiler showing the 2 ton stoker bin. The two full size 10-box curing barns are to the left.

The upper part of the boiler



The lower part of the boiler



The system has an onboard computer that monitors and controls all boiler functions

We have been operating and testing the wood fired hot water system since early May. At present we have logged more than 30 hours of successful operation and are very pleased that the unit requires very little supervision. It operates all control and monitoring systems utilizing the onboard computer. We have experimented so far with a variety of fuels from green wood chips to brush trimmings. We expect to try pelleted switchgrass and Bermuda grass later this summer and are beginning to get some sense of just how energy efficient and responsive the unit can be. Stack emissions have recently been a big concern with some of the older type of wood burning systems. We are very pleased to report that, even operating at the full rated capacity of 900,000 Btu/hr, there are little or no visible emissions. All instrumentation has been installed and tested. The tobacco curing now was put into the barn late Friday (July 17th).

Stack emissions are nearly invisible even running at the full rated capacity.

The Primarily Support for this project is provided by the:

North Carolina

Tobacco Trust Fund Commission

Additional Support Has Been Provided By:

The Tobacco Education and Research Council
The North Carolina Tobacco Research Commission
The North Carolina Tobacco Foundation

Various Potassium Rates & Application Methods on the Yield & Quality of Flue-Cured Tobacco
Upper Coastal Plain Research Station
Rocky Mount, NC

Small alley

Rep IV

417	416	415	414	413	412	411	410	409	408	407	406	405	404	403	402	401
16	2	13	5	15	4	1	9	17	8	14	7	3	6	12	11	10
317	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316
8	16	5	3	14	7	15	2	10	12	11	13	9	17	4	6	1

Rep III

Small alley

Rep II

217	216	215	214	213	212	211	210	209	208	207	206	205	204	203	202	201
11	14	13	5	12	17	4	16	10	7	1	8	6	15	2	3	9
117	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116
17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Rep I

Farm road

Design: Factorial

Plot Size: 4-rows, 16' wide and 40' long. Harvest 2 center rows for yield and quality.

Variety: NC 71 (Greenhouse plants).

Fertilization: Project leader will apply the various potassium rates and application methods using 0-0-22 K-mag.
Research station need to apply sidedressing using 32% liquid nitrogen.

North Carolina State University

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

Trial ID: FERRM-09 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	NA for Unit	101	207	316	411
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	75 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit				
2	BASE FERTILIZER-NONE	NA for Unit	102	203	307	416
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	75 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit				
3	BASE FERTILIZER-NONE	NA for Unit	103	202	303	405
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	75 LBS/A 0-0-22	NA for Unit				
	BANDED - JUST AFTER PLANTING	NA for Unit				
4	BASE FERTILIZER-NONE	NA for Unit	104	211	314	412
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	75 LBS/A 0-0-22	NA for Unit				
	2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit				
5	BASE FERTILIZER-NONE	NA for Unit	105	214	302	414
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	125 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit				
6	BASE FERTILIZER-NONE	NA for Unit	106	205	315	404
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	125 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit				
7	BASE FERTILIZER-NONE	NA for Unit	107	208	305	406
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	125 LBS/A 0-0-22	NA for Unit				
	BANDED - JUST AFTER PLANTING	NA for Unit				
8	BASE FERTILIZER-NONE	NA for Unit	108	206	317	408
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	125 LBS/A 0-0-22	NA for Unit				
	2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit				
9	BASE FERTILIZER-NONE	NA for Unit	109	201	312	410
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	175 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit				
10	BASE FERTILIZER-NONE	NA for Unit	110	209	308	401
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	175 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit				
11	BASE FERTILIZER-NONE	NA for Unit	111	217	310	402
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	175 LBS/A 0-0-22	NA for Unit				
	BANDED - JUST AFTER PLANTING	NA for Unit				
12	BASE FERTILIZER-NONE	NA for Unit	112	213	309	403
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	175 LBS/A 0-0-22	NA for Unit				
	2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit				

North Carolina State University

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

Trial ID: FERRM-09 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
13	BASE FERTILIZER-NONE	NA for Unit	113	215	311	415
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	225 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 MONTH BEFORE PLANTING	NA for Unit				
14	BASE FERTILIZER-NONE	NA for Unit	114	216	304	407
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	225 LBS/A 0-0-22	NA for Unit				
	BROADCAST - 1 WEEK BEFORE PLANTING	NA for Unit				
15	BASE FERTILIZER-NONE	NA for Unit	115	204	306	413
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	225 LBS/A 0-0-22	NA for Unit				
	BANDED - JUST AFTER PLANTING	NA for Unit				
16	BASE FERTILIZER-NONE	NA for Unit	116	210	301	417
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	225 LBS/A 0-0-22	NA for Unit				
	2 BANDS - 1 JUST AFTER PLANTING, 1 AT LAYBY	NA for Unit				
17	BASE FERTILIZER 667 LBS/A 6-6-18	NA for Unit	117	212	313	409
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	0 LBS/A 0-0-22	NA for Unit				

Sort Order: Treatment

Effects of Various Potassium Rates on the Yield and Quality of Flue-Cured Tobacco
Upper Coastal Plain Research Station
Rocky Mount, NC

Grassy Path

304 3	305 4	306 1	307 5	308 8	309 9	401 4	402 8	403 7	404 1	405 3	406 2	407 6	408 5	409 9

303 2

Wide Alley

302 6	301 7	209 9	208 5	207 8
202 3	203 6	204 7	205 1	206 4

Small Alley

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

Farm Road

Design: Randomized Complete Block
Plot Size: 2-rows, 16' wide and 40' long. Harvest center 2 rows for yield and quality.
Variety: NC 71 (Greenhouse plants). Transplanted 4-29-09.
Fertilization: Normal research station cultural practices. Project leader will apply the various potassium rates using 0-0-22 K-Mag.

North Carolina State University

EFFECTS OF VARIOUS POTASSIUM RATES ON THE YIELD & QUALITY OF FLUE-CURED TOBACCO

Trial ID: FERM-09 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	NA for Unit	101	205	306	404
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	0 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
2	BASE FERTILIZER	NA for Unit	102	201	303	406
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	75 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
3	BASE FERTILIZER	NA for Unit	103	202	304	405
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	100 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
4	BASE FERTILIZER	NA for Unit	104	206	305	401
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	125 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
5	BASE FERTILIZER	NA for Unit	105	208	307	408
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	150 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
6	BASE FERTILIZER	NA for Unit	106	203	302	407
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	175 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
7	BASE FERTILIZER	NA for Unit	107	204	301	403
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	200 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
8	BASE FERTILIZER	NA for Unit	108	207	308	402
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	225 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				
9	BASE FERTILIZER 667 LBS/A 6-6-18	NA for Unit	109	209	309	409
	SIDEDRESSING 10.8 GALS/A 30% LIQUID NITROGEN	NA for Unit				
	0 LBS/A 0-0-22 BANDED AT TRANSPLANTING	NA for Unit				

Sort Order: Treatment

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-09 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)

Trt No.	Treatment Name	Form Conc	Form Type	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

2009 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

(small 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

(small 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

(small 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

PLOT SIZE: 1-ROW, 4' WIDE AND 40' LONG. COMMON GUARD ROW BETWEEN PLOTS.

VARIETY: NC-71 (GH PLANTS)

FERTILIZATION: NORMAL RESEARCH STATION CULTURAL PRACTICES

	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	F	F	F	F	F	F	F	F	F
	65	80	59	41	96	38	33	22	94	48	46	70	17	16	88	93	90	103									
	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297
	78	11	25	7	99	57	5	23	40	53	54	9	10	47	44	1	81	89	24	87	2	91	95	104	60	66	56
Rep 3																											
	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
	71	27	79	39	32	83	100	15	45	55	68	101	8	75	28	64	85	31	74	29	76	49	21	13	30	6	43
	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243
	26	105	58	92	98	20	37	63	69	82	86	102	50	12	67	52	73	14	72	97	34	61	77	42	51	62	3
	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216
	87	64	9	60	62	44	27	39	22	57	105	31	103	2	92	63	4	19	40	104	76	19	4	35	84	18	36
Rep 2	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189
	74	82	8	47	56	23	101	5	15	75	89	78	100	53	65	21	86	17	85	3	16	18	55	20	50	98	54
	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162
	14	32	77	91	42	83	102	96	13	35	46	26	70	37	66	68	90	36	25	29	24	11	80	79	51	67	12
	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
	33	6	1	28	84	34	99	71	97	69	73	95	59	72	88	58	61	43	41	10	94	93	81	45	7	49	30
	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
	33	53	36	41	21	59	16	70	84	62	19	80	27	92	60	2	32	51	99	48	4	18	56	12	48	52	38
	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
Rep 1	43	28	10	39	54	74	30	50	26	102	40	34	101	13	58	96	44	46	71	24	77	49	76	65	90	35	104
	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	103	69	89	23	95	73	88	15	81	94	1	38	55	57	6	82	79	105	67	9	25	52	64	17	3	37	8
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	66	29	100	45	97	72	91	68	7	61	20	98	5	85	47	93	11	14	87	86	83	22	63	78	31	75	42

UCPRS Black Shank OVT

(Race 1 Black Shank Nursery)

Seed date: 2/16/2009
Transplant date: 4/29/2009

	Trt No.	Treatment Name	Rating Date %Disease 6/29/2009	
OVT/C	1	NC 291	7.6	g-k
	2	SP 236	1.5	jk
	3	SP 220	1.5	jk
	4	CC 27	19.7	e-i
	5	NC 72	3	ijk
	6	PVH 1118	3	ijk
	7	SP 168	4.5	h-k
	8	CC 65	21.2	e-h
	9	SP 225	0	k
	10	K 346	0	k
	11	NC 297	7.6	g-k
	12	PVH 1596	1.5	jk
	13	CC 13	6.1	g-k
	14	GF 52	4.5	h-k
	15	RGH 4	7.6	g-k
	16	NC 196	4.5	h-k
	17	NC 299	3	ijk
	18	K 326	6.1	g-k
	19	CC 67	4.5	h-k
	20	K 149	1.5	jk
	21	SP 210	3	ijk
	22	CC 75	6.1	g-k
	23	CC 35	22.7	d-g
	24	NC 71	0	k
	25	CC 700	13.6	f-k
	26	SP 227	3	ijk
	27	SP H-20	10.6	f-k
	28	CC 15	25.8	def
	29	K 394	0	k
	30	NC 471	0	k
	31	PVH 2110	3	ijk
	32	RGH 51	15.2	f-k
	33	NC 92	25.8	def
	34	NC 55	7.6	g-k
	35	SP NF 3	3	ijk
	36	GF 318	10.6	f-k
	37	NC 606	0	k
	38	PVH 1452	1.5	jk
	39	CC 33	0	k
	40	NC 102	6.1	g-k
	41	K 399	0	k
	42	SP 234	15.2	f-k
	43	GL 939	1.5	jk
	44	CC 37	6.1	g-k
	45	RG 17	1.5	jk
OVT/A	46	NC 2326	6.1	g-k
	47	NC 95	3	ijk
	48	K 326	6.1	g-k
	49	NCEX 27	25.8	def
	50	NCTG 159	9.1	f-k
	51	CU 121	0	k
	52	NCEX 26	16.7	f-k
	53	NCEX 30	0	k
	54	NCEX 28	4.5	h-k
	55	CU 129	1.5	jk
	56	NCEX 31	3	ijk
	57	CU 130	7.6	g-k
	58	NCEX 29	1.5	jk
	59	CU 120	0	k
	60	CU 124	0	k
RSP	61	NC 2326	1.5	jk
	62	NC 95	7.6	g-k
	63	K 326	3	ijk
	64	CC 920	60.6	ab
	65	EXP 480	19.7	e-i
	66	XP 278	0	k
	67	XP 275	39.4	cd
	68	NCEX 23	3	ijk
	69	EXP 819	1.5	jk
	70	CC 304	4.5	h-k
	71	NCEX 25	0	k
	72	CU 118	1.5	jk
	73	RJR 911	0	k
	74	RJR 908	1.5	jk
	75	CU 95	0	k
	76	NCEX 16	34.8	cde
	77	ULT 142	1.5	jk
	78	EXP 388	0	k
	79	XP 248	13.6	f-k
	80	NCEX 10	3	ijk
	81	ULT 112	9.1	f-k
	82	CC 151	4.5	h-k
	83	GL 395	7.6	g-k
	84	EXP 822	1.5	jk
	85	XP 254	6.1	g-k
	86	RJR 909	0	k
	87	AOV 911	18.2	e-j
	88	RJR 910	0	k
	89	CU 113	0	k
	90	NCEX 19	4.5	h-k
	91	CU 110	18.2	e-j
	92	CU 100	0	k
	93	RJR 901	18.2	e-j
	94	NCEX 24	0	k
	95	XP 340	66.7	a
RFT	96	NC 2326	15.2	f-k
	97	NC 95	7.6	g-k
	98	XP 324	0	k
	99	NCEX 15	12.1	f-k
	100	CU 94	1.5	jk
	101	EXP 806	22.7	d-g
	102	RJR 651	3	ijk
	103	CU 90	0	k
	104	EXP 803	1.5	jk
	105	NCEX 13	45.5	bc

Means followed by same letter do not significantly differ (P=.05, LSD)

UCPRS Black Shank Chemical Trial (Race 1 Black Shank Nursery)

Transplant date: 2/29/2009
Variety: NC 71

Rating Date					%Disease 7/17/2009	%Control 7/17/2009
Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg		
1	Untreated Check				27.3 b	0.0
2	10 34 0	14.7	LB/A	tpwater	44.3 a	0.0
3	Ridomil Gold	0.33	PT/A	tpwater	28.4 b	0.0
4	Ridomil Gold	0.33	PT/A	tpwater	19.3 bcd	29.3
	10 34 0	14.7	LB/A	tpwater		
5	Ridomil Gold	1	PT/A	attran spray	26.1 bc	4.4
6	Ridomil Gold	0.33	PT/A	tpwater	6.8 def	75.1
	Ridomil Gold	1	PT/A	1st cult		
7	Ridomil Gold	1	PT/A	attran spray	13.6 cde	50.2
	Ridomil Gold	1	PT/A	1st cult		
8	Ridomil Gold	0.33	PT/A	tpwater	0 f	100.0
	Ridomil Gold	1	PT/A	1st cult		
	Ridomil Gold	1	PT/A	layby		
9	Ridomil Gold	1	PT/A	attran spray	1.1 ef	96.0
	Ridomil Gold	1	PT/A	1st cult		
	Ridomil Gold	1	PT/A	layby		

Means followed by same letter do not significantly differ (P=.05, LSD)

UCPRS Black Shank OVT (Race 1 Black Shank Nursery)

Seed date: 2/16/2009
Transplant date: 4/29/2009

	Rating Date	7/17/2009		Rating Date	7/17/2009		Rating Date	7/17/2009
	Trt No. Treatment Name			Trt No. Treatment Name			Trt No. Treatment Name	
OVT/C	1 NC 291	39.4 i-v		36 GF 318	50 f-p		71 NCEX 25	7.6 x-C
	2 SP 236	0 C		37 NC 606	3 ABC		72 CU 118	1.5 BC
	3 SP 220	9.1 w-C		38 PVH 1452	3 ABC		73 RJR 911	4.5 z-C
	4 CC 27	54.5 e-n		39 CC 33	13.6 t-C		74 RJR 908	7.6 x-C
	5 NC 72	34.8 k-y		40 NC 102	51.5 f-o		75 CU 95	1.5 BC
	6 PVH 1118	13.6 t-C		41 K 399	13.6 t-C		76 NCEX 16	78.8 a-f
	7 SP 168	19.7 q-C		42 SP 234	37.9 j-w		77 ULT 142	45.5 h-s
	8 CC 65	34.8 k-y		43 GL 939	13.6 t-C		78 EXP 388	9.1 w-C
	9 SP 225	0 C		44 CC 37	24.2 o-C		79 XP 248	18.2 r-C
	10 K 346	6.1 y-C	OVT/A	45 RG 17	24.2 o-C		80 NCEX 10	33.3 k-z
	11 NC 297	47 h-r		46 NC 2326	71.2 a-h		81 ULT 112	40.9 i-u
	12 PVH 1596	3 ABC		47 NC 95	56.1 d-m		82 CC 151	16.7 s-C
	13 CC 13	15.2 t-C		48 K 326	39.4 i-v		83 GL 395	10.6 v-C
	14 GF 52	56.1 d-m		49 NCEX 27	66.7 b-j		84 EXP 822	13.6 t-C
	15 RGH 4	37.9 j-w		50 NCTG 159	59.1 c-m		85 XP 254	36.4 k-x
	16 NC 196	10.6 v-C		51 CU 121	0 C		86 RJR 909	3 ABC
	17 NC 299	31.8 l-A		52 NCEX 26	60.6 c-l		87 AOV 911	71.2 a-h
	18 K 326	42.4 h-t		53 NCEX 30	1.5 BC		88 RJR 910	3 ABC
	19 CC 67	34.8 k-y		54 NCEX 28	16.7 s-C		89 CU 113	3 ABC
	20 K 149	12.1 u-C		55 CU 129	13.6 t-C		90 NCEX 19	31.8 l-A
	21 SP 210	13.6 t-C		56 NCEX 31	9.1 w-C		91 CU 110	36.4 k-x
	22 CC 75	13.6 t-C		57 CU 130	47 h-r		92 CU 100	9.1 w-C
	23 CC 35	34.8 k-y		58 NCEX 29	40.9 i-u		93 RJR 901	51.5 f-o
	24 NC 71	21.2 p-C		59 CU 120	1.5 BC		94 NCEX 24	12.1 u-C
	25 CC 700	36.4 k-x		60 CU 124	13.6 t-C		95 XP 340	97 a
	26 SP 227	10.6 v-C	RSP	61 NC 2326	45.5 h-s	RFT	96 NC 2326	81.8 a-e
	27 SP H-20	30.3 m-B		62 NC 95	59.1 c-m		97 NC 95	48.5 g-q
	28 CC 15	40.9 i-u		63 K 326	34.8 k-y		98 XP 324	13.6 t-C
	29 K 394	6.1 y-C		64 CC 920	84.8 a-d		99 NCEX 15	77.3 a-g
	30 NC 471	1.5 BC		65 EXP 480	68.2 a-i		100 CU 94	18.2 r-C
	31 PVH 2110	22.7 o-C		66 XP 278	33.3 k-z		101 EXP 806	51.5 f-o
	32 RGH 51	62.1 c-k		67 XP 275	86.4 abc		102 RJR 651	25.8 n-C
	33 NC 92	56.1 d-m		68 NCEX 23	21.2 p-C		103 CU 90	0 C
	34 NC 55	47 h-r		69 EXP 819	9.1 w-C		104 EXP 803	4.5 z-C
	35 SP NF 3	3 ABC		70 CC 304	15.2 t-C		105 NCEX 13	93.9 ab

Means followed by same letter do not significantly differ (P=.05, LSD)

UCPRS Black Shank Chemical Trial Field Plan

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

UCPRS Black Shank Chemical Trial (Race 1 Black Shank Nursery)

Transplant date: 4/29/2009
Variety: NC 71

Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	%Disease 6/29/2009	
	Rating Date				6/29/2009	
1	Untreated Check				2.3	bc
2	10 34 0	14.7	LB/A	tpwater	10.2	a
3	Ridomil Gold	0.33	PT/A	tpwater	4.5	b
4	Ridomil Gold	0.33	PT/A	tpwater	1.1	bc
	10 34 0	14.7	LB/A	tpwater		
5	Ridomil Gold	1	PT/A	attran spray	3.4	bc
6	Ridomil Gold	0.33	PT/A	tpwater	0	c
	Ridomil Gold	1	PT/A	1st cult		
7	Ridomil Gold	1	PT/A	attran spray	0	c
	Ridomil Gold	1	PT/A	1st cult		
8	Ridomil Gold	0.33	PT/A	tpwater	0	c
	Ridomil Gold	1	PT/A	1st cult		
	Ridomil Gold	1	PT/A	layby		
9	Ridomil Gold	1	PT/A	attran spray	0	c
	Ridomil Gold	1	PT/A	1st cult		
	Ridomil Gold	1	PT/A	layby		

Means followed by same letter do not significantly differ (P=.05, LSD)

Rep 4	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
	5	13	24	22	15	8	11	7	14	18	4	20	23	21	12	19	17	1	2	3	6	9	16	10
Rep 3	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
	19	8	5	20	1	3	14	22	4	13	23	24	6	9	7	2	10	21	16	15	17	18	11	12
Rep2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	24	20	23	6	3	17	18	10	12	1	13	5	9	22	14	16	11	8	7	19	4	15	21	2
Rep 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	11	13	7	10	17	22	5	23	24	14	2	18	6	19	9	4	8	15	1	21	16	12	20	3

2009 Granville Wilt Varieties -- Edgecombe County

1 SP 236
2 PVH 1118
3 CC 65
4 PVH 1596
5 CC 13
6 GF 52
7 NC 196
8 NC 299
9 CC 67
10 CC 75
11 CC 35
12 CC 700
13 CC 15
14 PVH 2110
15 NC 92
16 GF 318
17 PVH 1452
18 NC 102
19 CC 37
20 SP 168
21 K 394
22 CC 33
23 CC 27
24 K 346

Edgecombe County Graville Wilt Variety Evaluation

Seed date: 2/19/2009
Transplant date: 4/22/2009

		% Disease	
Rating Date		7/17/2009	
Trt No.	Variety		
1	SP 236	2.1	f
2	PVH 1118	10.9	a-e
3	CC 65	8.7	b-f
4	PVH 1596	1.2	f
5	CC 13	1.2	f
6	GF 52	15.1	abc
7	NC 196	5.6	def
8	NC 299	1.1	f
9	CC 67	1.1	f
10	CC 75	5.4	def
11	CC 35	13	a-d
12	CC 700	7.5	b-f
13	CC 15	16	ab
14	PVH 2110	2.3	ef
15	NC 92	5.3	def
16	GF 318	6.5	c-f
17	PVH 1452	1.1	f
18	NC 102	4.3	def
19	CC 37	0	f
20	SP 168	2.1	f
21	K 394	19.2	a
22	CC 33	2.2	ef
23	CC 27	0	f
24	K 346	0	f

ɐr do not significantly differ (P=.05, LSD)

Tour Site Information:

Title: Tobacco Splitworm Monitoring

Purpose: To determine the timing and annual number of splitworm generations in the southeastern tobacco.

Methods and Results to Date:
One year of trapping data were collected from a total of 19 sites (4 SC, 4 VA, 4 GA, and 7 NC) in 2008. Georgia counts trapping data from 2008 and 2009 are available online (http://commodities.caes.uga.edu/fieldcrops/tobacco/). Weather data (temperature and relative humidity) were gathered at each of these locations using a Specware weather logger, and weather data will be compared to trap captures to determine if currently known developmental thresholds can be used to predict generation timing. At least 2 tobacco feeding splitworm generations occurred in NC in 2008 (Figure 1), and this appears to also be the case at least for Georgia.

In 2009, 7 monitoring locations have been established in eastern North Carolina (Figure 2). Each of these locations consists of 4 traps and 1 weather station. The traps are placed around the edges of each field.

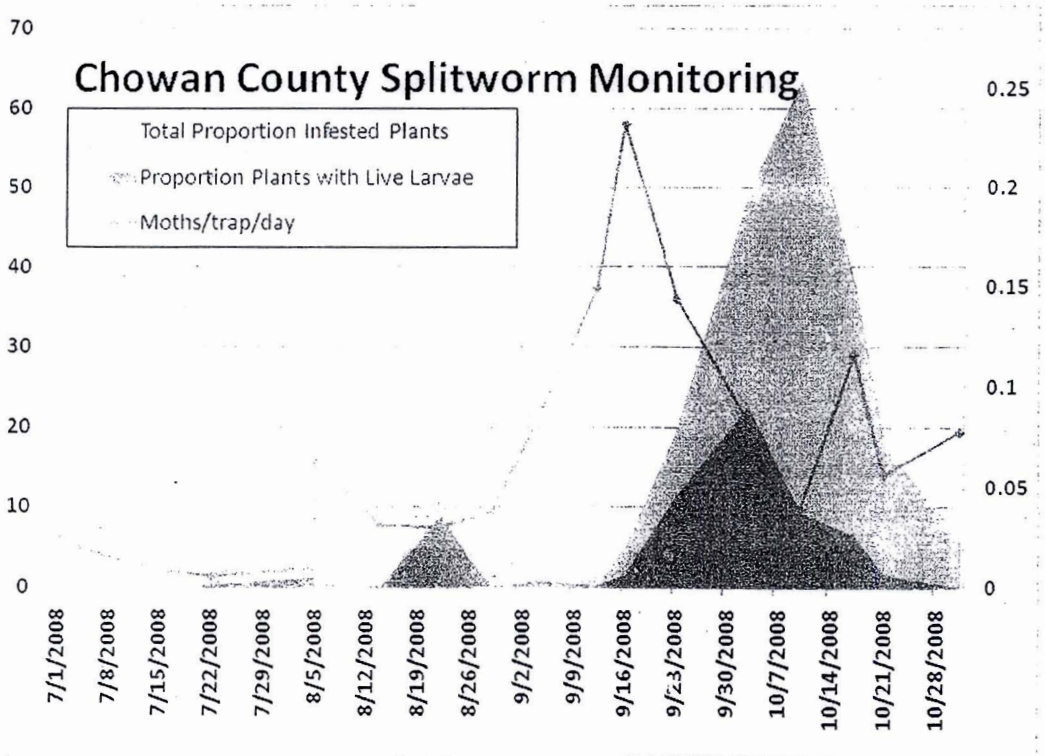


Figure 1. Trap captures and in field infestation from Chowan County, NC, 2008. Trap capture peaks are followed approximately 3 weeks later by a corresponding increase in tunnels and live splitworm larvae present in tobacco plants. During the production tobacco season (June through October), two splitworm generations were observed. Data

from Chowan County is a representative example of the other 4 monitoring locations where larval populations were large enough to monitor in the field.

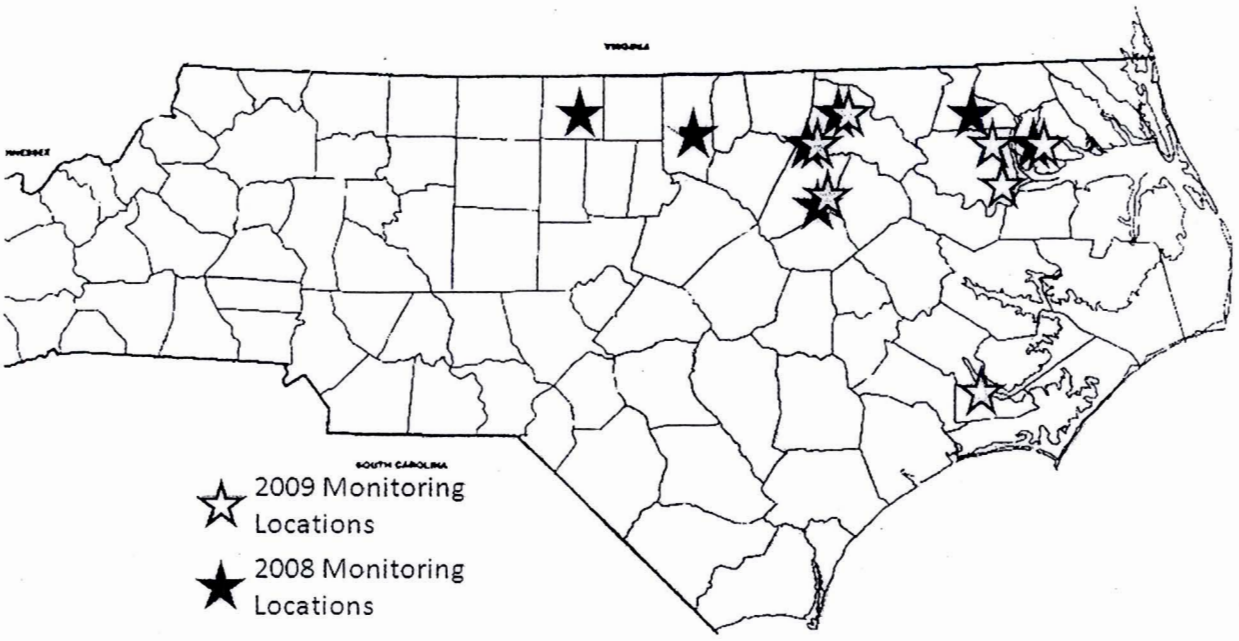


Figure 2. 2008 and 2009 North Carolina splitworm monitoring locations.

At NC splitworm trapping locations, larval presence in the field, and feeding location was assessed weekly from the onset of infestation. This was conducted by observing a minimum of 900 plants weekly across 3, 300 plant transects, placed on the edge and the center of tobacco fields. Because field observations in NC in 2008 suggested that larvae are located primarily in the lower third of tobacco plants, an experiment which begin 6/29/2009 to determine if larvae prefer lower stalk tobacco leaves when compared to middle and upper leaves. This will be accomplished by caging known densities of larvae at different stalk positions and tracking their development. This will be repeated 3 times during 2009, to determine if plant age also impacts larval performance. Finally, we will test the impact of harvest on larval establishment by removing lower stalk position leaves and determining the ability of larvae to move to higher leaves.

2009 REGIONAL SUCKER CONTROL TEST
CUNNINGHAM RESEARCH STATION
KINSTON, NC

WIDE ALLEY

REP IV

411 5	410 3	409 7	408 6	407 11	406 10	405 1	404 9	403 8	402 2	401 4
301 3	302 7	303 8	304 2	305 6	306 5	307 1	308 11	309 4	310 9	311 10

REP III

SMALL ALLEY

REP II

211 1	210 7	209 10	208 8	207 3	206 9	205 4	204 5	203 2	202 11	201 6
101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8	109 9	110 10	111 11

REP I

FARM ROAD

DESIGN: Randomized Complete Block.
Plot Size: 2-rows, 7.3' wide and 40' long.
Variety: NC 71 (Greenhouse plants).
Fertilization: Standard Research Station Cultural Practices.

North Carolina State University

2009 REGIONAL SUCKER CONTROL TEST
JOE PRIEST LOREN FISHER SCOTT WHITLEY

Trial ID: SCKI-09
Location: KINSTON, NC

Study Director:
Investigator: Joseph A Priest

Reps: 4
Spray vol: 50 gal/ac

Plots: 8 by 40 feet
Mix size: 3 gallons (min 1.4692)

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep 1	2	3	4
1	TOPPED AND NOT SUCKERED						101	211	307	405
2	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	102	203	304	402
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	(FAIR 30 1.0 GPA &	2.25	EC	2.25	lb ai/a	227.1 ml/mx				
	FLUPRO 0.5 GPA)TM	1.2	EC	0.6	lb ai/a	113.6 ml/mx				
3	O-TAC 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	103	207	301	410
	O-TAC 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	O-TAC 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	O-TAC 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
4	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	104	205	309	401
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
5	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	105	204	306	411
	FAIR 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	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	106	201	305	408
	FAIR 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				
7	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	107	210	302	409
	(FAIR 85 2.5 GPA &	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	FLUPRO 0.25 GPA) TM	1.2	EC	0.3	lb ai/a	56.78 ml/mx				
	(FAIR 85 2.5 GPA &	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	FLUPRO 0.25 GPA) TM	1.2	EC	0.3	lb ai/a	56.78 ml/mx				
8	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	108	208	303	403
	FAIR 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				
	FAIR 30 0.75 GPA	2.25	EC	1.69	lb ai/a	170.6 ml/mx				
	MH APPLIED AFTER 1ST HARVEST									
9	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	109	206	310	404
	FAIR 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				
	FAIR 30 1.0 GPA	2.25	EC	2.25	lb ai/a	227.1 ml/mx				
	MH APPLIED AFTER 1ST HARVEST									
10	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	110	209	311	406
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	(FAIR 30 0.75 GPA &	2.25	EC	1.69	lb ai/a	170.6 ml/mx				
	FLUPRO 0.5 GPA)TM	1.2	EC	0.6	lb ai/a	113.6 ml/mx				
11	FAIR 85 2.0 GPA	6.01	EC	12.02	lb ai/a	454.2 ml/mx	111	202	308	407
	FAIR 85 2.5 GPA	6.01	EC	15.03	lb ai/a	567.9 ml/mx				
	(FAIR 30 0.5 GPA &	2.25	EC	1.125	lb ai/a	113.6 ml/mx				
	FLUPRO 0.25 GPA)TM	1.2	EC	0.3	lb ai/a	56.78 ml/mx				
	(FAIR 30 0.5 GPA &	2.25	EC	1.125	lb ai/a	113.6 ml/mx				
	FLUPRO 0.25 GPA)TM	1.2	EC	0.3	lb ai/a	56.78 ml/mx				

Sort Order: Treatment

2009 PESTICIDE RESIDUE STUDY
CUNNINGHAM RESEARCH STATION
KINSTON, NC

REP IV

408 4	407 8	406 7	405 6	404 2	403 1	402 3	401 5
301 2	302 1	303 8	304 4	305 7	306 6	307 5	308 3

REP III

WIDE ALLEY

REP II

208 6	207 3	206 8	205 2	204 1	203 5	202 4	201 7
101 1	102 2	103 3	104 4	105 5	106 6	107 7	108 8

REP I

DESIGN: RCB

PLOT SIZE: 4-ROWS, 40' LONG

VARIETY: NC 71 (GREENHOUSE PLANTS)

FERTILIZATION: NORMAL RESEARCH STATION CULTURAL PRACTICES

North Carolina State University

2009 Pesticide Residue Study
Loren Fisher Joe Priest Scott Whitley

Trial ID: PRKI-09
Location: Kinston, NC

Study Director:
Investigator: Joseph A Priest

Use 2 gallons(s) per treatment mixture to spray 20 gal/ac
Plots: 16 by 40 feet

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Amt Product to Measure	Plot No. By Rep 1	2	3	4
1	Admire Pro (Imidacloprid) (GH Drench)			1.2	fl oz/a	Unknown Fm Ds	101	204	302	403
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
2	Butralin 1.0 gpa (Applied Broadcast)	3.0	EC	3.0	lb ai/a	378.5 ml/mx	102	205	301	404
3	Butralin 1.0 gpa (Applied with a Dropline)	3.0	EC	3.0	lb ai/a	378.5 ml/mx	103	207	308	402
4	Flumetralin 1.0 gpa (Applied Broadcast)	1.2	EC	1.2	lb ai/a	378.5 ml/mx	104	202	304	408
5	Flumetralin 1.0 gpa (Applied with a Dropline)	1.2	EC	1.2	lb ai/a	378.5 ml/mx	105	203	307	401
6	Quadris .0625 gpa (Broadcast)	2.08	F	8	fl oz/a	23.66 ml/mx	106	208	306	405
	Quadris .0625 gpa (Broadcast)	2.08	F	8	fl oz/a	23.66 ml/mx				
	Quadris .0625 gpa (Broadcast)	2.08	F	8	fl oz/a	23.66 ml/mx				
	Quadris .0625 gpa (Broadcast)	2.08	F	8	fl oz/a	23.66 ml/mx				
7	Admire PRO (Imidacloprid) (GH Drench)			1.2	fl oz/a	Unknown Fm Ds	107	201	305	406
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
	Provado (Imidacloprid) .03125 gpa (Broadcast)	1.6	F	4	fl oz/a	11.83 ml/mx				
8	Cypermethrin (Broadcast)	2.5	SC	0.71	lb ai/a	107.5 ml/mx	108	206	303	407

Sort Order: Treatment

Evaluation of 3 Dark Air-Cured Varieties & 3 Nitrogen Rates on Yield & Quality
Cunningham Research Station
Kinston, NC

REP IV

409 NL MODLE 300 LBS N 3	408 NL MODLE 250 LBS N 2	407 NL MODLE 200 LBS N 1	406 KY 171 250 LBS N 5	405 KY 171 300 LBS N 6	404 KY 171 200 LBS N 4	403 VA 359 300 LBS N 9	402 VA 359 250 LBS N 8	401 VA 359 200 LBS N 7
301 KY 171 300 LBS N 6	302 KY 171 250 LBS N 5	303 KY 171 200 LBS N 4	304 VA 359 200 LBS N 7	305 VA 359 300 LBS N 9	306 VA 359 250 LBS N 8	307 NL MODLE 300 LBS N 3	308 NL MODLE 200 LBS N 1	309 NL MODLE 250 LBS N 2

REP III

REP II

209 VA 359 300 LBS N 9	208 VA 359 200 LBS N 7	207 VA 359 250 LBS N 8	206 NL MODLE 250 LBS N 2	205 NL MODLE 300 LBS N 3	204 NL MODLE 200 LBS N 1	203 KY 171 250 LBS N 5	202 KY 171 300 LBS N 6	201 KY 171 200 LBS N 4
101 NL MODLE 200 LBS N 1	102 NL MODLE 250 LBS N 2	103 NL MODLE 300 LBS N 3	104 KY 171 200 LBS N 4	105 KY 171 250 LBS N 5	106 KY 171 300 LBS N 6	107 VA 359 200 LBS N 7	108 VA 359 250 LBS N 8	109 VA 359 300 LBS N 9

REP I

DESIGN: FACTORIAL
PLOT SIZE: 4 ROWS 16' WIDE AND 50' LONG. HARVEST CENTER 2 ROWS FOR YIELD AND QUALITY. IN ROW SPACING 28 INCHES.
VARIETIES: NARROWLEAF MODLE, KENTUCKY 171 AND VIRGINIA 359.
FERTILIZATION: 200, 250 AND 300 LBS NITROGEN PER ACRE.

North Carolina State University

Evaluation of 3 Dark Air-cured Varieties & 3 Nitrogen Rates on Yield & Quality

Loren Fisher Joe Priest Scott Whitley

Trial ID: DACK-09 Study Director:
Location: KINSTON, NC Investigator: Joseph A Priest

Trt No.	Treatment Name	Amt Product to Measure	Plot No. By Rep 1	2	3	4
1	NARROWLEAF MODLE 200 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	101	204	308	407
2	NARROWLEAF MODLE 250 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	102	206	309	408
3	NARROWLEAF MODLE 300 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	103	205	307	409
4	KENTUCKY 171 200 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	104	201	303	404
5	KENTUCKY 171 250 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	105	203	302	406
6	KENTUCKY 171 300 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	106	202	301	405
7	VIRGINIA 359 200 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	107	208	304	401
8	VIRGINIA 359 250 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	108	207	306	402
9	VIRGINIA 359 300 LBS NITROGEN PER ACRE	NA for Unit NA for Unit	109	209	305	403

Sort Order: Treatment

NCSU Department of Entomology
Mariah J. Bock, Clyde E. Sorenson

We are in year two of research to understand the insect management implications of growing burley tobacco in the high insect-pressure environment of eastern North Carolina. Treatments in these evaluations are designed to measure the effects of tobacco type (burley or flue-cured), planting date (early or late) and treatment with the soil applied, Tomato Spotted Wilt Virus (TSWV) and aphid-suppressive insecticide, Imidacloprid, on the incidence of TSWV transmitted by thrips and on the occurrence of economically significant insect pests of tobacco, including flea beetles, aphids, tobacco budworms and hornworms.

Data collected during the past two summers has shown, over both planting dates, and with or without Imidacloprid, burley tobacco had approximately twice the incidence of TSWV as flue-cured tobacco under the same plot conditions. There was a slight increase in the number of flea beetle holes present in burley tobacco compared to the numbers present in flue-cured tobacco during year one, but not during year two. No substantial difference was detected in tobacco budworm or hornworm populations between the burley and flue-cured tobacco during year one. Budworm numbers were slightly higher in flue-cured tobacco during year two, while wild hornworm populations were too low to assess at the time of this writing in year two. Wild aphid populations have been too low to adequately assess during both years.

Field Map

401- P2A	402- P2N	403- P1N	404- P1A
301- P2N	302- P1A	303- P2A	304- P1N
Alley			
201- P1A	202- P1N	203- P2A	204- P2N
101- P1N	102- P2N	103- P2A	104- P1A

P1 – transplanted
P2 – transplanted
A – pretreated with Admire
N – not pretreated with Admire

Plots are 16 rows wide and 50 feet in length, and are further subdivided into alternating subplots of 2 rows of burley (NC7) and 2 rows of flue-cured (NC71). This helps to eliminate possible variation due to uneven thrips distribution for TSWV evaluations. Burley is always the first two rows on the left in each plot when viewed from the front of the test.

TRAFFIC MANAGERS

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2010 TOBACCO TOUR

JULY (Dates to be announced)

North Carolina
Cooperative Extension Service
NORTH CAROLINA STATE UNIVERSITY
COLLEGE OF AGRICULTURE & LIFE SCIENCES

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