2015 Small Grain Field Day Report

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North Carolina Small Grain Growers Association Inc
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From the North Carolina Small Grain Growers Association:

The North Carolina Small Grain Growers Association has a vested interest in research on small grain crops to help farmers increase yields and profitability. We tried a little different approach with the field days this year, scheduling them at different times in each of the 5 locations across the state. We spread the field days from late March to early May. The normal timing for field days historically has been the first two weeks in May. The earlier field days gave us an opportunity to observe problems and suggest ways to correct in time to make a difference in the crop. We feel this approach worked out well and will try to improve on this concept for the coming year.

The wheat crop this year reminded us to not give up early in the year, but to manage for whatever situation may occur. At one time it appeared we were headed to a very low yielding crop but as it turned out we hit the 10 year average close to 60 bushels per acre.

As we plan for next year remember the basics for a good wheat crop:

- Have a good rotation
- Soil sample
- Choose varieties adapted to your area and that has some resistance to powdery mildew, Hessian fly, scab, etc.
- Manage crop as needed with insecticides, fungicides, etc.
- Refer to the NCSU Production Guide on NCSU Small Grain website if you have questions on any area of Production.

Good Luck in growing wheat, which represents 20% of the world's protein source!

Dan Weathington, *Executive Director*

NC Small Grain Growers Association

Each year brings specific management aspects that growers must overcome, and this year was no exception. From the cold, wet winter, to the late freeze in the Piedmont, to Fusarium Head Blight in the east; growers were presented with unique environmental circumstances state wide. The Small Grain Field Day Program has a singular goal: To support growers in managing their crop. This publication serves as a continuance of that and shows the field trials that were in our program this year.

Acknowledgements

Each event requires an ensemble of people to be successful. These include: Your local agriculture agents, University Specialists, cooperators, and industry representatives. Each location would like to acknowledge the individuals who continue to support our program.

Central Piedmont

The Central Piedmont Small Grains field day was made possible by the funding from the North Carolina Small Grain Growers Association, thank you for your support. We also acknowledge all the hard work performed by the Piedmont Research Station staff and the University Specialists, extension staff and graduate students. This year, several county extension agents participated in our event. We are excited that you are onboard and look forward to working with you in the future.

Coastal Plain

The Southern Coastal Plain Field Day Team expresses our appreciation to Forbis Farms of Lumber Bridge, NC for serving as the 2015 on-farm cooperator. We would also like to express our gratitude to the North Carolina Small Grain Growers Association for the primary funding of this program.

Lower Piedmont

Due to severe lodging this location was not harvested, however, a sincere appreciation is merited to the following individuals who helped make this event a success.

The Southern Piedmont Field Day Team expresses our appreciation to Gilliard Brothers Farm and Russell Mosley as the extension cooperator for the 2015 Southern Piedmont Field Day. We would also like to thank Cox Brothers Farms for their participation in on-farm trials and research demonstrations for the 2015 Small Grains Program. We would also like to express our gratitude to the North Carolina Small Grain Growers Association for the primary funding of this program.

For their continued support we would like to extend our appreciation to: Pioneer, Southern States, Bayer Crop Science, Crop Protection Services, Syngenta, BASF, Dow AgriScience, Dupont, and Union County Farm Bureau.

Northeast Ag Expo

The Northeast Ag-Expo team would like to thank this year's cooperator, White Hat Seed Farm, for their time, effort and materials. We would also like to thank the North Carolina Small Grain Growers association for funding this event.

Eastern Tidewater

Many thanks to our Cooperator Steve and Archie Griffin at Griffin Farms. We would also like to thank the extension staff that put in many hours of work: Andrea Gibbs (Hyde County), Jarette Hurry (Bertie County), Lance Grimes (Pitt and Martin County), and Frank Winslow (Retired, Tyrrell County).

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Disease Management

Disease and in small grain production is always one of the most difficult aspects to manage. Producers must adapt to the circumstances that develop each season.

Plant Pathologist Christina Cowger (USDA-ARS and NC State) had this to say about the 2014-2015 season:

"For the most part, 2014-15 was a low-disease year for North Carolina small-grain producers. The extremely cold winter meant that powdery mildew got off to a slow start and was rarely severe. Some Stagonospora nodorum blotch was seen in the Tidewater, but mostly it and leaf rust were minor. In any case, all three of those common diseases are readily managed with fungicides. Hessian fly was observed in the Kinston area, but did not appear to be widespread. Rather than fungal diseases, it was severe cold that caused the greatest losses statewide.

For North Carolina small grain production, the most significant disease/pest threat came once again this year from Fusarium head blight (scab). This fungal disease hurts yield and test weight, and leaves small-grain heads contaminated with vomitoxin (DON). With all the corn and sorghum debris in the mid-Atlantic landscape, scab has gone from an unknown disease to a potential source of damage every year. If it is rainy enough in the 2 or 3 weeks leading up to small-grain flowering, there will be a scab epidemic.

Fortunately, risk of economic losses can be greatly reduced by planting cultivars rated MR (moderately resistant) to scab. Unfortunately, the majority of the highest-yielding wheat varieties currently available in this state are not resistant to scab. Farmers who were hardest-hit by scab this year were those who planted large acreages of varieties with a scab rating of S for susceptible or MS for moderately susceptible. In most parts of the state, those growers dodged the bullet because there was not enough rain during the critical weeks before and during flowering in their fields. However, in the Tidewater area, weather conditions were right for scab to develop. It could as easily have been in any other part of the state, or throughout the state.

The best insurance against scab is to plant most or all wheat and barley acreage with moderately resistant varieties. When scab pressure is mild, this will be protection enough. In a severe scab year, the addition of a scab-targeted fungicide at flowering will usually be enough to retain profitability. At best, fungicide can reduce scab and DON an average of about 50%, and this is not enough in a bad scab year. Variety resistance is a vital part of managing a disease that is now with us to stay. In a recent study, varieties with moderate scab resistance were at least as profitable as susceptible varieties across scab epidemics and regions of North Carolina, and were more profitable when scab was heavy."

Management of Small Grain Diseases
Fungicide Efficacy for Control of Wheat Diseases (Revised 4-8-14)

The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184) has developed the following information on fungicide efficacy for control of certain foliar diseases of wheat for use by the grain production industry in the U.S. Efficacy ratings for each fungicide listed in the table were determined by field testing the materials over multiple years and locations by the members of the committee. Efficacy is based on proper application timing to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table. Table includes most widely marketed products, and is not intended to be a list of all labeled products.

Efficacy of fungicides for wheat disease control based on appropriate application timing

Fungicide(s)												
Class	Active ingredient	Product	Rate/A (fl. oz)	Powdery mildew	Stagonospora leaf/glume blotch	Septoria leaf blotch	Tan spot	Stripe rust	Leaf rust	Stem rust	Head scab	Harvest Restriction
Strobilurin	Picoxystrobin 22.5%	Aproach SC	6.0 - 12	G[1]	--	VG	VG	E[2]	VG	VG	NR	Feekes 10.5 and 45 days
	Fluoxastrobin 40.3%	Evito 480 SC	2.0 – 4.0	G	--	--	VG	--	VG	--	NL	Feekes 10.5 and 40 days
	Pyraclostrobin 23.6%	Headline SC	6.0 - 9.0	G	VG	VG	E	E[2]	E	G	NL	Feekes 10.5
Triazole	Metconazole 8.6%	Caramba 0.75 SL	10.0 - 17.0	VG	VG	--	VG	E	E	E	G	30 days
	Propiconazole 41.8%	Tilt 3.6 EC[3]	4.0	VG	VG	VG	VG	VG	VG	VG	P	Feekes 10.5
	Prothioconazole 41%	Proline 480 SC	5.0 - 5.7	--	VG	VG	VG	--	VG	VG	G	30 days
	Tebuconazole 38.7%	Folicur 3.6 F[3]	4.0	G	VG	VG	VG	E	E	E	F	30 days
	Prothioconazole19% Tebuconazole 19%	Prosaro 421 SC	6.5 - 8.2	G	VG	VG	VG	E	E	E	G	30 days
Mixed modes of action[4]	Metconazole 7.4% Pyraclostrobin 12%	TwinLine 1.75 EC	7.0 – 9.0	G	VG	VG	E	E	E	VG	NL	Feekes 10.5
	Fluxapyroxad 14.3% Pyraclostrobin 28.6%	Priaxor	4.0 - 8.0	G	VG	VG	E	VG	VG	G	NL	Feekes 10.5
	Propiconazole 11.7% Azoxystrobin 7.0%	Quilt 200 SC[3]	10.5 - 14.0	VG	VG	VG	VG	E	E	VG	NL	Feekes 10.5
	Propiconazole 11.7% Azoxystrobin 13.5%	Quilt Xcel 2.2 SE	10.5 - 14.0	VG	VG	VG	VG	E	E	VG	NL	Feekes 10.5
	Prothioconazole 10.8% Trifloxystrobin 32.3%	Stratego YLD	4.0	G	VG	VG	VG	VG	VG	VG	NL	Feekes 10.5 35 days
	Cyproconazole 7.17% Picoxystrobin 17.94%	Aproach Prima SC	3.4-6.8	G	--	VG	VG	E	VG	--	NR	45 days

[1] *Efficacy categories: NL=Not Labeled; NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent; -- = Insufficient data to make statement about efficacy of this product.*

[2] *Efficacy may be significantly reduced if solo strobilurin products are applied after stripe rust infection has occurred.*

[3] *Multiple generic products containing the same active ingredients also may be labeled in some states. Products including tebuconazole include: Embrace, Monsoon, Muscle 3.6 F, Onset, Orius 3.6 F, Tebucon 3.6 F, Tebustar 3.6 F, Tebuzol 3.6 F, Tegrol, and Toledo. Products containing propiconazole include: Bumper 41.8 EC, Fitness, Propiconazole E-AG, and PropiMax 3.6 EC. Products containing propiconazole + azoxystrobin include: Avaris 200 SC.*

[4] *Products with mixed modes of action generally combine triazole and strobilurin active ingredients. Priaxor is an exception to this general statement and combines carboxamide and strobilurin active ingredients.*

Coastal Plain Fungicide Test

Mac Malloy – Cooperative Extension, Robeson County

Location: Robeson County
Cooperator: Forbis Farms
Soil Type: Goldsboro
Variety: Pioneer 26R10

Plant Date: Nov 5
Seeding Rate: 1.5 million seeds per acre
Pre-plant N: 34 lb per acre
Top Dress N: 123 lb per acre

The Coastal Plain Fungicide Test consisted of seven treatments replicated four times. The yields and test weights from three fungicides, applied at two different timings were compared to a no application check. The three fungicides consisted of one triazole, Tilt 3.6 EC (4 fl oz/ac), one strobilurin, Headline SC (9 fl oz/ac), and one mixed chemistry fungicide, Quilt Xcel (14 fl oz/ac). Each fungicide was applied at two separate timings, topdress and flagleaf.

Results

Overall, yields were high, averaging over 100 bu/ac for each treatment and application timing (Figure 1 and 2). Test weights were low, but consistent for each treatment and application timing. There were no significant differences between yield or test weight (Figure 1 and 2).

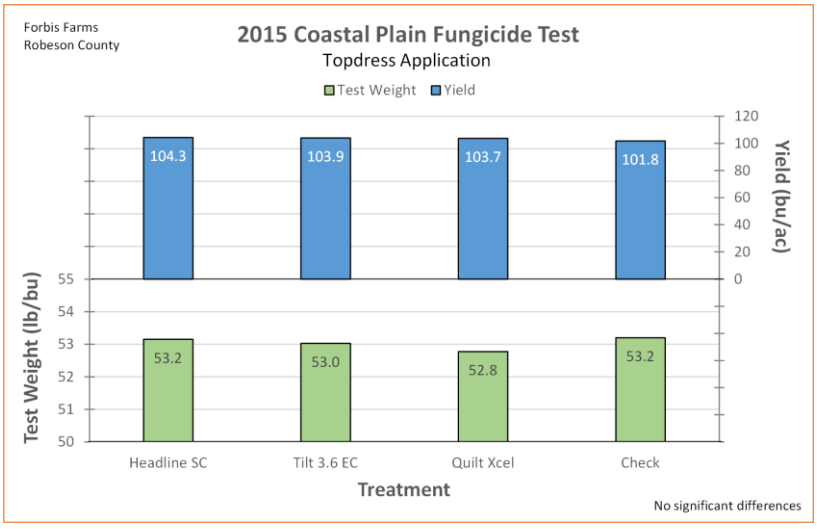

Figure 1: 2015 Coastal Plain Fungicide Test: Topdress application

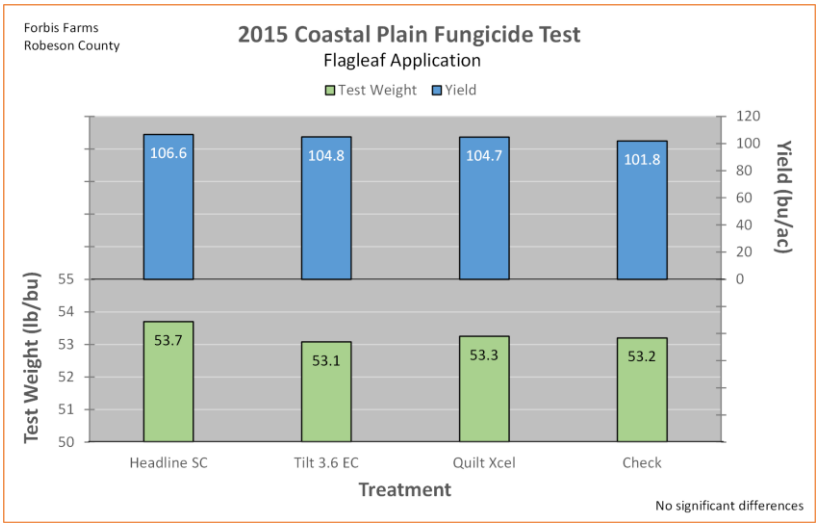

Figure 2: 2015 Coastal Plain Fungicide Test; Flagleaf application

Tidewater Fungicide Test

Rod Gurganus – County Extension Director, Beaufort County

Location: Beaufort County
Cooperator: Griffin Farms
Soil Type: Lenoir Loam
Variety: Pioneer 26R20

Plant Date:
Seeding Rate:
Pre-plant N: n/a
Top Dress N:

In conjunction with the Coastal Plain, the Tidewater group established their fungicide test with the same protocol to institute continuity between the two studies. Seven similar treatments were replicated four times and each fungicide was applied separately at both topdress and flagleaf.

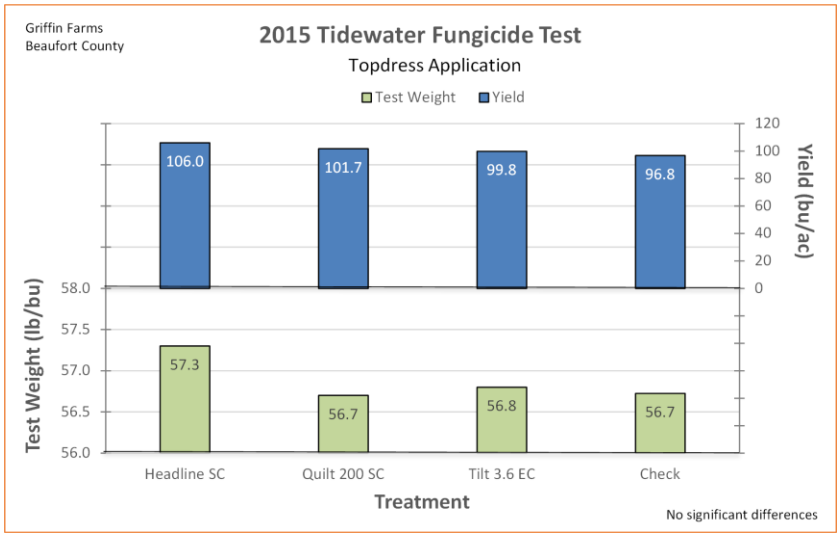

Figure 3: 2015 Tidewater Fungicide Test, Topdress Application

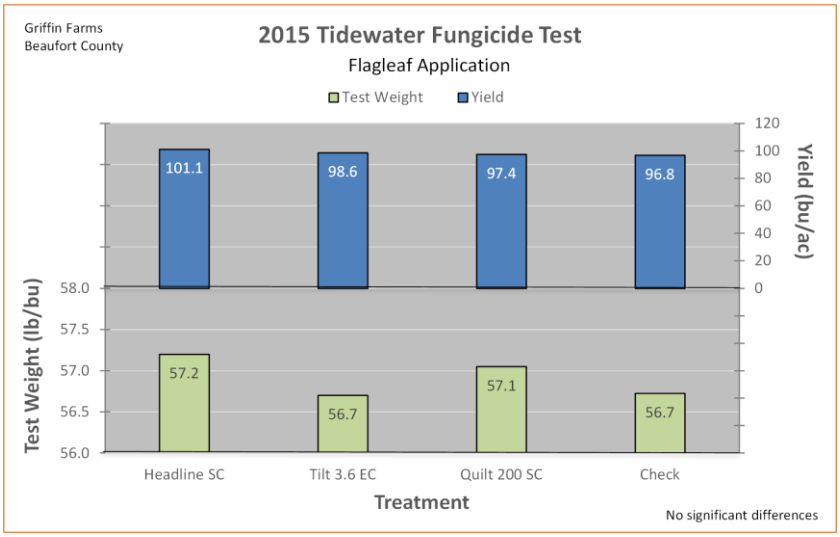

Figure 4: 2015 Tidewater Fungicide Test, Flagleaf Application

Results

Yields averaged 100 bu/ac across the entire test. However, yields were not significantly different between the treatments nor the application timings (Figure 3 and 4). Similar results were observed with test weight. The test weight averaged 57 lb/bu across the test and there were no significant differences between the treatments nor the application timings.

Coastal Plain Herbicide Test

Mac Malloy – Cooperative Extension, Robeson County

Location: Robeson County
Cooperator: Forbis Farms
Soil Type: Goldsboro
Variety: Pioneer 26R10

Plant Date: Nov 5
Seeding Rate: 1.5 million seeds per acre
Pre-plant N: 34 lb per acre
Top Dress N: 123 lb per acre

This test observed the yield response to four herbicides at two application timings compared to an untreated check. The four herbicides were *Fierce*, *Zidua*, *Tricor* at 1oz/ac, and *Tricor* at 2oz/ac. Each herbicide was applied as both a pre-plant application, and separately as a post-plant application (Epost, two leaf).

Results

Wheat yields were high, averaging nearly 100 bu/ac across the entire tests. Test weights were on the low side at approximately 54 lb/bu. There were no significant differences in yield or test weight for neither the pre-plant or post-planting applications (Figure 5 and 6).

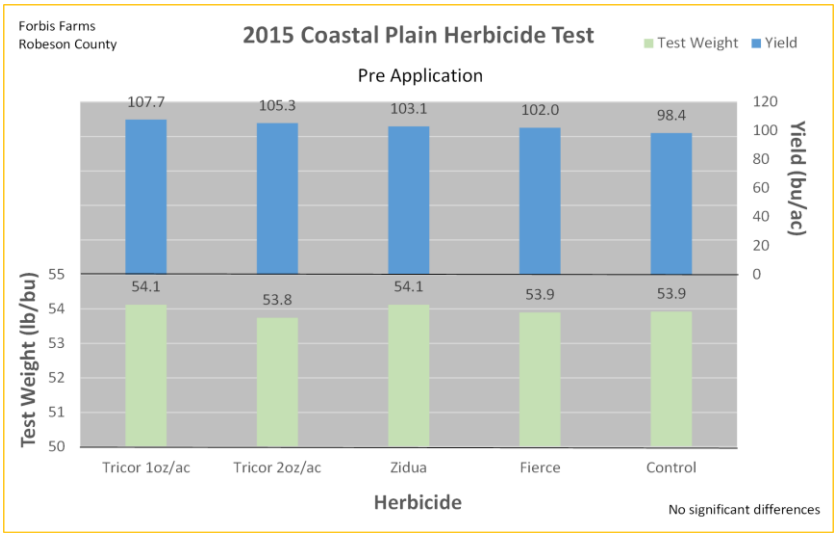

Figure 5: 2015 Coastal Plain Herbicide Test, Pre-plant application; Yield and Test Weight

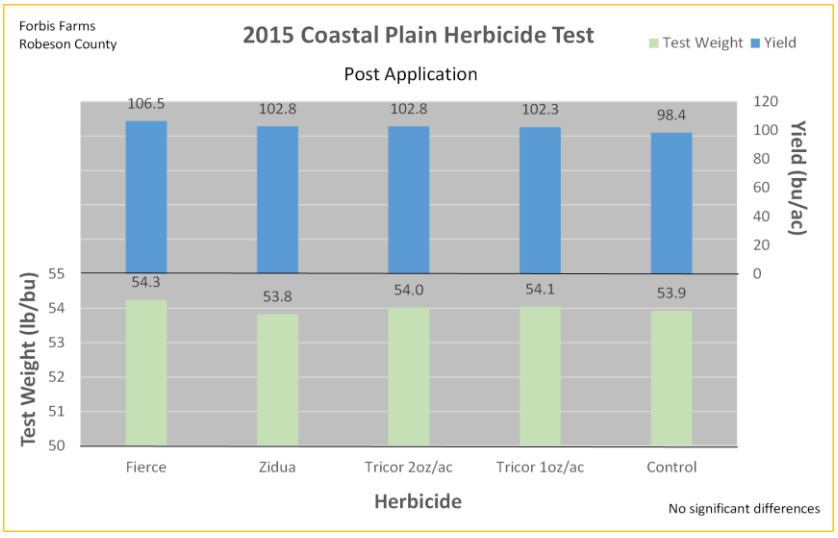

Figure 6: 2015 Coastal Plain Herbicide Test, Post-plant application; Yield and Test Weight

Coastal Plain Zidua Timing Test

Mac Malloy – Cooperative Extension, Robeson County

Location: Robeson County
Cooperator: Forbis Farms
Soil Type: Goldsboro
Variety: Pioneer 26R10

Plant Date: Nov 5
Seeding Rate: 1.5 million seeds per acre
Pre-plant N: 34 lb per acre
Top Dress N: 123 lb per acre

Herbicide application timing is key to a good weed management system. The object of this test was to observe the effect of different *Zidua* application timings on crop yield. Six *Zidua* application timings were compared to an untreated check and a single Axiom application at cracking stage.

Results

Yields were high throughout the test, averaging over 95 bu/ac. Good historical weed management at this location produced little pressure, resulting in no significant differences in yield or test weight between the herbicide applications and the untreated check (Figure 7 and 8).

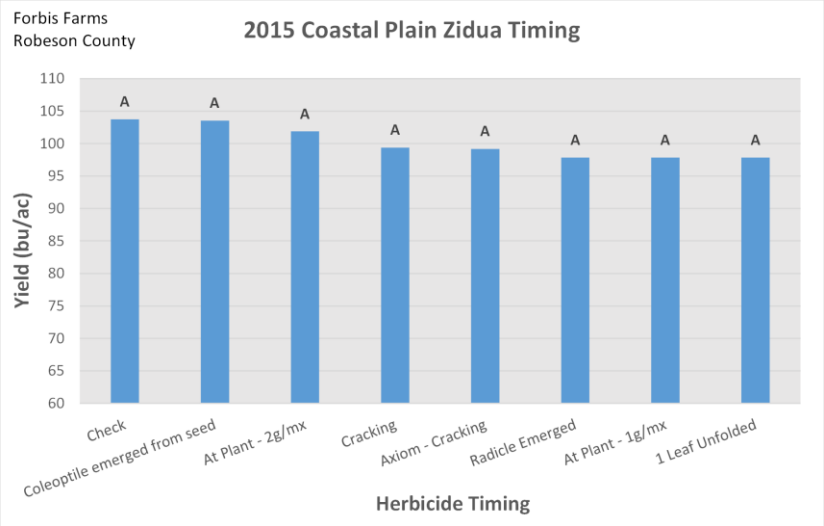

Figure 7: 2015 Coastal Plain Zidua Timing, Yield.

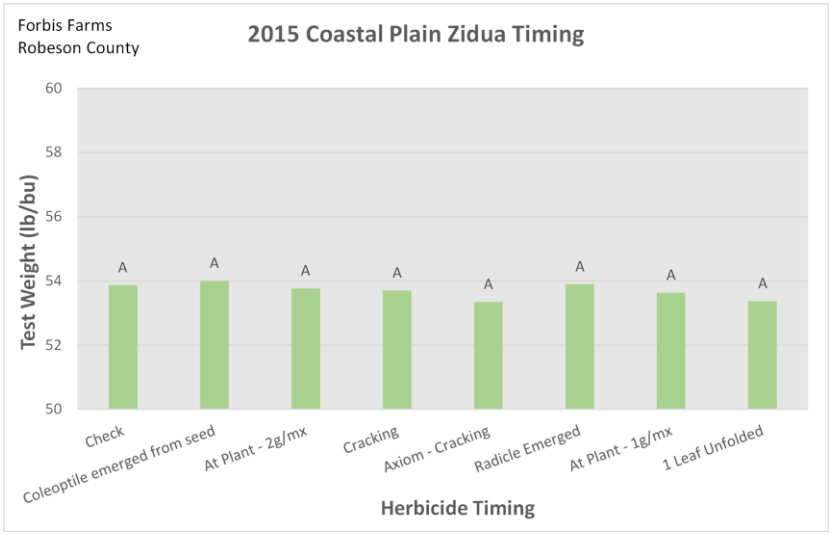

Figure 8: 2015 Coastal Plain Zidua Timing, Test Weight

Official Variety Testing

Each year the OVT program tests experimental and commercially available small grain varieties across the state. Presented here, as part of the 2014-2015 Field Day Report, are the results of the commercially available wheat varieties from the field day locations in addition to the statewide averages. While single year results are reported, it is recommended that growers use the multi-year statewide averages to base decisions upon

The OVT program utilizes a replicated randomized, complete block design. Each plot consisted of eight rows spaced 7.5 inches apart. The seeding rate was 23 seeds per row foot (approximately 1.6 million seeds per acre). Production practices were uniform across all varieties at each location and were in according with best management practices. Soil sampling insured adequate fertilizer and lime applications. These trials were only sprayed for cereal leaf beetle, where needed, in order to collect pest resistance data.

The following tables are taken from the *NORTH CAROLINA Measured Crop Performance Small Grains 2015* publication. The full report can be found at www.ncovt.com. The *Small Grains Field Day Program* appreciates the use of this information, and credits the Official Variety Testing program and the North Carolina Agricultural Research Service for the data.

Credit: John Hart. Associate Editor Southeast Farm Press

Table 4. Characteristics of COMMERCIAL WHEAT varieties across North Carolina performance trials.

Commercial Wheat Variety	Maturity	Head Type[1]	Pest Resistance To[2]									
			Powdery Mildew[3]	Leaf Rust	SNB[4]	Tan Spot	Stripe Rust	FHB[5]	Soilborne Wheat Mosaic	Wheat Spindle Streak	Barley Yellow Dwarf	Hessian Fly[6] Biotype-L
AgriMAXX 413	Med	A	MS	MS	S	MR		MS	MS	MR		P
AgriMAXX 415	Med	A	MS	MR	MR	MR		MR	MS	MR		F
AgriMAXX 427	Med	S	MR	S	MR	MS		MS	MR	MS		P
AgriMAXX 434	Med	A	MS	S	S	MR		MS	MS	MR		G
AgriMAXX 444	Late	A	MS	R	MR	MR		MR	MS	R		P
AgriMAXX 446	Late	A	MS		S			S	S			E
AGSouth AGS 2027	Early	AP	MR	R	S	MS		MS	MS			G
Armor Havoc	Med	A	MR		MS			MR	MS			
Dyna-Gro 9223	Med	AP	MS	S	MR	S		MS	MS	MR		P
Dyna-Gro 9522	Late	A	MR		MS			MR	MR			
Dyna-Gro 9552	Late	A	MS		MS			MS	MS			
Dyna-Gro Savoy	Early	AP	MR		S			MS	MS			G
Dyna-Gro Shirley	Late	AP	R	MR	MR			S	MR	MR	MR	P
Featherstone 73	Late	AP	MR		MR			MR	MS			G
Featherstone VA-258	Med	AP	MR	R	MR	S		S	MR	MR	S	P
Harvey's AP 1871E	Late	A	MR		S			MS	MS			
Harvey's AP 1882E	Late	A	MR		MR			MR	R			
Limagrain Cereal LCS 2214	Med	AP	MR		S			S	MS			
Limagrain Cereal LCS 2347	Late	AP	MS		MR			MR	MS			
Limagrain Cereal LCS NEWS	Med	AP	MR		MR			MR	S			
NC Yadkin	Late	AP	R	MR	MR	S	MS	MR	MR	R	MS	P
Pioneer 25R32	Late	A	MR	MS	MR	MR		MR	MR	R	MS	G
Pioneer 26R10	Late	A	MS	MS	MR	MR		MS	MR	R	MS	E
Pioneer 26R20	Late	A	MR	MR	MR	MR		S	R	MR	S	G
Pioneer 26R53	Med	A	MS	MS	S	MS		MS	MS	MR	MS	F
Progeny P 117	Med	AP	S	S	S	S		MS	S	MS	MS	P
Progeny P 357	Late	A	S	S	MR	MR		MS	R	R	MR	F
Progeny P 410	Late	AP	MS		MR			MR	MS			
Progeny P 870	Med	A	MR	MS	MS	MR		S	MR	MR	MR	P
Southern Harvest 3200	Med	AP	R		MR			MR	MS			
Southern Harvest 4300	Late	A	MS		MR			MR	MS			
Southern Harvest 4400	Late	AP	MS		S			MS	MS			
Southern Harvest 555	Med	AP	MR		MS			S	MS			
Southern States SS 520	Early	AP	MR		S			S	S			
Southern States SS 8340	Med	A	MS	MS	MR	MS		MR	MR	MR	MS	P
Southern States SS 8360	Late	A	MS		MS			MS	S			E
Southern States SS 8404	Med	A	MR	R	MS	MS	S	S	S	MS	MR	F
Southern States SS 8500	Late	A	MS	MR	MR	S		S	MS	MR	MR	F
Syngenta Oakes	Med	AP	S	MS	MR	MS		MR	S	MS	MS	P
Syngenta SY 9978	Med	A	R	MS	MR	MS		S	S	MR	MR	E
Syngenta SY Cypress	Early	A	MR		S			MS	MS			
Syngenta SY Harrison	Med	A	S	S	MR	MR		MR	MS	MR	MR	P
USG 3120	Early	A	R	R	S	S		S	MS	S	MR	G
USG 3201	Med	AL	MS	MR	MS	MS		MS	MR	MR	MR	F
USG 3251	Late	A	MS	MS	MR	MR		S	MR	MR		F
USG 3404	Late	A	MS	MS	MR	MR		MR	MS	R		E
USG 3523	Late	A	MS	S	MR	MR		MR	MR	MR		G
USG 3612	Med	S	MS		MR			MS	MR			F
USG 3756	Med	A	MS		MR			MR	MS			
USG 3833	Late	S	S		MR			MS	MR			G
USG 3895	Med	A	S		MR			MS	MS			
USG 3993	Med	AP	MR	MR	MR	MR		MR	MR	MR		F

[1] A = awned, AL = awnletted, AP = apically awnletted and S = smooth

[2] Based on all available information. Contributors include: Drs. Christina Cowger, Paul Murphy and Carrie Brinton

[3] R = Resistant, MR = Moderately Resistant, MS = Moderately Susceptible and S = Susceptible

[4] Stagonospora nodorum blotch

[5] Fusarium Head Blight

[6] E = Excellent, G = Good, F = Fair and P = Poor

Funding for pest resistance evaluation is provided in part by the NC Small Grain Growers Association

Table 6. Multi-year STATEWIDE performance summary of COMMERCIAL WHEAT varieties, 2013 - 2015.

Brand Variety or Variety	2015 One Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu	2014 - 2015 Two Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu	2013 - 2015 Three Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu
Pioneer 26R10	**82.6**	*	**12**	**57.4**	**74.7**	**	**1**	**57.3**	**77.0**	**	**1**	**57.1**
USG 3404	**83.5**	*	**9**	**56.5**	**73.0**	*	**2**	**56.5**	**76.1**	*	**2**	**56.2**
Pioneer 26R20	**79.4**	*	**19**	**58.6**	**72.6**	*	**3**	**58.4**	**74.4**	*	**4**	**58.0**
USG 3833	**78.9**	*	**21**	**56.9**	**72.3**	*	**4**	**56.8**	–		–	–
Dyna-Gro Shirley	**82.5**	*	**13**	**56.2**	**71.1**	*	**5**	**56.1**	**74.9**	*	**3**	**56.1**
Pioneer 26R53	**83.0**	*	**10**	**57.6**	**70.5**	*	**6**	**57.1**	**73.4**		**6**	**56.8**
AgriMAXX 415	**83.6**	*	**8**	**57.6**	**70.3**		**7**	**57.9**	**74.4**	*	**5**	**57.7**
AgriMAXX 434	**80.8**	*	**18**	**56.4**	**69.5**		**8**	**56.0**	**72.2**		**8**	**55.9**
USG 3523	**81.2**	*	**17**	**56.5**	**69.4**		**9**	**56.7**	**73.2**		**7**	**56.5**
Featherstone VA-258	**78.3**	*	**26**	**56.5**	**69.2**		**10**	**56.6**	**71.4**		**11**	**56.4**
USG 3120	**76.1**		**31**	**56.7**	**68.9**		**11**	**57.3**	**70.9**		**14**	**57.0**
USG 3201	**78.8**	*	**23**	**57.7**	**68.1**		**12**	**57.7**	**71.6**		**10**	**57.7**
Syngenta SY Harrison	**84.3**	*	**2**	**56.9**	**67.4**		**13**	**56.6**	**70.7**		**15**	**56.2**
USG 3251	**78.4**	*	**25**	**57.2**	**67.4**		**14**	**57.1**	**71.4**		**12**	**56.6**
Syngenta SY 9978	72.4		40	56.8	67.3		15	56.2	69.3		20	56.2
Southern States SS 8500	78.9	*	22	56.0	67.1		16	56.6	71.3		13	56.7
USG 3993	75.4		32	56.8	66.9		17	57.3	70.3		17	57.3
Dyna-Gro 9223	**84.2**	*	**4**	56.7	66.9		18	56.6	70.4		16	56.0
AgriMAXX 413	74.6		35	55.6	66.7		19	55.8	69.7		19	56.0
Southern States SS 8340	81.4	*	16	57.8	66.7		20	57.3	71.7		9	57.3
Featherstone 73	78.1	*	28	57.9	66.2		21	57.3	–		–	–
Southern States SS 8404	75.0		33	57.3	66.1		22	57.8	69.9		18	57.4
Pioneer 25R32	73.4		39	57.3	65.3		23	57.5	66.6		25	57.0
Progeny P 870	74.1		37	55.9	64.8		24	56.1	68.3		22	56.0
USG 3612	79.3	*	20	54.7	64.7		25	55.3	68.2		23	54.8
AgriMAXX 427	77.0		29	55.1	64.4		26	55.4	68.7		21	55.2
Syngenta Oakes	74.8		34	58.5	63.2		27	58.4	68.1		24	58.2
Progeny P 357	74.5		36	54.5	61.5		28	54.7	64.7		27	54.5
NC Yadkin	70.9		43	56.9	60.1		29	57.0	65.2		26	57.0
Progeny P 117	67.9		49	57.1	59.3		30	56.6	62.8		28	56.4
Southern Harvest 4300	**84.4**	**	**1**	56.0	–		–	–	–		–	–
Southern States SS 8360	**84.3**	*	**3**	57.7	–		–	–	–		–	–
Harvey's AP 1871E	**84.2**	*	**5**	56.7	–		–	–	–		–	–
Dyna-Gro 9552	**83.8**	*	**6**	56.8	–		–	–	–		–	–
Southern Harvest 4400	**83.7**	*	**7**	56.8	–		–	–	–		–	–
AgriMAXX 444	**83.0**	*	**11**	57.3	–		–	–	–		–	–
AgriMAXX 446	**81.6**	*	**14**	56.8	–		–	–	–		–	–
USG 3895	81.4	*	15	56.2	–		–	–	–		–	–
USG 3756	78.7	*	24	57.3	–		–	–	–		–	–
Dyna-Gro 9522	78.3	*	27	57.1	–		–	–	–		–	–
Progeny P 410	76.5		30	57.1	–		–	–	–		–	–
Southern Harvest 555	73.8		38	57.9	–		–	–	–		–	–
Harvey's AP 1882E	71.2		41	56.5	–		–	–	–		–	–
Armor Havoc	71.0		42	57.2	–		–	–	–		–	–
Southern Harvest 3200	70.5		44	56.1	–		–	–	–		–	–
Dyna-Gro Savoy	69.8		45	56.2	–		–	–	–		–	–
Limagrain Cereal LCS NEWS	69.6		46	57.3	–		–	–	–		–	–
AGSouth Genetics AGS 2027	69.4		47	56.1	–		–	–	–		–	–
Syngenta SY Cypress	69.4		48	57.1	–		–	–	–		–	–
Southern States SS 520	67.4		50	56.4	–		–	–	–		–	–
Limagrain Cereal LCS 2214	66.6		51	56.5	–		–	–	–		–	–
Limagrain Cereal LCS 2347	65.9		52	57.4	–		–	–	–		–	–
MEAN	**77.1**			**56.8**	**67.4**			**56.8**	**70.6**			**56.6**
SEM	3.1			0.5	1.9			0.4	1.5			0.3
LSD (p=0.10)	7.2			1.2	4.4			0.8	3.5			0.7
df LSD	153			153	232			232	324			324
# environments	4			4	9			9	13			13

Highest yielder. *Not significantly different from highest yielder. **BOLD entries comprise the upper quartile.

SEM - standard error of variety mean across environments

LSD - smallest difference between variety means considered different, across environments

Table 10. Performance of COMMERCIAL WHEAT varieties - Beaufort County, 2015.

Brand Variety or Variety	Yield *bu/a*	Test Weight *lb/bu*	Moisture *%*	Lodging *%*	Plant Height *inches*
USG 3612	**91.0 ****	**55.2**	**18.2**	**0**	**35**
Southern States SS 8500	**84.2 ***	**55.7**	**18.0**	**0**	**39**
Syngenta SY Harrison	**82.1 ***	**59.9**	**18.5**	**0**	**34**
Southern States SS 8340	**81.7 ***	**59.9**	**18.8**	**0**	**35**
USG 3523	**81.6 ***	**57.4**	**18.6**	**0**	**34**
USG 3993	**81.1**	**56.1**	**17.9**	**0**	**35**
Syngenta Oakes	**80.9**	**60.3**	**18.8**	**0**	**36**
Featherstone VA-258	**80.7**	**58.8**	**16.3**	**0**	**39**
Southern Harvest 4300	**80.4**	**58.6**	**17.4**	**0**	**34**
Southern States SS 8360	**80.4**	**60.5**	**16.9**	**0**	**34**
Dyna-Gro 9223	**80.1**	**58.3**	**18.4**	**0**	**39**
USG 3833	**79.7**	**57.9**	**18.7**	**0**	**38**
AgriMAXX 444	**78.3**	**59.0**	**18.4**	**0**	**37**
USG 3404	**78.2**	**56.7**	**17.8**	**0**	**36**
Harvey's AP 1871E	77.6	58.5	17.3	0	34
USG 3895	76.3	56.3	17.7	0	33
Progeny P 357	76.2	58.4	17.0	0	35
Featherstone 73	75.7	61.1	17.6	0	35
AgriMAXX 415	75.6	58.8	18.6	0	35
Pioneer 26R10	75.5	59.5	18.5	0	35
Dyna-Gro Shirley	74.5	55.9	17.6	0	33
USG 3756	74.3	57.3	19.0	0	36
AgriMAXX 427	74.0	54.9	18.1	0	35
AgriMAXX 446	74.0	56.8	18.0	0	35
Dyna-Gro 9552	73.6	58.6	17.3	0	35
Dyna-Gro Savoy	73.0	55.4	16.3	0	29
Southern States SS 520	72.8	59.1	17.2	0	36
Southern Harvest 4400	72.8	59.6	18.5	0	35
NC Yadkin	72.8	57.5	17.6	0	33
Limagrain Cereal LCS NEWS	71.8	58.6	18.4	0	36
USG 3120	71.4	57.2	18.2	0	34
Progeny P 410	70.4	57.7	18.7	0	40
Syngenta SY 9978	69.8	60.4	17.0	0	40
Southern States SS 8404	69.7	57.5	18.1	0	30
Harvey's AP 1882E	69.6	56.2	18.0	0	36
Southern Harvest 555	69.1	58.3	16.1	0	32
Progeny P 117	68.6	60.1	18.9	0	36
AgriMAXX 434	68.1	58.2	17.4	0	33
USG 3201	67.3	58.7	18.0	0	33
AgriMAXX 413	66.8	55.3	16.6	0	32
AGSouth Genetics AGS 2027	66.1	59.1	17.3	0	30
Pioneer 26R53	66.0	58.1	17.6	0	31
USG 3251	65.6	57.6	18.5	0	36
Limagrain Cereal LCS 2347	64.0	58.3	18.4	0	38
Progeny P 870	64.0	57.7	18.0	0	32
Pioneer 26R20	63.7	61.1	18.1	0	37
Pioneer 25R32	63.6	58.9	17.6	0	37
Dyna-Gro 9522	63.6	57.7	18.2	0	36
Armor Havoc	63.0	60.2	19.3	0	35
Syngenta SY Cypress	59.6	58.1	17.5	0	30
Limagrain Cereal LCS 2214	59.1	60.2	18.7	0	33
Southern Harvest 3200	52.4	56.2	17.7	0	33
MEAN	**72.5**	**58.1**	**17.9**	**0**	**35**
CV (%)	13.8				
avg SEM	4.5				
Trial Weight	0.36				
Variety F-value	3.2				
Variety Pr>F	<0.001				
avg LSD (p=0.10)	9.9				
df LSD	201				

Highest yielder. *Not significantly different from highest yielder. **BOLD entries comprise the upper quartile.

CV: within-trial variability as a percent of mean yield for the trial

avg SEM = [average (variance of variety mean)]$^{1/2}$; based on within-trial variation, referred to as avg SEM

Trial Weight = (1/ avg SEM^2 for trial) (1/ sum over trials of [1/avg SEM^2]); all locations of same trial sum to 1

avg LSD: smallest difference considered significant between varieties within the same trial

Table 8. Performance of COMMERCIAL WHEAT varieties - Perquimans County, 2015.

Brand Variety or Variety	Yield *bu/a*	Test Weight *lb/bu*	Moisture *%*	Lodging *%*	Plant Height *inches*
Dyna-Gro 9552	**99.4 ****	**59.9**	**12.9**	**0**	**35**
USG 3895	**98.6 ***	**59.6**	**12.8**	**0**	**34**
Southern Harvest 4300	**97.8 ***	**58.6**	**12.8**	**23**	**35**
Syngenta SY Harrison	**96.9 ***	**59.2**	**13.2**	**4**	**35**
Harvey's AP 1871E	**96.5 ***	**60.4**	**13.0**	**0**	**36**
Southern States SS 8360	**95.9 ***	**59.9**	**13.2**	**0**	**35**
AgriMAXX 446	**95.7 ***	**60.5**	**12.8**	**0**	**36**
USG 3756	**95.4 ***	**61.0**	**12.8**	**0**	**41**
USG 3612	**94.7 ***	**58.9**	**12.7**	**6**	**38**
Southern Harvest 4400	**93.8 ***	**59.1**	**13.3**	**0**	**37**
Dyna-Gro 9223	**93.2 ***	**58.7**	**13.5**	**6**	**38**
USG 3251	**92.8 ***	**60.1**	**12.9**	**0**	**36**
Dyna-Gro 9522	**92.8 ***	**60.1**	**13.4**	**2**	**36**
USG 3523	**92.0**	**60.0**	**13.0**	**3**	**37**
AgriMAXX 444	91.3	60.2	13.1	0	35
Pioneer 26R53	91.2	60.8	12.8	0	34
USG 3404	90.5	60.1	13.9	0	36
Southern States SS 8340	90.4	60.2	13.3	0	35
USG 3993	90.3	60.8	12.8	5	37
Pioneer 26R20	90.3	60.7	13.0	24	38
AgriMAXX 415	90.1	60.1	13.4	0	35
Pioneer 26R10	89.9	60.1	13.3	0	35
Featherstone 73	89.9	60.4	13.8	0	37
AgriMAXX 427	89.2	58.9	13.6	17	38
USG 3833	89.1	60.7	13.9	0	37
USG 3201	88.7	60.9	13.1	0	35
Southern States SS 8404	88.7	61.2	13.0	0	34
Dyna-Gro Shirley	88.5	59.4	12.9	0	33
Syngenta Oakes	88.3	61.5	13.6	22	39
Progeny P 357	87.5	58.6	12.9	0	34
AgriMAXX 434	86.9	59.6	12.7	0	34
Featherstone VA-258	86.3	58.9	13.1	18	40
Limagrain Cereal LCS NEWS	85.0	61.1	13.3	0	38
Syngenta SY 9978	85.0	58.2	13.0	30	40
Limagrain Cereal LCS 2347	84.2	60.8	13.6	11	40
Progeny P 410	84.0	59.8	13.3	0	39
Progeny P 870	83.9	59.0	12.5	0	34
AgriMAXX 413	83.6	59.7	12.8	0	35
AGSouth Genetics AGS 2027	83.6	58.2	13.0	15	33
Syngenta SY Cypress	82.5	59.5	13.3	4	34
Pioneer 25R32	81.1	60.4	13.1	0	37
USG 3120	81.0	61.0	13.2	0	38
Southern States SS 8500	80.4	59.3	13.2	4	38
Progeny P 117	79.5	59.5	13.1	36	38
Harvey's AP 1882E	78.1	60.0	13.1	0	36
Southern Harvest 3200	77.9	59.4	13.4	4	36
Southern States SS 520	77.6	58.3	13.0	14	37
NC Yadkin	77.2	60.8	13.0	11	38
Southern Harvest 555	75.6	60.4	13.1	0	35
Limagrain Cereal LCS 2214	75.1	58.8	13.1	45	37
Armor Havoc	74.8	59.2	13.0	0	35
Dyna-Gro Savoy	70.1	59.3	12.9	17	30
MEAN	**87.4**	**59.8**	**13.1**	**6**	**36**
CV (%)	8.3				
avg SEM	3.2				
Trial Weight	0.19				
Variety F-value	5.3				
Variety Pr>F	<0.001				
avg LSD (p=0.10)	7.3				
df LSD	206				

Highest yielder. *Not significantly different from highest yielder. **BOLD entries comprise the upper quartile.

CV: within-trial variability as a percent of mean yield for the trial

avg SEM = [average (variance of variety mean)]$^{1/2}$; based on within-trial variation, referred to as avg SEM

Trial Weight = (1/ avg SEM^2 for trial) (1/ sum over trials of [1/avg SEM^2]); all locations of same trial sum to 1

avg LSD: smallest difference considered significant between varieties within the same trial

Table 11. Performance of COMMERCIAL WHEAT varieties - Robeson County, 2015.

Brand Variety or Variety	Yield *bu/a*	Test Weight *lb/bu*	Moisture *%*	Lodging *%*	Plant Height *inches*
Dyna-Gro 9223	**76.8 ****	**56.3**	**13.7**	**3**	**35**
USG 3404	**76.6 ***	**57.1**	**14.0**	**0**	**33**
AgriMAXX 415	**76.0 ***	**57.4**	**13.6**	**0**	**30**
Dyna-Gro 9552	**75.9 ***	**56.0**	**14.1**	**0**	**31**
Southern States SS 8360	**74.8 ***	**56.4**	**13.9**	**0**	**32**
Harvey's AP 1871E	**74.4 ***	**55.4**	**13.8**	**0**	**34**
Syngenta SY Harrison	**74.0 ***	**56.6**	**13.1**	**0**	**32**
Featherstone VA-258	**73.6 ***	**55.8**	**13.3**	**2**	**33**
Pioneer 26R53	**73.0 ***	**56.9**	**13.5**	**0**	**30**
Southern Harvest 4300	**72.9 ***	**56.2**	**13.3**	**0**	**32**
Progeny P 410	**72.9 ***	**57.3**	**12.9**	**0**	**38**
Southern Harvest 4400	**72.3 ***	**54.3**	**13.1**	**0**	**33**
USG 3120	71.9 *	55.9	13.4	0	33
AgriMAXX 446	71.8 *	56.8	13.7	0	33
AgriMAXX 444	71.8 *	57.3	13.0	0	34
Dyna-Gro Shirley	71.6 *	56.2	13.6	0	33
Pioneer 26R10	70.9 *	56.9	13.1	0	32
USG 3833	70.9 *	54.7	13.9	0	35
Featherstone 73	70.8 *	56.6	14.1	0	33
Southern Harvest 555	70.7 *	57.7	13.4	0	31
Southern States SS 8500	70.3 *	56.5	13.1	0	33
AgriMAXX 434	69.6 *	55.7	13.0	0	31
USG 3895	68.5	56.4	12.8	0	31
AgriMAXX 427	68.0	54.9	13.2	0	32
USG 3612	67.8	52.9	13.7	2	33
Dyna-Gro 9522	66.7	56.7	14.3	0	33
Dyna-Gro Savoy	66.5	56.8	13.1	16	30
Southern States SS 8404	66.3	56.9	13.1	0	32
USG 3251	66.3	57.5	13.2	0	34
Southern States SS 8340	65.2	57.4	14.2	0	32
AgriMAXX 413	65.0	55.9	12.7	0	31
Southern Harvest 3200	64.6	56.0	13.3	0	30
USG 3523	64.2	56.4	13.3	0	33
USG 3201	63.9	57.4	13.5	0	30
Progeny P 870	63.1	55.0	13.8	0	31
Pioneer 25R32	62.9	56.3	14.1	0	36
Syngenta Oakes	62.7	57.0	14.1	2	32
Limagrain Cereal LCS NEWS	62.7	56.7	14.2	0	32
Syngenta SY Cypress	62.0	57.1	13.2	0	30
Syngenta SY 9978	61.9	56.1	13.5	2	38
Pioneer 26R20	61.7	57.3	13.2	0	32
NC Yadkin	61.3	56.0	13.5	4	31
Progeny P 117	58.5	55.7	13.8	34	35
Progeny P 357	58.2	51.1	13.1	0	33
Armor Havoc	57.9	56.6	13.6	0	33
USG 3993	57.8	56.7	13.2	0	32
AGSouth Genetics AGS 2027	57.2	54.2	13.3	24	29
Limagrain Cereal LCS 2347	56.1	56.8	13.6	34	35
Southern States SS 520	55.2	55.2	13.9	20	33
Harvey's AP 1882E	53.5	56.5	13.6	0	36
USG 3756	51.8	56.5	13.2	0	33
Limagrain Cereal LCS 2214	49.2	55.5	13.7	18	31
MEAN	**66.3**	**56.2**	**13.5**	**3**	**33**
CV (%)	11.6				
avg SEM	3.4				
Trial Weight	0.22				
Variety F-value	4.0				
Variety Pr>F	<0.001				
avg LSD (p=0.10)	8.0				
df LSD	202				

Highest yielder. *Not significantly different from highest yielder. **BOLD entries comprise the upper quartile.

CV: within-trial variability as a percent of mean yield for the trial

avg SEM = [average (variance of variety mean)]$^{1/2}$; based on within-trial variation, referred to as avg SEM

Trial Weight = (1/ avg SEM^2 for trial) (1/ sum over trials of [1/avg SEM^2]); all locations of same trial sum to 1

avg LSD: smallest difference considered significant between varieties within the same trial

Table 12. Performance of COMMERCIAL WHEAT varieties - Rowan County, 2015.

Brand Variety or Variety	Yield *bu/a*	Test Weight *lb/bu*	Moisture *%*	Lodging *%*	Plant Height *inches*
Pioneer 26R20	**98.1 ****	**55.2**	**13.1**	**0**	**38**
Pioneer 26R53	**97.6 ***	**54.6**	**12.9**	**0**	**33**
AgriMAXX 434	**96.3 ***	**52.0**	**12.4**	**3**	**33**
Dyna-Gro Shirley	**94.7 ***	**53.2**	**12.6**	**0**	**33**
Pioneer 26R10	**93.7 ***	**53.2**	**12.6**	**0**	**37**
Southern Harvest 4400	**93.4 ***	**54.2**	**12.7**	**0**	**38**
USG 3201	**92.9 ***	**53.8**	**12.5**	**0**	**35**
USG 3756	**92.8 ***	**54.4**	**12.8**	**4**	**38**
AgriMAXX 415	**92.1 ***	**53.9**	**12.9**	**0**	**35**
AgriMAXX 444	**90.8 ***	**52.7**	**12.4**	**0**	**37**
Southern States SS 8340	**90.5 ***	**53.6**	**12.9**	**2**	**36**
USG 3523	**89.1**	**52.1**	**12.6**	**7**	**35**
USG 3404	**88.8**	**52.0**	**12.6**	**0**	**36**
Armor Havoc	**88.1**	**52.8**	**12.3**	**0**	**37**
Harvey's AP 1871E	87.1	52.6	12.5	0	34
Dyna-Gro 9223	87.0	53.6	12.5	0	38
Southern Harvest 4300	86.3	50.6	11.9	12	35
Southern States SS 8360	86.0	54.1	12.8	0	36
Southern States SS 8500	85.9	52.4	13.1	11	40
Harvey's AP 1882E	85.8	53.1	12.4	0	38
Dyna-Gro 9522	85.6	53.7	12.7	0	37
USG 3251	85.2	53.6	13.0	3	39
Syngenta SY Harrison	84.7	51.9	12.5	0	35
Pioneer 25R32	84.5	53.6	12.6	4	38
Progeny P 870	83.3	51.8	12.3	0	33
Dyna-Gro 9552	83.0	52.7	12.6	3	35
AgriMAXX 446	82.8	53.2	12.7	4	34
Limagrain Cereal LCS 2214	82.5	51.6	12.9	3	34
Southern Harvest 3200	81.9	52.9	12.5	14	35
AgriMAXX 413	81.8	51.5	12.4	0	34
USG 3895	81.1	52.4	12.5	0	33
Southern Harvest 555	80.9	55.3	13.1	6	34
USG 3120	80.8	52.7	12.6	6	35
Progeny P 357	78.4	49.9	12.2	10	36
Progeny P 410	78.2	53.5	13.0	5	40
USG 3833	78.0	54.2	12.9	0	40
AgriMAXX 427	76.8	51.6	12.7	27	36
Featherstone 73	76.6	53.6	12.7	13	35
USG 3993	75.6	53.5	12.7	37	37
Featherstone VA-258	75.5	52.3	12.8	20	37
NC Yadkin	75.4	53.5	12.4	15	35
Southern States SS 8404	74.4	53.6	12.5	0	32
Dyna-Gro Savoy	74.0	53.2	13.0	76	33
Syngenta SY 9978	73.1	52.4	12.0	13	40
Syngenta Oakes	70.7	55.3	12.6	3	36
Syngenta SY Cypress	70.7	53.7	12.4	16	34
AGSouth Genetics AGS 2027	70.6	53.0	13.0	48	32
USG 3612	69.0	51.7	12.2	65	36
Southern States SS 520	67.8	52.8	12.6	32	35
Progeny P 117	66.8	53.0	12.7	36	39
Limagrain Cereal LCS NEWS	60.3	52.7	12.6	55	35
Limagrain Cereal LCS 2347	58.6	53.9	12.4	70	38
MEAN	**82.0**	**53.0**	**12.6**	**12**	**36**
CV (%)	9.6				
avg SEM	3.5				
Trial Weight	0.23				
Variety F-value	7.4				
Variety Pr>F	<0.001				
avg LSD (p=0.10)	8.0				
df LSD	200				

Highest yielder. *Not significantly different from highest yielder. **BOLD entries comprise the upper quartile.

CV: within-trial variability as a percent of mean yield for the trial

avg SEM = [average (variance of variety mean)]$^{1/2}$; based on within-trial variation, referred to as avg SEM

Trial Weight = (1/ avg SEM^2 for trial) (1/ sum over trials of [1/avg SEM^2]); all locations of same trial sum to 1

avg LSD: smallest difference considered significant between varieties within the same trial

Adaptive Wheat Management in 2015
Field Day Results and Observations

Ronnie Heiniger – Cropping Systems Specialist

Observations

The 2014-15 wheat growing season was unique in a number of ways. It featured a long period of wet, cold weather from mid-December through April and a very warm and dry late May and early June. The result was very little winter tiller development, poor utilization of split N applications and a short grain fill period. Growers who did not adapt to these conditions realized lower yield and poor test weight. The following are some observations of what practices worked well in 2014-15.

Successful Management Practices in 2014-15

1. Planting early – Growers planting from mid-October to mid-November realized the best yield. Planting early allowed the wheat to develop tillers before the cold, wet winter. Growers planting later in November or early December were disappointed with their yield.

2. Nitrogen Applied at Planting – The following table shows tissue samples taken in early February from the field day site at White Hat. Both the no N and N at planting treatments had lower tissue concentrations than we would like but the N at planting treatment did have more biomass, % N, and % Mg. Other data shows that if we could protect that N applied at planting from leaching or denitrification from the frequent rainfall events tissue concentrations of all the major and minor nutrients increased.

		Nutrient Content at GS25				
	Dry Weight	N	P	K	Mg	S
	g/3 ft	%	%	%	%	%
Sufficiency	----	2.00	0.25	2.00	0.10	0.25
No N @ Planting	12.5	1.53 b	0.16	1.26	0.05 b	0.08
30 # N @ Planting	13.5	1.88 a	0.16	1.37	0.06 a	0.09
LSD p < 0.05	ns	*	ns	ns	*	ns

3. Higher N Rates at Jointing – The loss of N due to frequent rainfall and the need to keep green leaf area in May when the weather turned hot and dry made the decision of how much N to apply at topdress (GS 30) an important one. In comparison to most years where 120 lbs of N at planting was sufficient this season the field day results show that N rates closer to 150 lbs of N were required to achieve optimum yield (Figure 1).

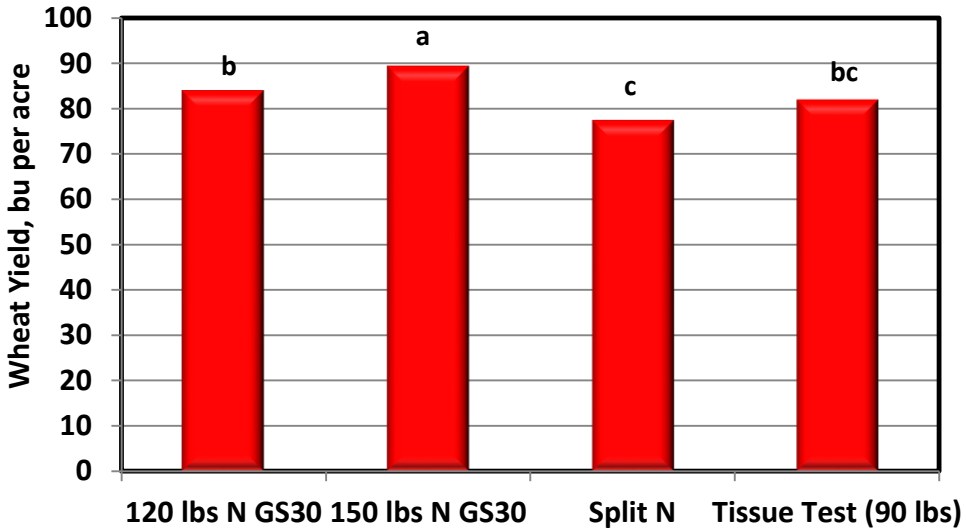

Figure 1. Wheat yield resulting from different nitrogen rates applied either in a split application or entirely at jointing (GS30) to plots at the field day location in Beaufort County.

4. Preventing or Reducing Scab Infection – Late flowering (late April into early May), warmer weather and rainfall made scab a major disease issue this year. Breeders, agronomists, and growers will need to use the information on varieties and management practices gained from the field days to design a strategy to reduce scab infections in the future.

Conclusions

There were a number of interesting results from the field day tests that highlight successful practices during the 2014-15 growing season. Growers should remember to use these results in light of the weather that was experienced at each location. Successful growers will learn to adjust their approach based on these results, their individual small grain management system, and the outlook for weather in the 2015-16 season.

Coastal Plain PGR Test

Mac Malloy – Cooperative Extension, Robeson County

Location: Robeson County
Cooperator: Forbis Farms
Soil Type: Goldsboro
Variety: Pioneer 26R10

Plant Date: Nov 5
Seeding Rate: 1.5 million seeds per acre
Pre-plant N: 34 lb per acre
Top Dress N: n/a

Plant growth regulators (PGR) have been used successfully to manage wheat crops depending on fall and winter growth. In this test two plant growth regulators were applied at two different rates: *Setup* at 5.3 and 10.7 oz/ac and *Palisade* at 10.5 and 14.4 oz/ac. Furthermore, each PGR application rate was applied on two different nitrogen rates: 120 and 150 lb/ac. All treatments were applied at GS 31 and were compared to no PGR application check which was fertilized at the same rates.

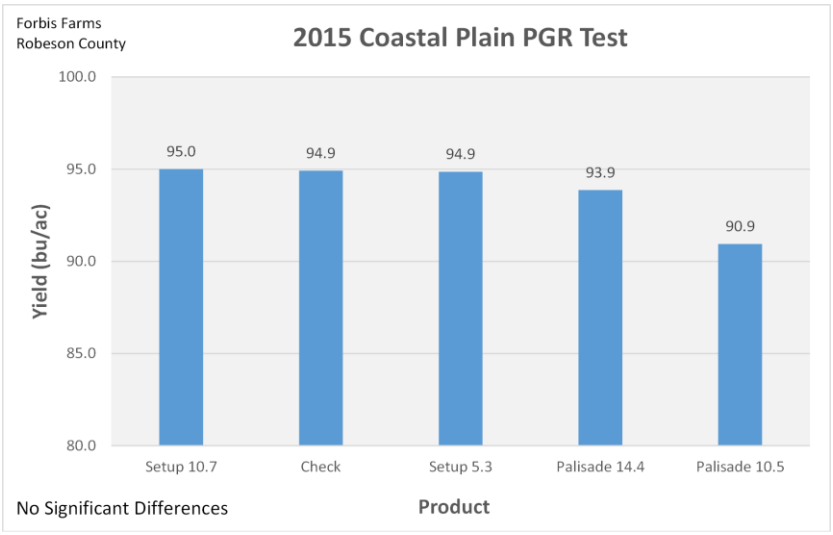

Figure 9: 2015 Coastal Plain PGR Test; Yield

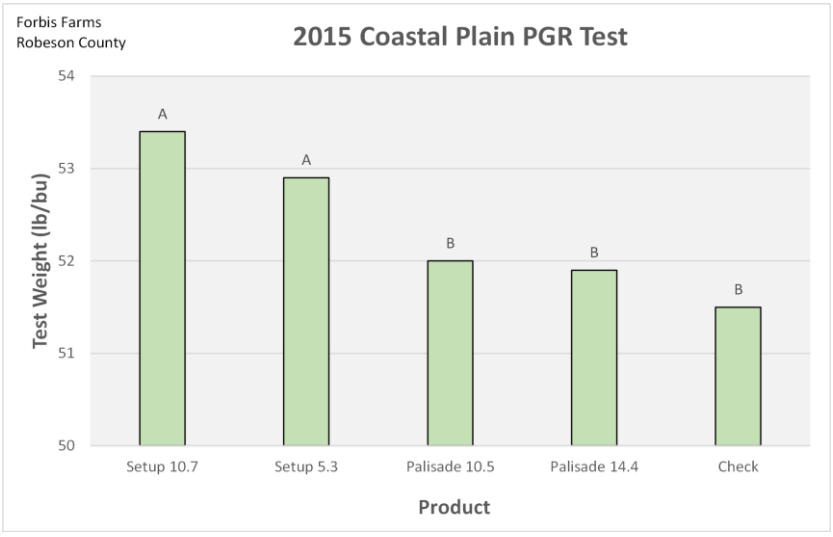

Figure 10: 2015 Coastal Plain PGR Test; Test Weight

Results

There were no significant differences in yield or test weight between the two nitrogen rates. However, differences were seen in test weight between the PGR treatments (Figure 10). Both *Setup* PGR treatments resulted in higher test weights than all other treatments, which had similar test weights. Moreover, there were no significant differences in yield between PGR treatments (Figure 9).

Tidewater PGR Test

Rod Gurganus – County Extension Director, Beaufort County

Location: Beaufort County
Cooperator: Griffin Farms
Soil Type: Lenoir Loam
Variety: Pioneer 26R10

Plant Date: Nov 6
Seeding Rate: 1.25 million seeds per acre
Pre-plant N: n/a
Top Dress N: 130 lb per acre

An additional PGR study was carried out in Beaufort County at the Tidewater Field Day location. In this test eight treatments were used to compare *Palisade* application timing and rates to a no PGR application check. *Palisade* was applied at GS 5 at 3.5 and 7 oz/ac, as well as at GS 6 at 7 oz/ac. In addition to the PGR applications there were two pre-plant nitrogen rates; 30 and 40 lb/ac. Two no PGR application checks were used at both nitrogen rates.

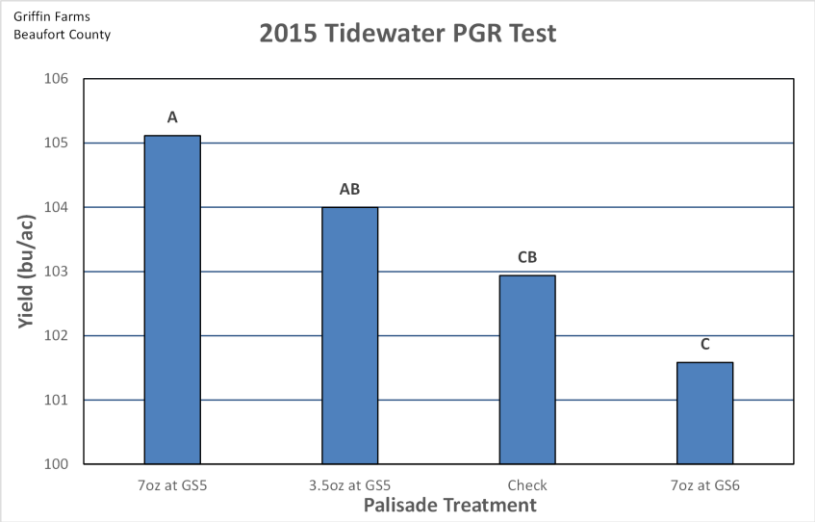

Figure 11: 2015 Tidewater PGR Test; Yield

Results

Yield results showed significant differences between *Palisade* treatments but not between pre-plant nitrogen rates. *Palisade* applied at 7 and 3.5 oz/ac at GS 5 resulted in the highest yields, however, the 3.5 oz/ac application was similar to the no application check. While similar to the check, the 7 oz/ac application at GS 6 resulted in the lowest yield (Figure 11).

Test weight results were different in that the 7 oz/ac applications (applied GS 5 and 6) realized the highest test weights. The 3.5 oz/ac applied at GS 5 and the no PGR application check were similar and lower than the other two treatments (Figure 12).

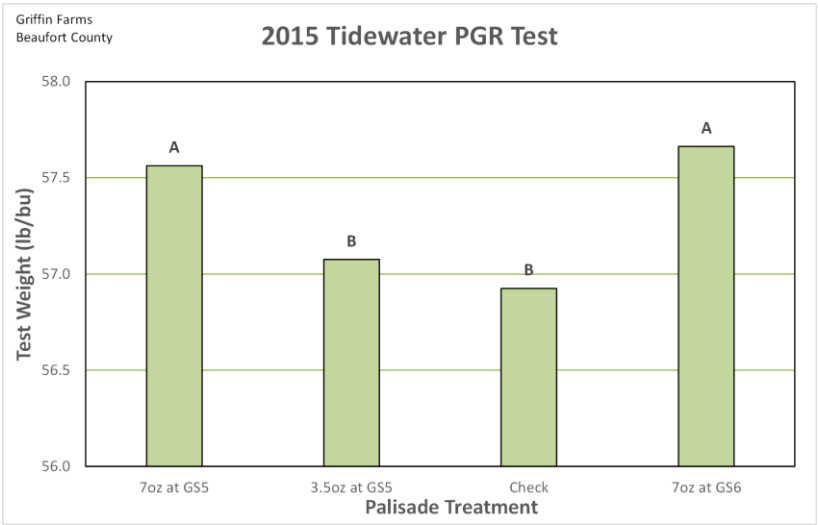

Figure 12: 2015 Tidewater PGR Test; Test Weight

Broadcast vs Drilled Planting

Josh Edgell – Small Grains Extension Associate, NC State
Brandon Poole – Small Grains Research Technician, NC State

Location: Rowan County
Cooperator: Piedmont Research Station
Soil Type: Lloyd Clay Loam
Variety: Pioneer 26R10

Plant Date: Oct 17
Seeding Rate: na
Pre-plant N: 30 lb N/ac
Top Dress N: 80 lb N/ac

Broadcast seeding is an intriguing management tool that many growers have inquired about. Ideally this method allows growers to make fewer trips across the field, thus saving time and fuel. This test was initiated in 2013 at Piedmont Research Station in Rowan County to determine the yield potential of this type of seeding. The results below are from the 2014-2015 season.

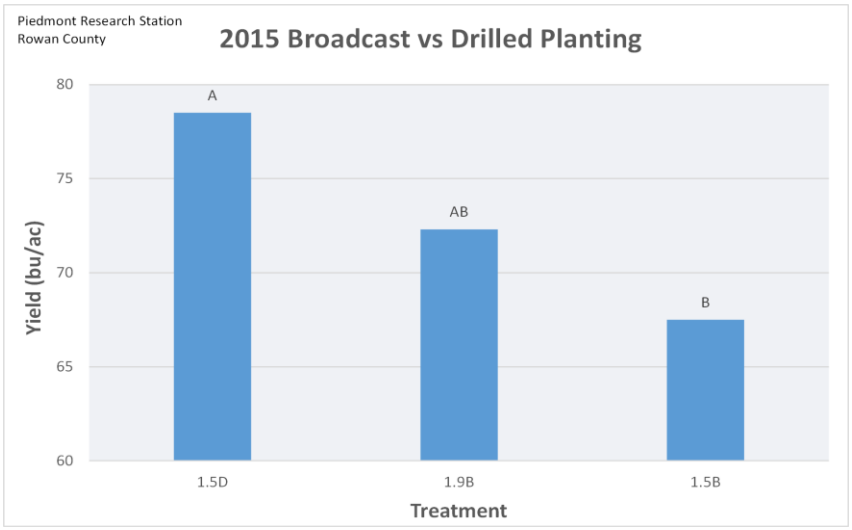

Figure 13: 2015 Broadcast vs. Drilled Planting Yield

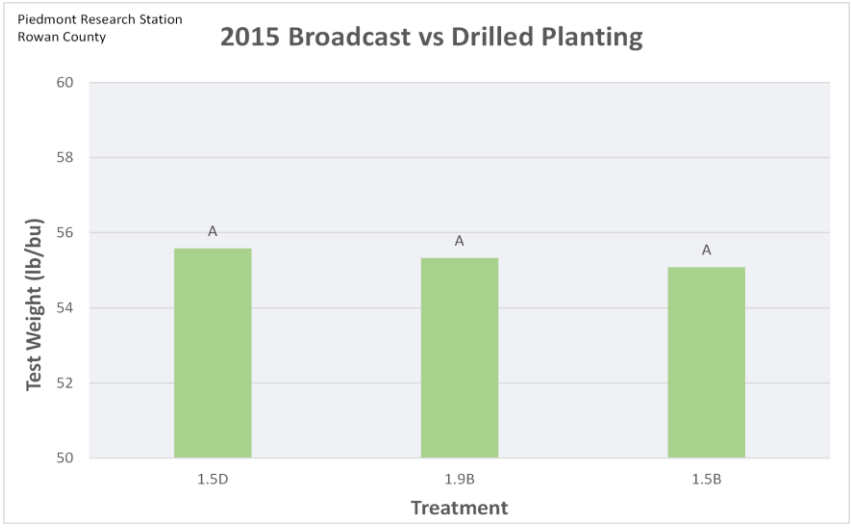

Figure 14: 2015 Broadcast vs Drilled Planting Test Weight

Wheat yields were compared from two broadcast seeding rates, 1.5 and 1.9 million seeds per acre, to the typical drilled seeding rate of 1.5 million seeds per acre (approximately 22 seeds per row foot). Two passes with a turbo-till was used; one to prep the seed bed and one after planting in broadcast treatments. A total of 110 lb of nitrogen per acre (including pre-plant N) was applied to each treatment

Results

The drilled seeding treatment yielded significantly higher than the 1.5 million seeds per acre broadcast but was similar to the 1.9 million seeds per acre broadcast treatment (Figure 13). While these results are similar to last year's, this season realized heavy ryegrass pressure in all treatments. This pressure is believed to have limited yield potential. Test weight was similar between all treatments (Figure 14).

Northeast Planting Date Test

Josh Edgell – Small Grains Extension Associate, NC State

Brandon Poole – Small Grains Research Technician, NC State

Location: Pasquotank County
Cooperator: White Hat Seed Farm
Soil Type: Roanoke Silt Loam
Variety: n/a

Plant Date: Nov 5 and Nov 19
Seeding Rate: 22 and 24 seeds per row foot
Pre-plant N: 12 lb N/ac
Top Dress N: 125 lb N/ac

This test was initiated to observe the yield differences between on-time and late planted wheat. Four varieties, two early heading (NC Cape Fear and UniSouth Genetics 3120) and two late heading (Dyna-Gro Shirley and Pioneer 26R10), were planted on-time (Nov 5) and two weeks late (Nov 19). Each planting date contained all four varieties, as well as each variety having an insecticidal and fungicide seed treatment or no seed treatment application. The seeding rate of 1.5 million seeds per acre (approximately 22 seeds per row foot) was utilized for the on-time planting, and was increased 10% for the late planting. These treatments were replicated four times within each planting date.

Results

Overall, there was no significant differences in yield between the two planting dates (Figure 15). This was expected as the seeding rates were increased with the late planting as recommended. However, there was variety differences across the planting dates (Figure 16).

To break this down further, the planting dates were analyzed separately to determine yield differences between variety and seed treatments. Pioneer 26R10, a late heading variety, performed better when planted earlier in the season, while NC Cape Fear, an early heading variety, yielded better when planted later in the season (as should be expected). DG Shirley and USG 3120 performed similarly between the two planting dates.

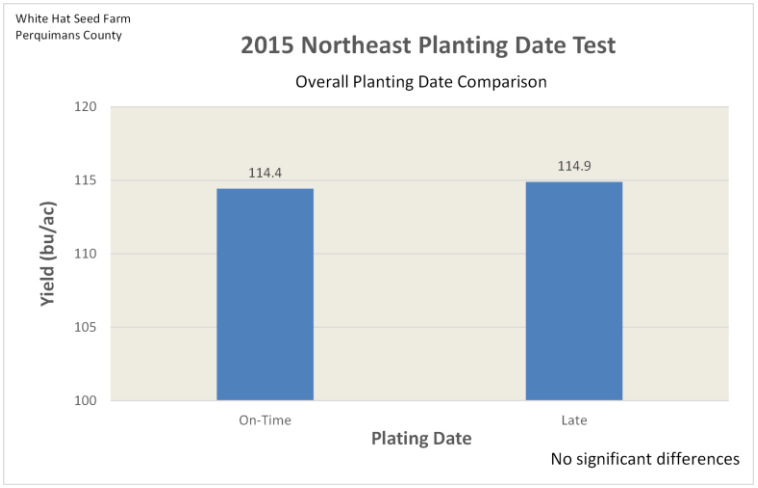

Figure 15: 2015 Northeast Ag Expo Planting Date Test, On-time vs. Late Yield Comparison

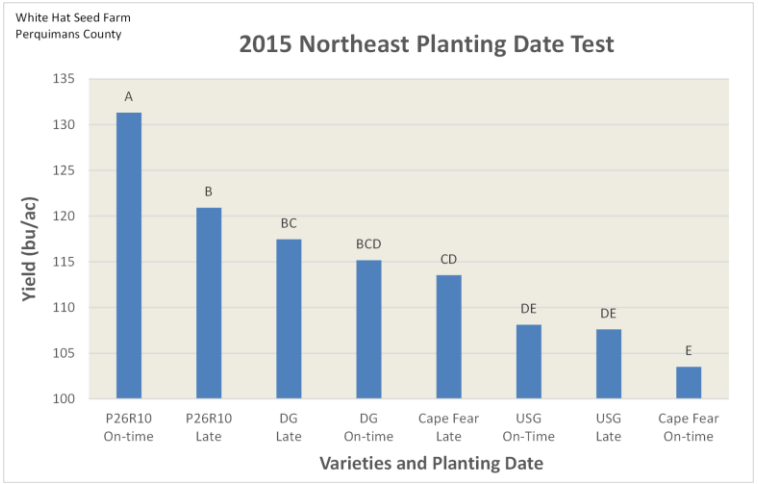

Figure 16: 2015 Northeast Ag Expo Planting Date Test, Variety and Planting Date Yields

It should be noted that even though NC Cape Fear is rated as a below average yielding variety, it still performed above 100 bu/ac (Figure 17). Treatments with treated seed yielded higher than the treatments with untreated seed for the on time planting but not the late planting (Figure 18). The warmer temperatures, which promotes disease pressure, is the likely cause for the significantly different yields between treated and untreated seeds in the on-time planting.

Varieties with different lowercase letters represent significantly different yields within that planting date.

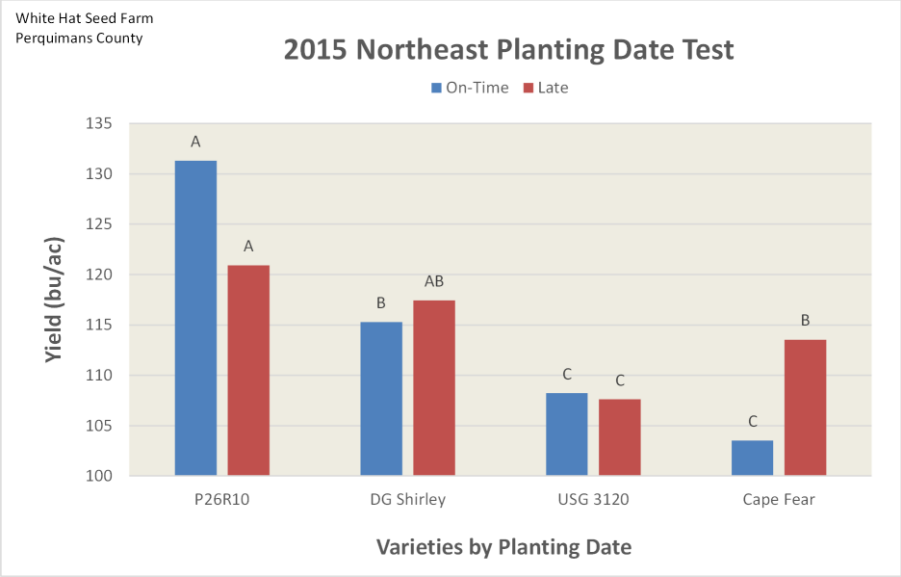

Figure 17: 2015 Northeast Ag Expo Planting Date Test, Varieties by Planting Date Yield

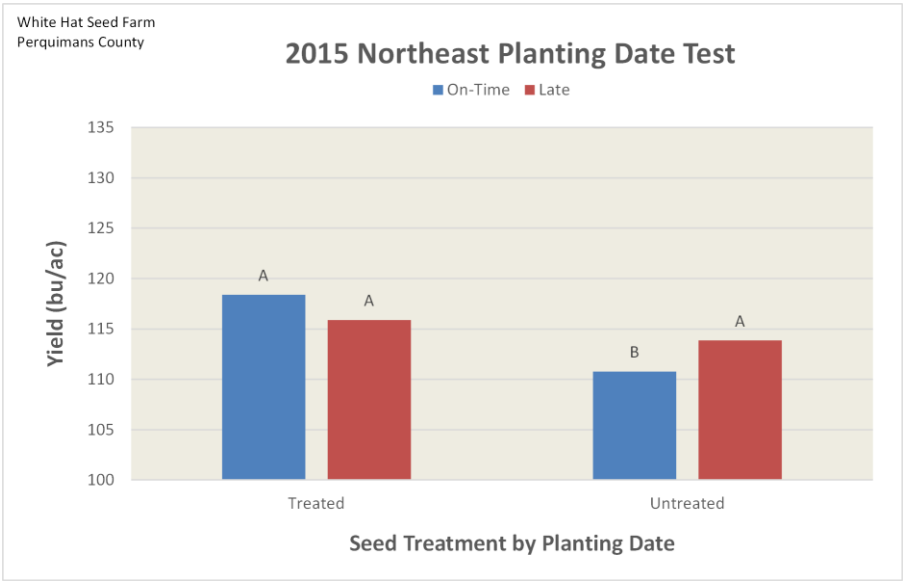

Figure 18: 2015 Northeast Ag Expo Planting Date Test, Seed Treatment by Planting Date Yields

Tidewater Planting Date Test

Rod Gurganus – County Extension Director, Beaufort County

Location: Beaufort County
Cooperator: Griffin Farms
Soil Type: Lenoir Loam
Variety: Shirley

Plant Date: Various
Seeding Rate 1.25 million seeds per acre
Pre-plant N: n/a
Top Dress N:

A key element to a successful wheat crop is insuring that it is planted on time. Growers often struggle getting one crop out of the ground before it is time to be planting the next. The Tidewater Planting Date Test illustrates the effects of planting 2, 4, 6, and 8 weeks late, compared to an on-time planting (October 25-November 4, depending on location for this area). While it is recommended that you increase your seeding rate 5-10% for every week after ideal planting, this test did not increase seeding rates to show just how important of a concept that is.

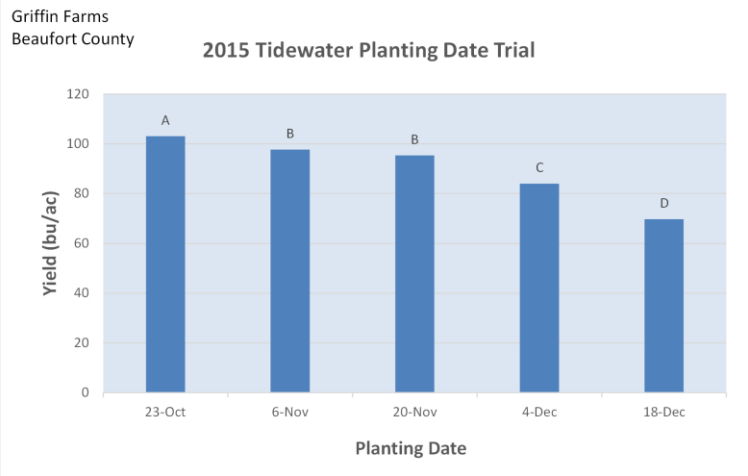

Figure 19: 2015 Tidewater Field Day Planting Date Trial, Yield

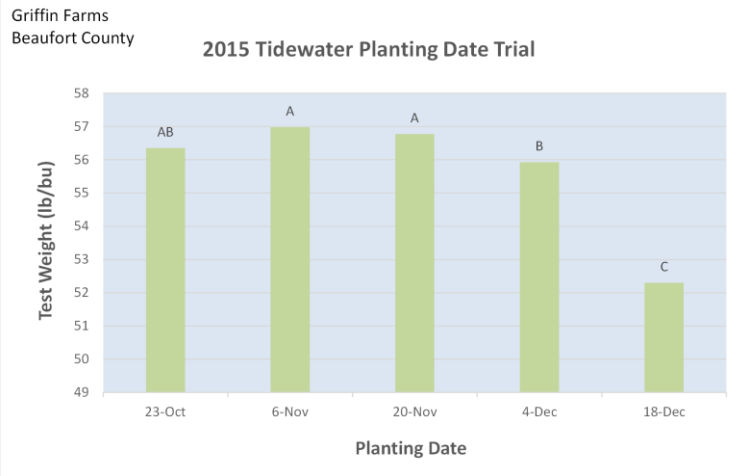

Figure 20: 2015 Tidewater Field Day Planting Date Trial, Test Weight

Results

The on-time planting (Oct-23) yielded significantly higher than all other treatments (Figure 19). Yields progressively dropped from their high of ~100 bu/ac when planted on-time to ~70 bu/ac when the crop was planted 8 weeks late. The 2 and 4 weeks late planting (Nov-6 and Nov-20), yielded the second highest while the 6 weeks late yielded the third highest. Test weights were highest between the first three planting dates, while the last two realized the lowest test weight (Figure 20).

Planting dates with different lowercase letters represent significantly different values.

Foliar Enhancement Trial

Mac Malloy – Cooperative Extension, Robeson County

Location: Robeson County
Cooperator: Forbis Farms
Soil Type: Goldsboro
Variety: Pioneer 26R10

Plant Date: Nov 5
Seeding Rate: 1.5 million seeds per acre
Pre-plant N: 34 lb per acre
Top Dress N: 123 lb per acre

Foliar enhancement products provide a useful tool for producers in the event they need to correct a nutrient deficiency in their crop. Five products were tested against a no treatment check to compare yields and test weights. They include: *Black Label* (6-20-0 + 0.77% Zn; 2 gal/ac), *Brandt Trio* (4-0-0 + 3% S, 0.25% B, 3% Mn, 3% Zn; 1 qt/ac), *Grain Set* (1% S, 0.8 % Mn, 1.2% Zn; 8 oz/ac), Iron Man (20-0-0 + 0.5% Fe, 0.3% S; 2 qt/ac), and *Reveille* (15-0-3 + trace B, Cu, Fe, Mn, Mo, Zn); 3 qt/ac). All products were applied at growth stage 31 except *Brant Trio* (Flagleaf), *Grain Set* (applied at GS31 and Flagleaf), and *Iron Man* (one treatment applied at GS 31, a second treatment using an application at GS31 and Flagleaf) for a total of seven treatments replicated four times.

Results

Yields were consistently high throughout the entire test, while test weights were generally low. There wasn't any significant differences between treatments for yield or test weights (Figure 21).

Note: These results indicate that no nutrient deficiency was present. Pre-plant fertility was assessed and corrected as needed. Given the presence of a deficiency, results may differ.

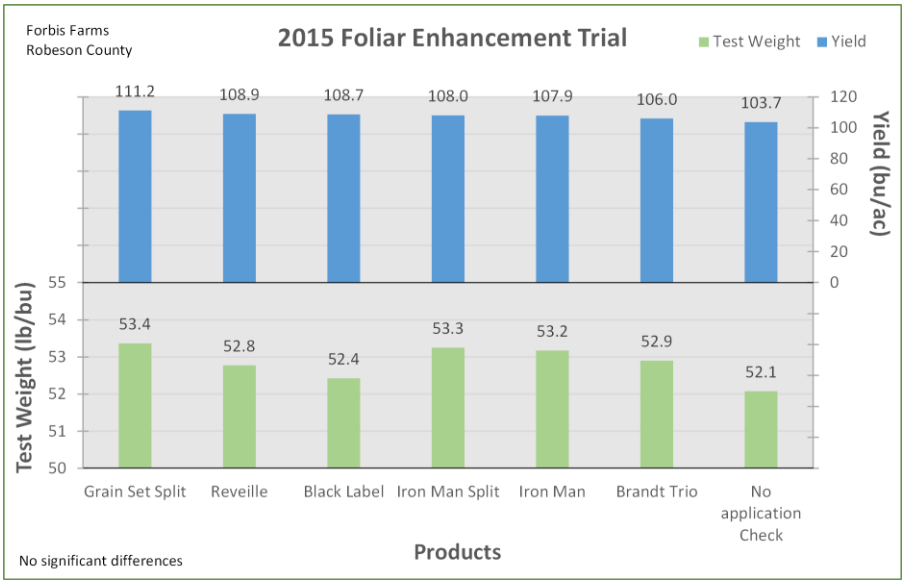

Figure 21: Coastal Plain Field Day Foliar Enhancement Trial, Yield and Test weight

Northeast Variety Trial

Al Wood – Cooperative Extension, Pasquotank County

Location: Pasquotank County
Cooperator: White Hat Seed Farm
Soil Type: Roanoke Silt Loam
Variety: n/a

Plant Date: Nov 5
Seeding Rate: 1.9 million seeds per acre
Pre-plant N: 12 lb N/ac
Top Dress N: 125 lb N/ac

These figures illustrates the results from the Northeast Ag-Expo Field Day variety trial. This trial, used along with the OVT results, should help direct growers in selecting their varieties. In this test, twenty-eight varieties were replicated four times. It is recommended that growers plant at least three varieties to reduce overall crop pressure from disease, freeze, and pest damage.

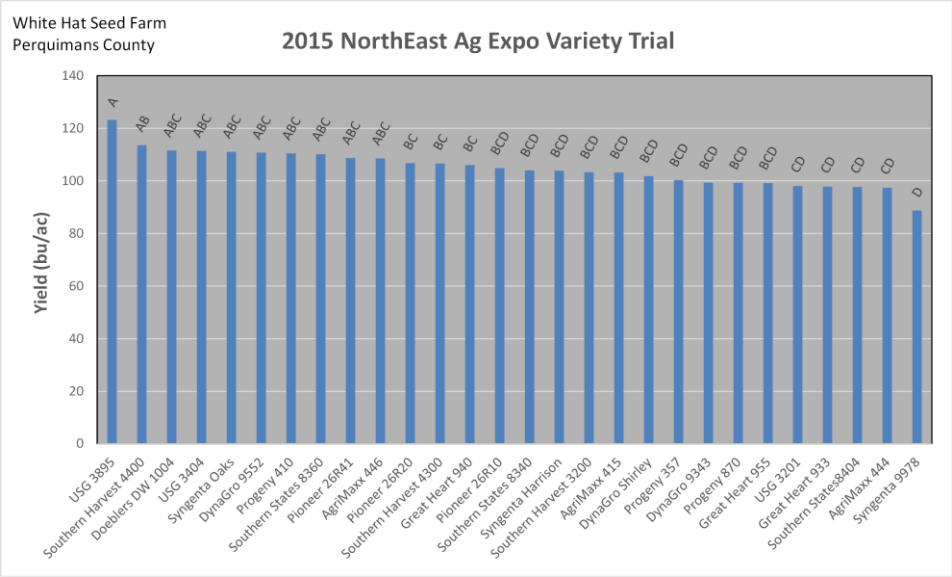

Figure 22: 2015 Northeast Ag Expo Field Day Variety Trial, Yield

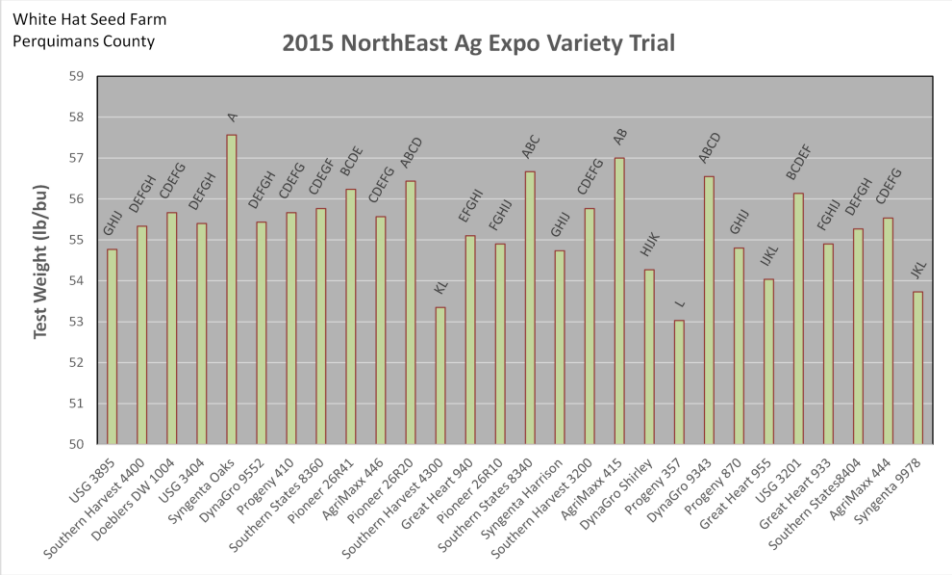

Figure 23: 2015 Northeast Ag Expo Field Day Variety Trial, Test Weight

Tidewater Variety Trial

Rod Gurganus – County Extension Director, Beaufort County

Location: Beaufort County
Cooperator: Griffin Farms
Soil Type: Lenoir Loam
Variety: n/a

Plant Date:
Seeding Rate: 1.25 million seeds per acre
Pre-plant N: n/a
Top Dress N:

Variety selection is key to small grain management. It is recommended to plant at least three varieties to reduce crop susceptibility to failure from pest, disease and freeze damage. The Tidewater Field Day variety trial consisted of 22 varieties replicated four times. This test, along with the OVT results, is intended to guide growers in this region with choosing their varieties.

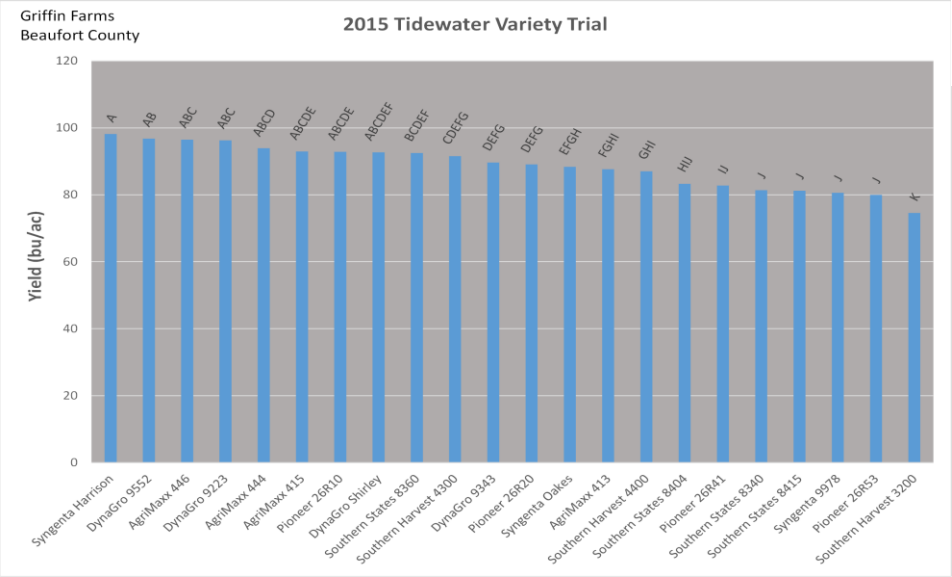

Figure 24: 2015 Tidewater Field Day Variety Trial, Yield

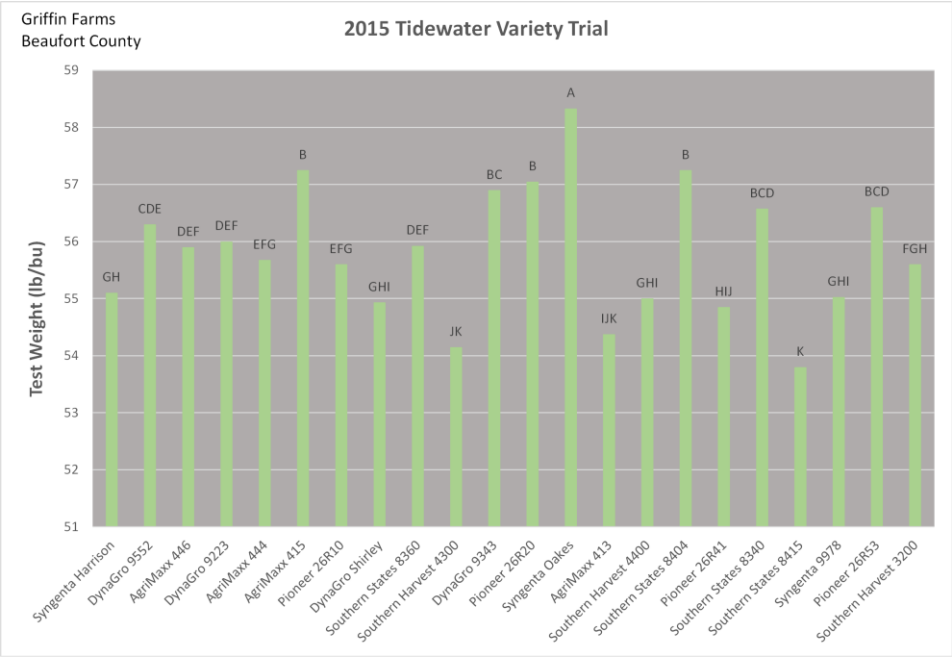

Figure 25: 2015 Tidewater Field Day Variety Trial, Test Weight

Recommendations for the use of agricultural chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention of listing of commercial products or services in this publication does not imply endorsement by the NC Cooperative Extension Service nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county Cooperative Extension Center.

A PRECAUTIONARY STATEMENT ON PESTICIDES

Pesticides must be used carefully to protect against human injury and harm to the environment. Diagnose your pest problem, and select the proper pesticide if one is needed. Follow label use directions, and obey all federal, state, and local pesticide laws and regulations.

A special thanks to John Hart (Associate Editor, Southeast Farm Press) for sharing his photography seen in this publication.

This publication is also available on the Internet at **www.smallgrains.ncsu.edu**