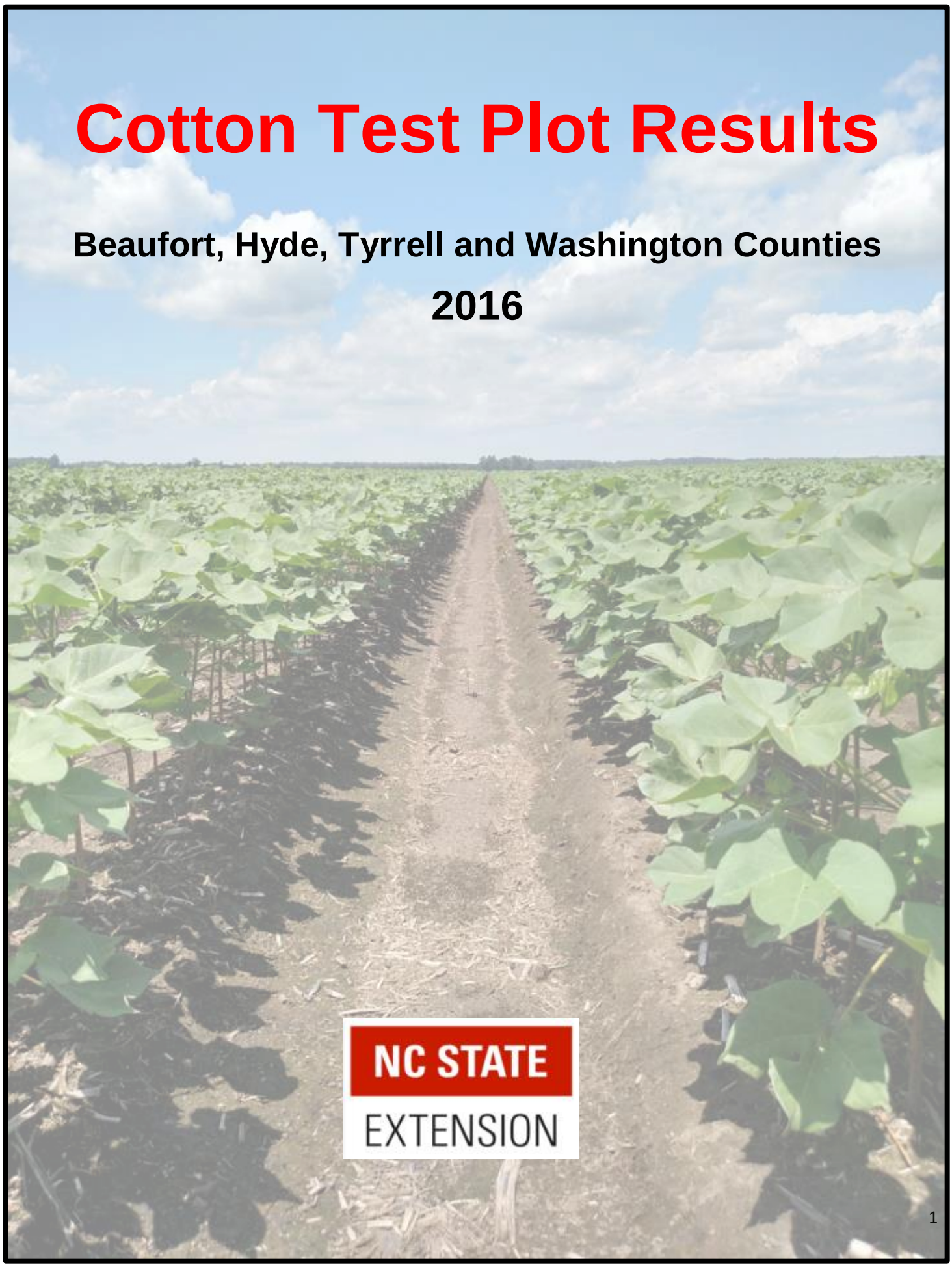
Cotton Test Plot Results

Beaufort, Hyde, Tyrrell and Washington Counties

2016



NC STATE EXTENSION

Acknowledgements

The Ag Agents of Beaufort, Hyde, Tyrrell, and Washington Counties would like to thank all of the cooperators that donated land, time, materials, equipment, and other resources to make these tests possible. Thank you, 3B Farms, Harris Farms, and Tooley Farms for hosting us!

Thank you to all of the Extension specialists and NCSU employees who were a part of the test plots and field day presentations. Dr. Guy Collins, Dr. Keith Edmisten, Dr. Sriyanka Lahiri, Shep Lassiter, Dr. Alejandro del Pozo-Valdivia, Dr. Dominic Reisig, Rick Seagroves, Todd Spivey, and Dr. Alan York.

Local research would not be possible without cooperation between Ag Agents, local farms, and Extension specialists. Funding and product donation from local companies is also necessary in order to complete such tests. Special thanks to Deltapine, Phytogen, NexGen, Stoneville, and Dyna-Gro for providing seed for the on-farm variety trials.

We would also like to thank the 2016 Cotton Field Day Sponsors again for helping make the research plots and field day a success.

Gold

Americot, Inc.

Coastal Carolina Cotton Gin, LLC

Bayer Crop Science

Monsanto

Phytogen Cotton Seed – Dow AgroSciences

Silver

Meherrin Agricultural & Chemical

Riddick Repair Service, Inc.

Bronze

BASF Corporation

ProCot Cooperative, Agent Debra Lyle

All Cotton Field Day plots (PGR, Foliar Treatment, Potassium & Nitrogen Tests, Pre- & Post- Weed Management) were randomized complete block design. Cotton Variety trials were randomized within cuts. Production Practices are listed in Table A.

Table A.

2016 Production Practices	3B Farms	Harris Farms	Tooley Farms
PGR, Foliar Treatment, Potassium & Nitrogen Tests Planting Date & Variety	---	May 12 Phytogen 444	---
Pre- and post- Weed Management Planting Date & Variety	---	May 18 Deltapine 1639 B2XF	---
Variety Trial Planting Date	May 17	May 17	May 10
Soil Type	Organic loam	Organic muck	Organic muck
Row Spacing (inches)	40	38	30
Tillage	Conventional	Conventional	Conventional

Variable PGR Rates and Timing on Cotton

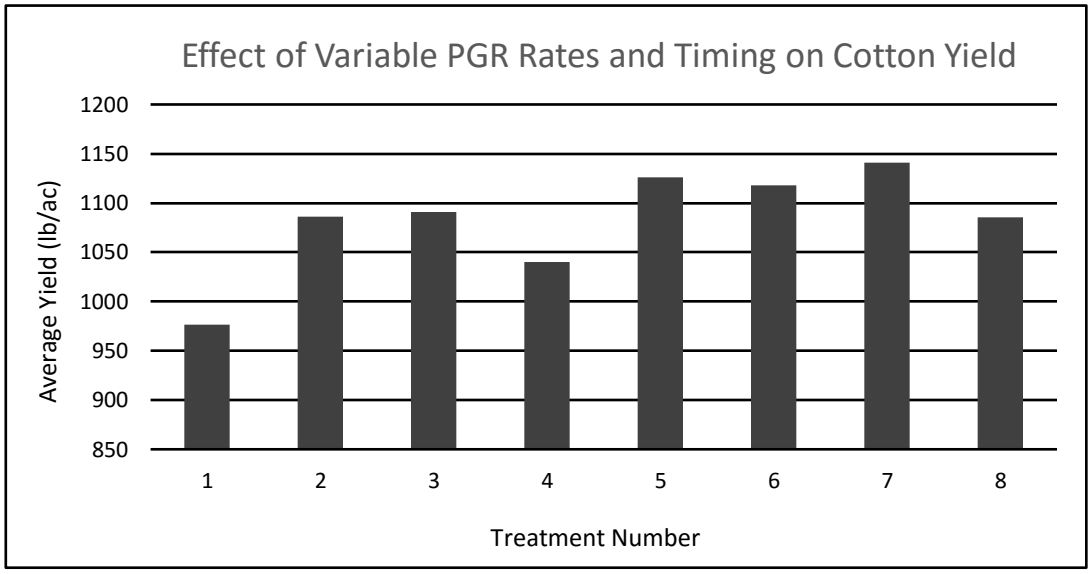
Growers in this area wanted to know the best possible application method for growth regulators in order to produce optimal yield. We established this trial in the farm cotton (Phytogen 444) and used the grower's selected product, Mepex.

Table 1.

Treatment Number	Treatment Name	Rate	Growth Stage	Yield (lb/ac)
1	Untreated Check			976.2 a
2	Low Rate	4 fl oz/ac 4 fl oz/ac 4 fl oz/ac 4 fl oz/ac	1st square 10-14 days later early bloom 10-14 days later	1086.1 a
3	Progressive Low Rate	4 fl oz/ac 8 fl oz/ac 12 fl oz/ac 16 fl oz/ac	1st square 10-14 days later early bloom 10-14 days later	1091.1 a
4	Modified Early Bloom	4 fl oz/ac 12 fl oz/ac 8 fl oz/ac	8-9 nodes early bloom 10-14 days later	1040.0 a
5	Modified Early Bloom 1.5x Rate	6 fl oz/ac 18 fl oz/ac 12 fl oz/ac	8-9 nodes early bloom 10-14 days later	1126.4 a
6	Early Bloom	12 fl oz/ac	Early Bloom	1118.0 a
7	Early Bloom	24 fl oz/ac	Early Bloom	1140.6 a
8	Grower's Standard	12 fl oz/ac	Early Bloom	1085.3 a

Around 7-8 node stage, the cotton suffered herbicide burn throughout the whole test. While it did stunt the cotton temporarily, the cotton grew out of the stunting and plant health was ideal. Treatment #4 yielded less than any other PGR treatment, however, there were no significant differences throughout the test.

Figure 1.



Effect of Foliar Treatment on Cotton Yield

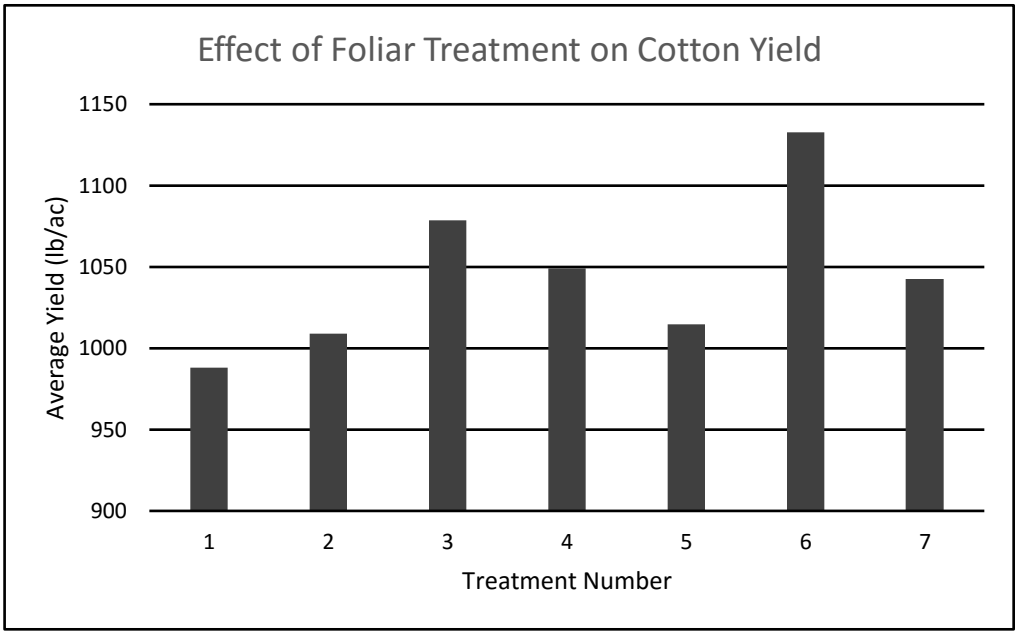
This test was part of the Cotton Field Day and added by the grower. He wanted to test products he frequently used in a completely randomized test to see which combinations of products produced the highest yield.

Table 2.

Treatment Number	Treatment Name	Rate	Growth Stage	Yield (lb/ac)
1	Rescue Mic-Ro-Pac Rescue Mic-Ro-Pac	1 pt/ac 1 pt/ac 1 qt/ac 1 qt/ac	8-9 nodes 8-9 nodes PHS PHS	988.0 a
2	Fertileader Elite	1 qt/ac	Early Bloom	1008.9 a
3	Fertileader Elite Priaxor	1 qt/ac 4 oz/ac	Early Bloom Early Bloom	1078.6 a
4	Regalia	1 pt/ac	Early Bloom	1049.2 a
5	Regalia Priaxor	1 pt/ac 4 oz/ac	Early Bloom Early Bloom	1014.8 a
6	Priaxor	4 oz/ac	Early Bloom	1132.6 a
7	Untreated Check			1042.5 a

While there were some yield differences, none were significantly different. Plant health observed throughout the growing season was neither better nor worse on any certain treatment.

Figure 2.



Variable Potassium Fertilizer Rate and Product Effect on Cotton Yield

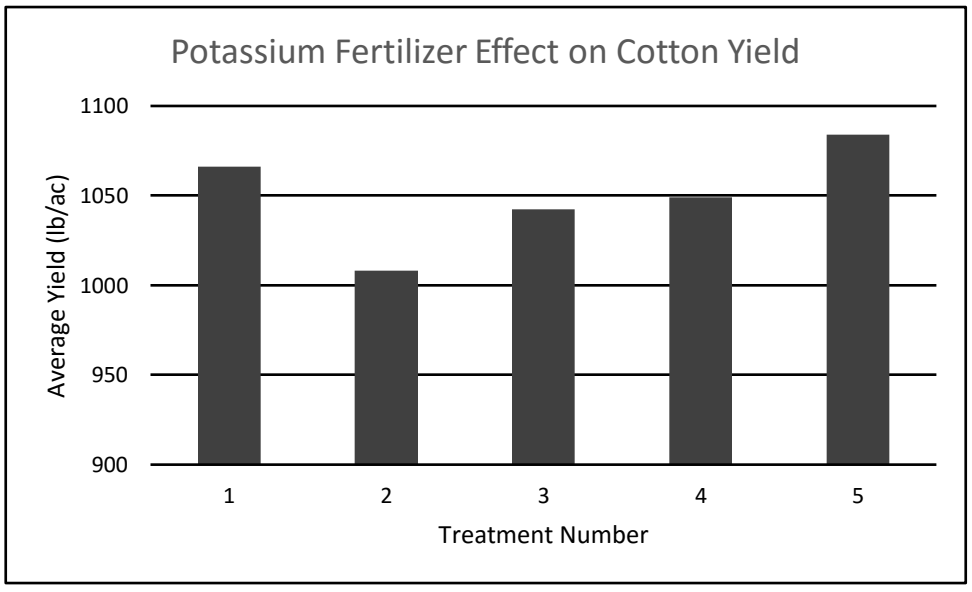
Potassium is a key nutrient in cotton production. It aids in maintaining high water content in the bolls for fiber expansion. It helps maintain pH and osmotic balance within the cells, which is critical for fighting disease. Potassium also enhances nitrogen use in cotton plants. The grower provided products for Treatments 1, 3, Coastal AgroBusiness provided products for Treatment 4 and NCSU Cotton specialists provided products for Treatment 2.

Table 3.

Treatment Number	Treatment Name	Rate	Growth Stage	Yield (lb/ac)
1	Cotton Kick-R	1 qt/ac	Early Bloom	1066.0 a
2	KNO_3	10 lbs KNO_3	Early Bloom + 10-14 days + 10-14 days + 10-14 days	1008.1 a
3	Cotton Kick-R	1.5 qt/ac	Early Bloom	1042.5 a
4	Coastal Quantum + Impact F	1 gal/ac 1 qt/ac	Early Bloom	1049.1 a
5	Untreated			1084.2 a

As shown in previous on-farm demonstrations, applications of foliar potassium on cotton had no direct yield benefits. None of the treatments were significantly different and the untreated plots actually had the highest yield.

Figure 3.



Variable Rate Nitrogen Side-dress Fertilizer on Cotton

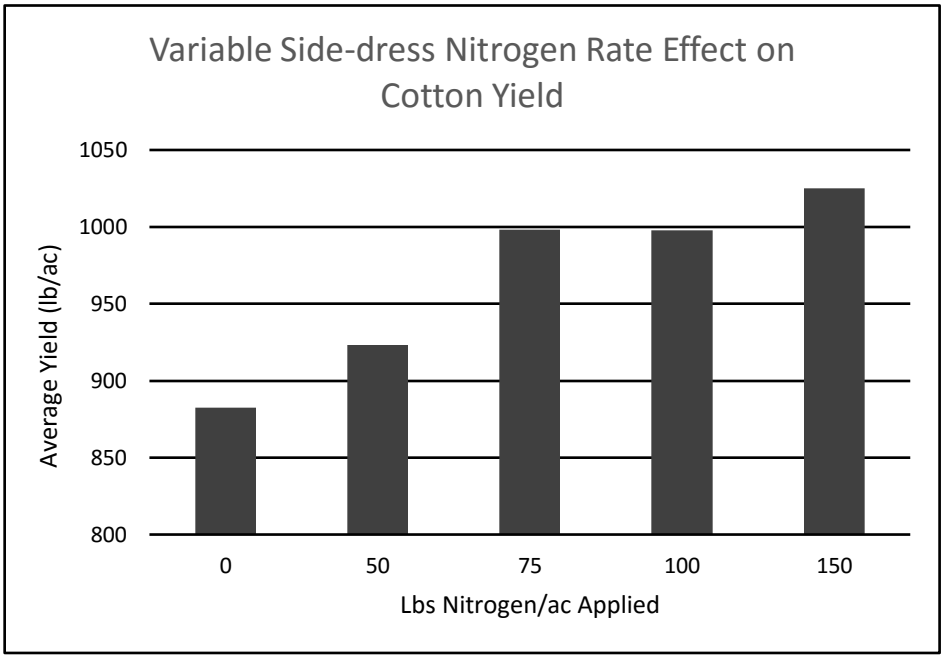
Nitrogen is essential for development of plant organs and affects cotton growth and lint yield. If too much nitrogen is applied, it can lead to rank cotton that is slow to fruit and more susceptible to pests. We applied the following rates (Table 4) of 46% Urea at the 8-9 node growth stage.

Table 4.

Treatment Number	Rate (lbs N/ac)	Yield (lb/ac)
1	0	882.3 a
2	50	923.4 a
3	75	998.04 a
4	100	997.9 a
5	150	1024.9 a

Yield increased linearly as nitrogen rates increased to 75 lbs N/ac. There was almost no difference in yield between the 75 lbs N/ac and the 100 lbs N/ac rate. The 150 lbs N/ac rate yielded 27 lbs/ac higher than the 100 lbs N/ac but was still not significantly different.

Figure 4.



Weed Management Trials

Alan York

Four weed management trials were conducted on the Mike Harris farm, site of the 2016 Blacklands Cotton Field Day. The trials were designed to demonstrate various components of cotton weed management programs.

Soil at the site was a Wasda muck with greater than 10% humic matter. DP 1639 B2XF cotton was planted using conventional tillage on May 18. Plots were four 36-inch rows by 38 feet. The experimental design in all experiments was a randomized complete block with treatments replicated three times. Rainfall (Table 1) was recorded at the Tidewater Research Station, 4.9 miles northwest.

Herbicides were applied using CO_2-pressurized backpack sprayers calibrated to deliver 15 GPA. DG11002 nozzles at 26 PSI were used to apply PRE (preemergence) herbicides in experiment 1 and POST (postemergence) herbicides in experiments 1, 2, and 3. TTI 110015 nozzles at 36 PSI were used to apply POST herbicides in experiment 4. Layby herbicides were applied using a single TK-2 nozzle per row middle operated at 28 PSI.

The site was heavily and uniformly infested with fall panicum. There was also a very light infestation of redroot pigweed and carpetweed. With these "easy to control" weeds, all systems that included Roundup applied POST gave excellent control.

Experiment 1: PRE herbicide evaluation. The PRE herbicides evaluated and the application rates are listed in Table 2. Each PRE treatment was present with and without two POST applications of Roundup. The PRE herbicides were applied May 19, one day after planting. Rainfall was limited to a total of 0.15 inch during the first 9 days after planting (Table 1). However, a total of 1.55 inches was received on the 10th and 11th day after PRE herbicide application.

Little to no injury was noted with the PRE herbicides (Table 2). Initially, fall panicum control by Dual Magnum, Warrant, and Staple was similar while Brake F16 was least effective (Table 3). As time progressed, control by Warrant held better than the other herbicides. At 83 days after planting, in the absence of Roundup POST, Warrant controlled fall panicum 70% as compared with 37% by Dual Magnum and Staple and 10% by Brake F16. Control was essentially complete in all plots receiving Roundup POST regardless of the PRE herbicides.

Initially, all four PRE herbicides controlled redroot pigweed 96 to 100% (Table 4). The redroot pigweed population was very light, and only a few plants emerged after the first flush, hence control of this weed changed little over time. At 83 DAP, Warrant and Staple, in the absence of Roundup, gave complete control whereas Brake F16 and Dual Magnum controlled the weed 89 and 85%, respectively. Complete control was noted in all plots receiving Roundup regardless of PRE herbicides.

Carpetweed also was present at low densities, but that weed continued to emerge over time. Initially, Brake F16, Staple, and Warrant controlled carpetweed 99 to 100% compared with 86% control by Dual Magnum (Table 5). As time progressed, control by Staple exceeded that of the other PRE herbicides. In the absence of Roundup, Staple controlled carpetweed 62% at 56 DAP compared with 42% by Warrant, 27% by Brake F16, and 7% by Dual Magnum. Control was virtually complete following the second Roundup application regardless of PRE herbicides.

Experiment 2: Evaluation of residual herbicides applied POST. This experiment focused on potential benefits of Dual Magnum, Outlook, Staple, and Warrant applied POST in combination with Roundup. No PRE herbicides were applied in this experiment. Roundup alone or mixed with Dual Magnum, Outlook, Warrant,

and Staple was applied 29 days after planting at rates presented in Table 6. These treatments were followed by a second application of Roundup 14 days after the first application. Two additional treatments included Roundup plus Warrant applied twice and Roundup plus Staple applied twice.

Injury 14 days after the first application is listed in Table 6. Dual, Outlook, and Staple caused 15 to 18% foliar burn compared with 9% by Warrant. This injury was temporary, and no injury was observed 28 days after application. Cotton was injured 13 and 6% by Roundup plus Warrant and Roundup plus Staple, respectively, 14 days after the second tank-mix application. At 42 days after the second POST application, only 3% injury (crop stunting) was noted with Roundup plus Staple applied twice, and no injury was noted with other treatments.

Fall panicum and redroot pigweed were controlled well by Roundup alone (Tables 7 and 8), hence there was no improvement in control with the residual herbicides added to Roundup.

Experiment 3. Evaluation of POST-directed layby herbicides. Layby herbicides, once widely used, are now seldom applied by cotton growers. However, layby herbicides are still recommended as a component of overall management programs. Layby herbicides not only provide another chance to kill weeds emerged since the last POST application but they also can provide residual control of late-emerging weeds. This has proven to be beneficial in managing Palmer amaranth.

In this experiment, the cotton was treated twice with Roundup applied overtop. Layby herbicides were directed 27 days after the last Roundup application or 56 days after planting. Layby herbicides included Roundup alone, Roundup mixed with Engenia, and Roundup mixed with residual herbicides. Herbicides and rates are listed in Table 9.

No layby treatment injured cotton (Table 9). Fall panicum, carpetweed, and redroot pigweed were controlled completely by Roundup applied twice overtop followed by a directed Roundup application. With the complete control by Roundup alone, no benefit was noted with Direx, Direx plus Warrant, Direx plus Zidua, Valor, Valor plus Warrant, Valor plus Zidua, or Engenia mixed with the layby application of Roundup (Table 9).

Experiment 4. Weed management systems with Engenia in XtendFlex cotton. Treatments and application rates in this experiment are listed in Table 10. No PRE herbicides were used. POST herbicides were applied twice in each treatment. The first POST application was 29 days after planting, and the second application was 43 days after planting. Roundup alone applied twice was the standard to which to compare other treatments. Other treatments included various combinations of Roundup with Liberty, Engenia, Warrant, and Envoke.

Liberty mixed with Roundup caused 13% injury at 14 days after the first application (Table 10). Even though XtendFlex varieties are resistant to Liberty, some foliar chlorosis or burn is commonly observed. Extensive research has shown that this injury is temporary and the cotton quickly recovers with no impact on yield. Similarly, even though XtendFlex varieties are resistant to dicamba, some foliar burn is commonly observed. In this experiment, Roundup plus Engenia at the first application caused 6 to 9% foliar burn. Minor foliar burn was also observed with Warrant in the first application. Envoke in the second POST application caused 15 to 18% injury 14 days after application. This injury was expressed primarily as reduced cotton growth. At 27 days after the second POST application, 5 to 6% injury was still present in Envoke-treated plots whereas no injury was observed with other treatments.

Minor but statistically significant differences were observed for fall panicum control 14 days after the first POST application (Table 11). Roundup plus Liberty was less effective than Roundup alone. This is commonly observed as Liberty can antagonize Roundup on grasses and Roundup-susceptible pigweed species. Engenia had no impact on fall panicum control by Roundup. A minor increase in control was noted with Roundup plus

Warrant. Following the second POST application, fall panicum control was essentially complete with all treatments.

Roundup alone gave excellent control of redroot pigweed (Table 12). Compared with Roundup alone, no other treatment impacted control.

Table 1. Rainfall at Tidewater Research Station, 4.9 miles northwest from Harris Farm.

Calendar period	Total rainfall (in.)	Calendar period	Total rainfall (in.)
May 21	0.05	June 16 to June 30	1.86
May 23	0.10	July 1 - July 15	2.03
May 29	1.37	July 16 - July 31	4.58
May 30	0.18	August 1 - August 15	2.59
June 1 to June 15	5.05	August 16 - August 31	0.17

Table 2. Cotton injury in systems with PRE herbicides. Experiment 1.

PRE herbicide	PRE herbicide rate	POST herbicide	Cotton injury[1]			
			28 DAP[2,3]	42 DAP[4]	56 DAP	83 DAP
			---------- % ----------			
None		Roundup[5]	0 a	0 a	0 a	0 a
Brake F16	1 pt/acre	None	0 a	0 a	0 a	0 a
Brake F16	1 pt/acre	Roundup	0 a	3 a	0 a	0 a
Dual Magnum	1.33 pt/acre	None	0 a	0 a	0 a	0 a
Dual Magnum	1.33 pt/acre	Roundup	0 a	2 a	0 a	0 a
Staple LX	2.1 fl oz/acre	None	0 a	0 a	0 a	0 a
Staple LX	2.1 fl oz/acre	Roundup	0 a	0 a	0 a	0 a
Warrant	4 pt/acre	None	0 a	0 a	0 a	0 a
Warrant	4 pt/acre	Roundup	0 a	2 a	0 a	0 a

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] DAP = days after planting.
[3] At time of first Roundup application.
[4] At time of second Roundup application.
[5] Roundup PowerMax applied at 32 fl oz 28 and 42 days after planting.

Table 3. Fall panicum control in systems with PRE herbicides. Experiment 1.

PRE herbicide	PRE herbicide rate	POST herbicide	Fall panicum control[1]			
			28 DAP[2,3]	42 DAP[4]	56 DAP	83 DAP
			---------- % ----------			
None		Roundup[5]		98 a	100 a	100 a
Brake F16	1 pt/acre	None	52 b	18 d	17 c	10 c
Brake F16	1 pt/acre	Roundup		99 a	100 a	100 a
Dual Magnum	1.33 pt/acre	None	90 a	72 bc	56 b	37 c
Dual Magnum	1.33 pt/acre	Roundup		99 a	99 a	100 a
Staple LX	2.1 fl oz/acre	None	83 a	63 c	50 bc	37 c
Staple LX	2.1 fl oz/acre	Roundup		99 a	100 a	100 a
Warrant	4 pt/acre	None	93 a	85 ab	80 ab	70 b
Warrant	4 pt/acre	Roundup		99 a	99 a	100 a

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] DAP = days after planting.
[3] At time of first Roundup application.
[4] At time of second Roundup application.
[5] Roundup PowerMax applied at 32 fl oz 28 and 42 days after planting.

Table 4. Redroot pigweed control in systems with PRE herbicides. Experiment 1.

PRE herbicide	PRE herbicide rate	POST herbicide	Redroot pigweed control[1]			
			28 DAP[2,3]	42 DAP[4]	56 DAP	83 DAP
			---------- % ----------			
None		Roundup[5]		100 a	100 a	100 a
Brake F16	1 pt/acre	None	96 a	90 b	91 a	89 b
Brake F16	1 pt/acre	Roundup		100 a	100 a	100 a
Dual Magnum	1.33 pt/acre	None	99 a	98 a	94 a	85 c
Dual Magnum	1.33 pt/acre	Roundup		100 a	100 a	100 a
Staple LX	2.1 fl oz/acre	None	97 a	100 a	99 a	100 a
Staple LX	2.1 fl oz/acre	Roundup		99 a	100 a	100 a
Warrant	4 pt/acre	None	100 a	100 a	100 a	100 a
Warrant	4 pt/acre	Roundup		100 a	100 a	100 a

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] DAP = days after planting.
[3] At time of first Roundup application.
[4] At time of second Roundup application.
[5] Roundup PowerMax applied at 32 fl oz 28 and 42 days after planting.

Table 5. Carpetweed control in systems with PRE herbicides. Experiment 1.

PRE herbicide	PRE herbicide rate	POST herbicide	Carpetweed control[1]		
			28 DAP[2,3]	42 DAP[4]	56 DAP
			---------- % ----------		
None		Roundup[5]		93 a	100 a
Brake F16	1 pt/acre	None	99 a	38 b	27 cd
Brake F16	1 pt/acre	Roundup		98 a	100 a
Dual Magnum	1.33 pt/acre	None	86 b	15 c	7 d
Dual Magnum	1.33 pt/acre	Roundup		91 a	99 a
Staple LX	2.1 fl oz/acre	None	100 a	85 a	62 b
Staple LX	2.1 fl oz/acre	Roundup		99 a	99 a
Warrant	4 pt/acre	None	99 a	57 b	42 bc
Warrant	4 pt/acre	Roundup		98 a	100 a

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] DAP = days after planting.
[3] At time of first Roundup application.
[4] At time of second Roundup application.
[5] Roundup PowerMax applied at 32 fl oz 28 and 42 days after planting.

Table 6. Cotton injury by Roundup and residual herbicides applied POST. Experiment 2.

Treatment	Applic. rate	Applic.	Cotton injury[1] 14 d after POST-1	14 d after POST-2	42 d after POST-2
			---------- % ----------		
Roundup PowerMax	32 fl oz/a	POST-1	1 d	0 c	0 b
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	18 a	0 c	0 b
Dual Magnum	1.33 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	18 a	1 c	0 b
Outlook	21 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	9 c	0 c	0 b
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	9 c	13 a	0 b
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Warrant	4 pt/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	15 ab	0 c	0 b
Staple LX	3.8 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	11 bc	6 b	3 a
Staple LX	2.5 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Staple LX	2.5 fl oz/a	POST-2			

[1] Means within a column followed by the same letter are not different at P = 0.05.

[2] POST-1 applied 29 days after planting; POST-2 applied 43 days after planting.

Table 7. Fall panicum control by Roundup and residual herbicides applied POST. Experiment 2.

Treatment	Applic. rate	Applic.	Fall panicum control 14 d after POST-1	14 d after POST-2	42 d after POST-2
			---------- % ----------		
Roundup PowerMax	32 fl oz/a	POST-1	97 a	100 a	100 a
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	100 a	100 a	100 a
Dual Magnum	1.33 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	99 a	100 a	100 a
Outlook	21 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	99 a	100 a	100 a
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	99 a	100 a	100 a
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Warrant	4 pt/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	100 a	100 a	100 a
Staple LX	3.8 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	99 a	100 a	100 a
Staple LX	2.5 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Staple LX	2.5 fl oz/a	POST-2			

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] POST-1 applied 29 days after planting; POST-2 applied 43 days after planting.

Table 8. Redroot pigweed control by Roundup and residual herbicides applied POST.

Treatment	Applic. rate	Applic.	Redroot pigweed control 14 d after POST-1	14 d after POST-2	42 d after POST-2
			---------- % ----------		
Roundup PowerMax	32 fl oz/a	POST-1	100 a	100 a	100 a
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	99 a	97 a	93 a
Dual Magnum	1.33 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	98 a	100 a	100 a
Outlook	21 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	97 a	93 a	93 a
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	97 a	100 a	100 a
Warrant	4 pt/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Warrant	4 pt/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	100 a	100 a	100 a
Staple LX	3.8 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Roundup PowerMax	32 fl oz/a	POST-1	100 a	100 a	100 a
Staple LX	2.5 fl oz/a	POST-1			
Roundup PowerMax	32 fl oz/a	POST-2			
Staple LX	2.5 fl oz/a	POST-2			

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] POST-1 applied 29 days after planting; POST-2 applied 43 days after planting.

Table 9. Cotton injury and weed control with directed layby herbicides. Experiment 3.

POST herbicide	Layby herbicide[1]	Cotton injury[2]	Fall panicum control[2]	Carpetweed control[2]	Redroot pigweed control[2]
		---------- % ----------			
Roundup[3]	None	0 a	100 a	100 a	100 a
Roundup	Roundup	0 a	100 a	100 a	100 a
Roundup	Direx + Roundup	0 a	100 a	100 a	100 a

Roundup	Direx + Warrant + Roundup	0 a	100 a	100 a	100 a
Roundup	Direx + Zidua + Roundup	0 a	100 a	100 a	100 a
Roundup	Valor + Roundup	0 a	100 a	100 a	100 a
Roundup	Valor + Warrant + Roundup	0 a	100 a	100 a	100 a
Roundup	Valor + Zidua + Roundup	0 a	100 a	100 a	100 a
Roundup	Engenia + Roundup	0 a	100 a	100 a	100 a

[1] Layby herbicides directed 27 days after second POST Roundup application, or 56 days after planting. Roundup PowerMax at 32 fl oz/acre; Direx at 32 fl oz/acre; Warrant at 4 pt/acre; Zidua 85DF at 2 oz/acre; Valor SX at 2 oz/acre. All layby applications included nonionic surfactant at 0.25% (v/v).

[2] Data recorded 27 days after layby application. Means within a column followed by the same letter are not different at P = 0.05.

[3] Roundup PowerMax applied at 32 oz/acre 29 and 43 days after planting.

Table 10. Cotton injury in XtendFlex management system. Experiment 4.

Herbicides[2]	Applic. time[3]	Cotton injury[1] 14 days after POST-1	14 days after POST-2	27 days after POST-2
		---------- % ----------		
Roundup Roundup	POST-1 POST-2	0 c	0 e	0 b
Roundup Liberty Roundup Liberty	POST-1 POST-1 POST-2 POST-2	13 a	1 cd	0 b
Roundup Engenia Roundup	POST-1 POST-1 POST-2	9 b	0 e	0 b
Roundup Roundup Engenia	POST-1 POST-2 POST-2	0 c	1 d	0 b
Roundup Engenia Roundup Engenia	POST-1 POST-1 POST-2 POST-2	6 b	1 cd	0 b
Roundup Warrant Roundup Engenia	POST-1 POST-1 POST-2 POST-2	6 b	2 c	0 b
Roundup Warrant Engenia Roundup Engenia	POST-1 POST-1 POST-1 POST-2 POST-2	8 b	2 cd	0 b
Roundup Roundup Envoke	POST-1 POST-2 POST-2	0 c	15 b	6 a
Roundup Engenia Roundup Envoke	POST-1 POST-1 POST-2 POST-2	8 b	18 a	5 a

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] Application rates as follows: Roundup PowerMax 32 fl oz/acre; Engenia 12.8 fl oz/acre; 4 pt/acre; Envoke 0.1 oz/acre.
[3] POST-1 was 29 days after planting; POST-2 was 43 days after planting.

Table 11. Fall panicum control in XtendFlex management system. Experiment 4.

Herbicides[2]	Applic. time[3]	Fall panicum control[1] 14 days after POST-1	14 days after POST-2	27 days after POST-2
		---------- % ----------		
Roundup	POST-1	98 bc	100 a	100 a
Roundup	POST-2			
Roundup	POST-1	93 d	99 a	100 a
Liberty	POST-1			
Roundup	POST-2			
Liberty	POST-2			
Roundup	POST-1	97 c	100 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Roundup	POST-1	98 bc	100 a	100 a
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	99 ab	100 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	99 ab	100 a	100 a
Warrant	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	100 a	100 a	100 a
Warrant	POST-1			
Engenia	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	99 ab	100 a	100 a
Roundup	POST-2			
Envoke	POST-2			
Roundup	POST-1	98 bc	99 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Envoke	POST-2			

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] Application rates as follows: Roundup PowerMax 32 fl oz/acre; Engenia 12.8 fl oz/acre; 4 pt/acre; Envoke 0.1 oz/acre.
[3] POST-1 was 29 days after planting; POST-2 was 43 days after planting.

Table 12. Redroot pigweed control in XtendFlex management system. Experiment 4.

Herbicides[2]	Applic. time[3]	Redroot pigweed control[1] 14 days after POST-1	14 days after POST-2	27 days after POST-2
		%		
Roundup	POST-1	99 a	100 a	100 a
Roundup	POST-2			
Roundup	POST-1	95 a	100 a	100 a
Liberty	POST-1			
Roundup	POST-2			
Liberty	POST-2			
Roundup	POST-1	100 a	99 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Roundup	POST-1	96 a	100 a	100 a
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	100 a	100 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	95 a	100 a	100 a
Warrant	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	100 a	100 a	100 a
Warrant	POST-1			
Engenia	POST-1			
Roundup	POST-2			
Engenia	POST-2			
Roundup	POST-1	92 a	100 a	100 a
Roundup	POST-2			
Envoke	POST-2			
Roundup	POST-1	100 a	99 a	100 a
Engenia	POST-1			
Roundup	POST-2			
Envoke	POST-2			

[1] Means within a column followed by the same letter are not different at P = 0.05.
[2] Application rates as follows: Roundup PowerMax 32 fl oz/acre; Engenia 12.8 fl oz/acre; 4 pt/acre; Envoke 0.1 oz/acre.
[3] POST-1 was 29 days after planting; POST-2 was 43 days after planting.

On Farm Cotton Variety Trials

The agents in Beaufort, Hyde, Tyrrell, and Washington counties partnered with Dr. Guy Collins to implement on-farm variety trials with Harris Farms, 3B Farms and Tooley Farms. Ten varieties were replicated across cuts and planted with the producer's equipment. Harris farms had three replications, Tooley farms had two replications and 3B Farms had four replications.

	Harris Farms					Tooley Farms					3B Farms				
Variety	**Lint Yield (lbs/ac)**	**Micronaire**	**Fiber Length**	**Strength**	**Uniformity**	**Lint Yield (lbs/ac)**	**Micronaire**	**Fiber Length**	**Strength**	**Uniformity**	**Lint Yield (lbs/ac)**	**Micronaire**	**Fiber Length**	**Strength**	**Uniformity**
DG 3526 B2XF	855.10	4.8	1.15	29.6	83.5	784.91	4.4	1.18	30.1	84.1	440.20	4.9	1.14	29.4	83.4
PHY 444 WRF	868.73	4.1	1.26	30.1	84.9	629.72	3.7	1.26	31.9	84.8	689.94	4.1	1.27	31.4	84.1
ST 4848 GLT	883.73	4.9	1.17	30.8	83.4	616.17	4.2	1.19	31.0	84.1	655.71	4.3	1.21	32.0	83.3
DP 1646 B2XF	1066.40	4.6	1.28	29.6	84.0	641.93	4.2	1.25	31.4	84.7	752.13	4.5	1.28	31.6	84.0
DG 3757 B2XF	935.40	--	--	--	--	643.11	4.4	1.17	28.5	83.7	571.79	4.7	1.19	30.3	84.1
NG 3522 B2XF	842.66	4.5	1.09	28.7	81.6	724.42	4.1	1.14	28.4	82.7	733.46	4.5	1.13	29.4	83.3
PHY 312 WRF	880.46	4.7	1.16	30.7	84.4	652.62	4.2	1.21	30.4	83.6	775.55	4.6	1.21	31.9	84.8
DP 1614 B2XF	807.91	5.22	1.19	30.1	84.7	598.70	5.1	1.18	30.6	83.8	722.35	5.2	1.19	31.1	84.9
ST 6182 GLT	806.83	4.6	1.16	30.5	83.8	607.23	4.3	1.15	28.5	83.1	446.74	4.7	1.18	31.1	83.1
NG 3405 B2XF	794.67	4.7	1.11	27.3	81.7	540.23	4.1	1.12	28.7	82.1	686.11	4.7	1.12	28.7	83.3