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Louisiana Crops NEWSLETTER

CORN • COTTON • GRAIN SORGHUM • SOYBEANS • WHEAT

ISSUE HIGHLIGHTS

Updates from the field

Looking ahead

Economics

Insect pressure ramping up in Louisiana cotton, soybeans

BY SEBE BROWN

Cotton

Since the last newsletter, insect pressure in Louisiana cotton has significantly increased in much of the state. For the past three weeks, many producers have faced a very large bollworm moth flight that has transitioned into a very large egg lay. As a result, Louisiana cotton has experienced severe worm pressure that has resulted in escapes in all commercially available Bt cotton varieties. Below is a table outlining square injury to Bt cotton that we are finding in small plot studies at the Macon Ridge Research Station.

TRAIT PACKAGE	CRY PROTEINS	PERCENT SQUARE INJURY		
		July 7	July 13	July 19
WideStrike (WS)	Cry1Ac, Cry1F	1%	13%	7%
WideStrike 3 (WS3)	Cry1Ac, Cry1F, Vip3A	0.3%	6%	6%
Bollgard 2 (BG2)	Cry1Ac, Cry2Ab	1%	11%	4%
Bollgard 3 (BG3)	Cry1Ac, Cry2Ab, Vip3A	5%	6%	1%
TwinLink (TL)	Cry1Ac, Cry2Ae	0.4%	4%	1%
Non-Bt		26%	28%	27%

Results from these trials and field reports suggest no Bt technology is immune to bollworm injury. However, this is preliminary data from one location and results from your farm may differ. What the data and field reports do elude to is the use of rescue sprays to preserve yield. Based on the work we conducted with the mid-South entomology group last year, we validated a 6-percent fruit injury threshold with the presence of live worms in Bt cotton.

Using pyrethroids is strongly discouraged. Louisiana bollworms have the highest level of pyrethroid resistance in the U.S., so pyrethroids may not provide adequate control. They may even flare secondary pests such as spider mites. The LSU AgCenter recommends the diamide chemistry (Prevathon, Besiege) to control bollworms in cotton. Beware that Besiege contains a pyrethroid, so it may inadvertently flare secondary pests. Keep in mind that bollworms are cryptic feeders, and worms that have established in squares and bolls may not be controlled by diamides.

Spider mites are beginning to establish in scattered fields across the state. Resistance to abamectin has been confirmed in Louisiana, and the use of low rates and sequential applications should be avoided. Alternatives include Portal and Zeal. Portal is a non-translaminar, contact miticide, which makes adequate coverage essential for satisfactory control. Zeal is a mite growth regulator that disrupts the life cycle of mite populations by controlling developing immatures and causing some sterility of adult females.

Soybeans

Reports from the field indicate redbanded stink bug (RBSB) numbers are beginning to build in soybeans at the R5 development stage and beyond. Once RBSB colonize a field, native stink bugs often are forced out or are outcompeted, leaving only RBSB behind.

The Louisiana threshold for RBSB is four insects per 25 sweeps. RBSB are strong flyers, and routine scouting is essential to detecting an influx of these insects. Furthermore, the presence of immatures signals that RBSBs are reproducing, meaning previously applied insecticidal controls may no longer be active. Recommended insecticides include pyrethroids, neonicotonoids and organophosphates.

The use of pre-mix insecticides, including Endigo ZC and Leverage 360, may offer a degree of repellency not observed with other insecticides. Insecticide efficacy tests conducted at the Macon Ridge Research Station in Winnsboro demonstrated satisfactory control of RBSB while also having a possible added benefit of repellency.

Pre-mix insecticides perform best when populations of RBSB have not exceeded threshold. Once RBSB populations have exceeded threshold, the use of tank mixes of either acephate (0.75 to 1.0 pounds per acre) plus bifenthrin (6.4 ounces per acre) or Belay (4.0 ounces per acre) plus bifenthrin (4.0 ounces per acre) may be required to get them under control. §

Look for these three cotton diseases

BY TREY PRICE AND DAN FROMME

Target spot

Target spot seems to be becoming more prevalent by the day in our cotton-producing parishes. Caused by *Corynespora cassiicola*, this disease starts on the lowest leaves in the canopy. "Fresh" lesions appear as pencil eraser- to dime-sized, water-soaked, green to gray, circular lesions (**Figure 1**). Centers of lesions later become tan to brown and have a distinct bullseye appearance as the disease progresses (**Figure 2**). Reddish margins may develop with target spot lesions in the mid- to upper canopy.

Figure 1. Early lesions.

Figure 2. Later lesions.

Target spot can quickly defoliate cotton with optimal environmental conditions (warm, rainy). Disease intensity increases with the frequency of rainfall events, while hot and dry weather usually will keep target spot in check. Any cotton variety that develops rank growth is susceptible to target spot, which makes canopy management very important in managing the disease. Excessive nitrogen (N) applications may increase the risk of target spot by encouraging rank growth.

Small plot research trials since 2014 at the Northeast, Macon Ridge and Dean Lee research stations indicate fungicide applications during the first month of bloom may significantly reduce defoliation due to target spot. However, statistically significant (90 percent confidence level) yield preservation has not been observed in any of the trials to date. Trends toward yield preservation have been observed under severe disease pressure (greater than 60 percent defoliation). The most defoliation the LSU AgCenter has observed so far this year was 10 to 20 percent in a field in the fifth week of bloom.

If fungicide applications are warranted, applying by air likely will not provide the desired coverage. Application by ground using flat fan or hollow cone tips at a minimum of 15 GPA is preferred. Applications after significant defoliation has occurred are unlikely to provide economic benefit.

Cotton leaf spot complex

The cotton leaf spot complex (CLSC), which does not include target spot, is caused by several species of fungi. This disease complex has become a common occurrence in Louisiana cotton. Most often, CLSC is associated with potassium (K) deficiency or drought stress (**Figure 3**). Also, any type of crop injury (such as herbicide or fertilizer injury) may exacerbate CLSC. Fungicide applications are effective on CLSC; however, they are not recommended because an economic benefit is very unlikely.

It is best to solve the underlying issue, which usually is potassium deficiency. Soil test and apply nutrients as appropriate. Foliar applications of potassium have proven to be unhelpful in alleviating CLSC.

Bacterial leaf blight

If you know what to look for, bacterial (angular) leaf blight (BLB) can be found in every parish that produces cotton. Initial infection through wounds and natural openings in leaves produces dark green, angular, water-soaked spots. However, BLB typically is not noticed until lesions are reddish brown, sometimes with yellow halos (**Figure 4**).

The bacterium may infect all cotton plant parts, but is most commonly observed on leaves. Infection of leaf veins may occur, creating a characteristic appearance (**Figure 5**).

Figure 3. Potassium (K) deficiency and the cotton leaf spot complex (CLSC).

Figure 4. Bacterial leaf blight.

Figure 5. BLB leaf vein infection.

Sometimes BLB is confused with target spot. It is possible for a secondary fungal pathogen to invade after initial infection. Notice the dark, angular center in the lesion in **Figure 6**.

Figure 6. Target spot imposter.

BLB generally does not cause significant losses; however, there are management options for this disease. The bacterium that causes BLB may be seed-borne or may overwinter in cotton debris.

Be sure your seed company takes proper sanitary measures before making a purchase. Tillage may reduce inoculum the following spring if you are following cotton with cotton. Rotation to a field where cotton was not the previous crop will reduce the chances of BLB occurring.

Overhead irrigation and excessive rainfall may increase disease incidence and severity. Varieties that are resistant to BLB are commercially available and may be a management option. §

When and how to apply cotton harvest aids

BY DAN FROMME, DANIEL STEPHENSON AND DONNIE MILLER

One of the last steps in managing a cotton crop is harvest preparation. Successful harvest preparation includes scheduling for defoliation and harvest operations, removal of foliage and facilitating boll opening. Successful defoliation has many benefits, including increased picker efficiency, elimination of trash in harvested seed cotton and faster drying of dew, which increases picking hours per day.

There is always a balancing act between yield and fiber quality when defoliating cotton, but paying close attention to individual fields can help maintain quality while preserving yield. There are several accepted methods for timing defoliation, and all methods have strengths and weaknesses. The following is a refresher of two of the more common defoliation timing techniques.

Method 1: Percentage of open bolls

The most widely used method is based on the total percentage of bolls in a field that have opened, with 60 percent of bolls open being the most commonly recommended point to apply a harvest aid. In many situations, unopened bolls are mature enough to resist negative effects and will open before harvest.

Based on research conducted in Louisiana, this method has limitations in certain situations. Depending on fruit distribution on the plant, maximum yield can be obtained when defoliation occurs before 60 percent open bolls. In addition, in cases where a large fruiting "gap" (no bolls present at fruiting sites) occurs and a large percentage of bolls are less mature and set in the uppermost region of the plant, optimum defoliation timing may occur later than 70 percent open. Research has shown maximum yield can be achieved by applying a harvest aid ranging from 42 to 81 percent open bolls, depending on crop maturity and fruit distribution.

Method 2: Nodes above cracked boll

The nodes above cracked boll (NACB) method focuses on the unopened portion of the crop. The nodes above cracked boll measurement is determined by locating the uppermost first-position boll that is cracked with visible lint, then counting the number of main-stem nodes to the uppermost harvestable boll (**Figure 1**).

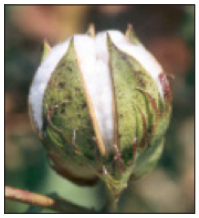

Figure 1. Cotton boll.

By focusing on the unopened portion, NACB takes into account potential fruiting gaps. Most recommendations call for defoliation at four NACB. Low plant populations and skip-row cotton, however, often are more safely defoliated at three NACB. Lower plant populations usually mean a later-maturing crop, with a significant portion of yield coming from outer-position bolls and bolls set on vegetative branches. In some situations, defoliating when there are more than four nodes above the cracked boll can result in yield loss.

Visual inspection

Whatever method is employed, growers should visually inspect unopened bolls for maturity. A boll is considered mature if it is difficult to slice in cross-section with a knife and its seeds have begun to form a tan, brown or black seed coat. Once a dark seed coat has formed, defoliation will not adversely affect yield of those bolls (**Figure 2**). Depending on temperature, cotton bolls need 40 to 60 days to mature. Bolls set later in the season will take longer to mature and may never be harvestable. Growers should walk their fields before defoliation and examine only those bolls that can reasonably be expected to mature.

Additional information

Research in Louisiana has shown that, on average, cotton is harvested from a 12- to 14-node range on the plant. This fact can serve as a tool to simplify identifying the last harvestable boll as well as timing of defoliation. To use the 12-node rule, identify the lowest first-postion boll that is expected to be harvested. Count up 12 nodes on the plant. The boll present at that position is likely to contribute to yield. Under some circumstances, a boll on the 14th node from the bottom could be considered harvestable. Bolls produced above that position on the plant are unlikely to contribute to yield. Waiting on them to mature puts heavier bolls at the bottom of the plant at risk of unnecessary weather-related losses. Once the last harvestable boll has been identified, use the visual inspection technique to determine when it is mature and ready for defoliation.

Environmental conditions

Weather conditions are an important factor to consider when applying a harvest aid. Weather factors that impact defoliation efficiency are temperature, sunlight, relative humidity, drought stress and the occurrence of rainfall shortly after application. Minimum temperatures for activity of various harvest aids have been determined. In general, desicants remain active at lower temperatures than defoliants, and contact-type defoliants remain active at lower temperatures than materials with hormonal activity.

Selection of a harvest aid and expected activity depends on the condition of the crop. No single harvest aid alone can give you excellent control if your goal is to remove mature leaves and juvenile growth, suppress regrowth and open bolls. Refer to **Table 1** on the next page for more information. §

Figure 2. Seed coats darken as cotton bolls mature.

Table 1. Expected activity of various harvest aids.

MATERIAL	ESTIMATED MINIMUM TEMPERATURE (F)	EXPECTED ACTIVITY				
		Rain-free period (hours)[1]	Mature leaves	Juvenile growth	Regrowth prevention	Boll opening
Folex 6 EC	60	1	Excellent	Fair	Poor	None
Thidiazuron	65	24	Excellent	Excellent	Excellent	None
Ginstar EC	60	12	Excellent	Excellent	Excellent	None
Aim EC	55	8	Good/excellent	Excellent	Poor	None
ET	55	1	Good/excellent	Excellent	Poor	None
Display	55	8	Good/excellent	Excellent	Poor	None
Sharpen	55	1	Good/excellent	Excellent	Poor	None
Ethephon	60	6	Fair	Poor	Poor	Excellent
Finish 6 Pro	60	6	Excellent	Poor	Poor	Excellent
Glyphosate[2]	55	4	Fair	Fair	Excellent	None
Paraquat	55	30 minutes	Dessication	Excellent	Poor	Fair
Sodium chlorate	55	24	Fair	Fair	Poor	None

[1]Expected rain-free periods are estimates only and may not be exact. Other conditions, including temperature, moisture and crop status, will play a role in product performance.

[2]Non-glyphosate tolerant or conventional varieties.

A message from the new soybean specialist

BY TODD SPIVEY

Having been in Louisiana for just a few weeks, I have only had the opportunity to meet a handful of the agents, consultants and growers across the state. For those of you who I have not yet met in person, I wanted to write a few words to introduce myself.

I am Todd Spivey and I am originally from eastern North Carolina. I received my doctorate from North Carolina State University in the Crop Science Department and was trained as an extension agronomist by the North Carolina cotton specialist, Keith Edmisten. My research background ranges from control and management of insect pests to improvement of agronomic practices such as soil fertility management, use of varying irrigation strategies and implementation of long-term tillage systems. My areas of interest revolve around the plant-soil interaction along with any and all questions raised by our growers.

My office is at the Dean Lee Research and Extension Center near Alexandria. I look forward to working with soybean growers, county agents and consultants in Louisiana for many years to come. §

Irrigation season is in full swing

BY STACIA DAVIS

This crop season has been slightly unusual. There has been steady weekly rainfall since the early planting window, resulting in enough available moisture in most soils. This has been a welcome change for corn production in terms of irrigation due to its significant water requirement.

However, soil moisture sensor demonstrations around the state have indicated low infiltration in many soils and shallow root depths. Large amounts of water repeatedly applied to the bare soil surface can cause compaction regardless of soil type. The combination of conventional tillage, bare fields for part of the year and surface-applied irrigation can intensify this issue. Best management practices such as no-till, cover cropping and surge irrigation can help over time. The LSU AgCenter can help you implement these practices on your farm.

Now that we've entered the driest time of the year, irrigation applied through bright white poly pipe can be seen all over the state. If you thought about irrigation for the first time when the rainfall slowed, then you're already behind and likely less efficient than you should be. Poorly designed and applied irrigation can have many negative consequences, including wasted water resources, nutrient losses, soil erosion, blown poly pipe and poor crop health (**Figure 1**). Plan your system in the winter months when you have time to consider all options. The savings in time, money and frustration make it well worth the effort.

Figure 1. This furrow failed to water out at the same time as the others, causing a river in the tailwater ditch.

Ways to improve irrigation

1. Pump efficiency. It's easy to waste money on irrigation when your pump isn't optimized for the system. Ask your local NRCS office about pump efficiency testing.

2. Computerized hole selection. The hole sizes in the poly pipe should be optimized to maintain acceptable pressure in the tube while preventing over-watering. There are two computer programs meant for this purpose: PHAUCET and Pipe Planner.

3. Surge irrigation. The idea of surging irrigation isn't confined to surge valve devices. Alternating irrigation sets to allow infiltration, reduce periods of oxygen restriction to the plant and more evenly apply water across the field can give the same results as a valve and doesn't cost a cent. The downside is increased management.

4. Soil moisture sensors. Soil moisture sensors provide an idea of what is happening below the soil surface. You can visualize the depth of infiltration of each rainfall or irrigation event, and see the depths from which roots can access water. However, there are drawbacks. Installation and removal for each crop season can be a burden. All sensors require calibration, so the readings may not always make sense. They're also a point measurement that you're using to explain a large field or multiple fields, where conditions may vary. §

Watch out for developing nematode problems

BY CHARLES OVERSTREET

These photos show nematode damage in soybeans. **At left,** there is early plant death in large areas of the field from Southern root-knot nematode damage. Uneven maturing and early death makes harvesting difficult. **At right,** galling is seen on soybean roots.

Nematode problems have begun showing up on crops like cotton and soybeans. This is a good time to watch fields closely for signs of injury from these pests. Although it is too late to help this year's crop, you can take steps to avoid this problem in the future.

Our two major nematode pests in Louisiana are the Southern root-knot and reniform nematodes. Both are capable of causing extensive damage to cotton, soybeans and sweet potatoes. Although Southern root-knot nematodes can attack corn and grain sorghum, we have not seen serious damage to either of these crops.

Cotton and soybeans may show damage from these nematodes within a few weeks of planting, and typically they show severe stunting by mid-season (**Figure 1**). Look for plants with variable heights in a field. Because nematode populations are never uniform in a field, up-and-down plant heights are a classic symptom of nematodes. By late summer, some of this stunting may not be as evident, but serious crop losses will still occur.

Another thing to consider is the soil types found within a field. Soil texture usually is not uniform throughout the field or the soil profile. Fields with coarse soils such as sandy loams or coarse silt loams are most likely to show damage first. Oftentimes you can see damage in part of the field while the rest of the field appears normal (**Figure 2**). This usually is related to differences in soil texture within a field.

Figure 1. Soybean plants that are stunting from the reniform nematode. Plants at left appear normal because the soil was fumigated under these rows.

Figure 2. Cotton field showing severe root-knot nematode damage in the lightest soil textures within the field. Notice the taller plants not showing symptoms in the heavier areas of the field.

Late-season damage often can show up on cotton and soybeans. Plants that may appear normal may suddenly start early senescence or even death (**Figures 3, 4**). Usually, this occurs during dry periods that are frequent during that time of year. Southern root-knot nematode is usually responsible for this type of damage. The plants are heavily galled by the nematode, leaving plants unable to properly function during these dry periods. If plants have matured early, losses may occur to cotton or soybeans because the rest of the field may not be ready for harvesting until several weeks later.

If producers see any evidence of damage that may be related to nematodes, soil samples can be collected to verify whether this is the case. Galling on the root system can be diagnostic for the Southern root-knot nematode. However, reniform nematodes don't produce any distinctive feature that makes them easy to identify. Small roots may be darkened and necrotic, and often have a rough, coarse appearance from soil particles attached to the egg masses of reniform females. Many of our fields now have both nematodes present, which makes crop rotation and management more difficult. If you know what you are dealing with, a management plan can be developed to limit damage in the future. §

Figure 3. Cotton field showing early senescence and death from Southern root-knot nematode.

Figure 4. Severe stunting and loss of yield associated with very high levels of reniform nematode in cotton.

Wheat variety performance and production practices in Louisiana

BY STEVE HARRISON, BOYD PADGETT, TREY PRICE AND KELLY ARCENEAUX

Similar to 2016, the 2017 wheat production season was very challenging for growers across Louisiana. In some areas of the state, excessive rainfall after planting resulted in poor stands and plant development. Wet conditions in the spring delayed harvest in parts of the state. For the third straight year, Fusarium head blight was reported in much of the wheat. All of these conditions resulted in a poor crop overall.

In an effort to assist producers, agents and consultants in variety selection, the LSU AgCenter continues to evaluate varieties in performance trials located at seven experiment stations.

Variety performance for 2017

Results from the 2017 wheat trials are summarized in Tables 1 through 5. The wheat performance trial in north Louisiana was divided by heading date (early versus medium-late) to facilitate more timely planting and harvest. The growing season was challenging for wheat production due to excessive rainfall and an unusually warm winter. Several trials were lost due to poor stands, severe lodging and grain weathering.

The south Louisiana trial (**Tables 1, 2**) had 28 entries and was harvested at Crowley and Jeanerette. Grain yield ranged from 63.6 to 24.8, with a mean of 46.8 bushels per acre. There was a very large range in heading dates (58 to 97) as a result of the very warm winter. The latest-heading varieties generally had the lowest grain yields and test weights. Test weights were low due to weathering prior to harvest.

The north Louisiana early trial (**Table 3**) was harvested at three locations and produced the highest yields and test weights of the three trial groups. The average yield of 17 entries for 2017 was 54.4 bushels per acre, with a mean test weight of 55.6 pounds per bushel. The Winnsboro early trial had excellent yields and test weights, with a mean of 68.6 bushels per acre and 56.4 pounds per bushel (see table at link below).

The north Louisiana normal trial (**Table 4**) was harvested at Alexandria and Winnsboro in 2017. Yields and test weights were lower than in the early trial, with means of 31.7 bushels per acre and 52.5 pounds per bushel, respectively. The low yield average is due in part to the failure of some late-heading varieties to properly vernalize, resulting in late and partial heading. **Table 5** contains two- and three-year data for the north Louisiana normal trial.

Complete results of the yield trials can be accessed at http://wheat.lsu.edu/index.shtml and will be posted on the LSU AgCenter website in August. More information on wheat is available at http://www.lsuagcenter.com/topics/crops/wheatoats.

Table 1. Wheat performance trial across South Louisiana for 2017. (Bold font indicates commercially available varieties, non-bold are experimental lines)

Brand / variety	Grain Yield bu/acre	Test Wt lbs/bu	Head Day of yr	Plant Ht in	Lod Score 0-9	Leaf Rust %	Fus H Blight 0-9
LA01110D-150-625	63.6	54.7	85	33.5	2.9	0	0.4
AGS 2035	**60.2**	**54.6**	**74**	**34.5**	**4.4**	**0**	**3.9**
LA03200E-2	59.2	54.8	77	30.6	4.0	0	2.0
LA09264C-P5	57.7	53.9	81	30.1	4.4	0	1.3
AGS 2024	**57.7**	**52.9**	**67**	**29.2**	**5.6**	**0**	**3.3**
LA09264C-P2	57.3	54.9	71	31.5	4.6	3	2.1
AGS 2038	**56.8**	**55.4**	**77**	**34.0**	**3.4**	**0**	**2.5**
LA09225C-33	56.3	54.0	73	31.6	5.4	0	4.1
TX-EL2	54.8	49.2	70	30.0	5.9	1	1.5
LA754	**53.9**	**53.4**	**83**	**33.9**	**2.6**	**0**	**0.8**
GA07353-14E19	53.0	53.4	69	31.7	4.9	0	5.0
LA01110D-150-241	52.8	52.5	87	32.1	1.6	0	0.0
AGS 3000	**52.1**	**55.9**	**58**	**29.5**	**4.5**	**6**	
PIONEER 26R94	**52.0**	**54.1**	**71**	**33.4**	**4.6**	**0**	**4.4**
GA071012-14E6	51.8	53.8	62	31.5	5.1	1	4.5
GAJT 141-14E45	50.1	53.7	80	29.3	3.1	0	1.5
DYNA-GRO SAVOY	**47.8**	**52.7**	**65**	**28.9**	**5.7**	**0**	**3.8**
LA10084C-74	45.6	54.2	78	31.4	4.0	0	2.4
AGS 2040	**45.2**	**54.3**	**72**	**31.2**	**4.7**	**0**	**2.8**
SY CYPRESS	**37.4**	**50.8**	**63**	**28.7**	**3.1**	**1**	**4.9**
AGS 2055	**35.2**	**41.6**	**93**	**31.1**	**1.6**	**0**	**0.0**
DELTA GROW 3500	**34.0**	**48.7**	**93**	**30.0**	**1.4**	**0**	**0.0**
PROGENY AG PGX 16-1	33.9	55.5	96	31.1	0.4	0	0.0
PROGENY AG #TURBO	31.0	50.1	98	28.1	0.4	0	0.0
VA11W-108PA	30.2	44.4	90	29.1	0.7	0	0.0
HILLIARD	**29.6**	**42.5**	**92**	**29.6**	**1.0**	**0**	**0.0**
GA051207-14E53	27.4	48.7	97	30.4	1.6	8	0.0
PROGENY AG PGX16-4	24.8	54.2	97	31.8	0.6	4	0.0
Mean	**46.8**	**52.3**	**79**	**31.0**	**3.3**	**0.9**	**2.0**
CV%	**10**	**3**	**2**	**5**	**19**	**312**	**28**
LSD (0.10)	**7.8**	**5.5**	**3**	**1.9**	**3.0**	**NS**	**3.2**

Cultural and Site: Contains data from Crowley and Jeanerette.

COMMENTS: A very warm winter and spring resulted in a large difference in heading dates. There was significant lodging and weathering prior to harvest. Early varieties lost test weight due to excessive weathering after maturity.

Fusarium Headblight: symptoms on head prior to harvest. 0 = none and 9 = severe.

Lodging 0 = none and 9 = severe.

Bold 'Brand/variety' indicates the entry is commercially available, others are non-released breeding lines.

Table 2. Wheat performance trial across South Louisiana for three and two years, 2015, 2016 and 2017. (Bold font indicates commercially available varieties, non-bold are experimental lines)

Brand / variety	Grain Yield bu/acre	Test Wt lbs/bu	Head Day of yr	Plant Ht in	Lodging Score 0-9	Leaf Rust %	Fus H Blight 0-9
TWO-YEARS							
LA01110D-150-625	52.4	55.2	88	33	3.9	1	0.2
AGS 2035	**51.0**	**54.6**	**81**	**34**	**4.1**	**0**	**2.4**
LA03200E-2	50.9	55.3	84	31	4.1	14	1.5
AGS 2024	**48.0**	**53.6**	**79**	**30**	**4.5**	**0**	**2.0**
LA01110D-150-241	46.7	53.6	91	33	2.5	0	0.0
AGS 2038	**46.2**	**54.3**	**85**	**34**	**3.7**	**0**	**1.4**
PIONEER 26R94	**45.6**	**54.2**	**81**	**34**	**4.5**	**0**	**2.5**
AGS 3000	**44.9**	**56.3**	**70**	**31**	**4.5**	**3**	**0.4**
AGS 2040	**44.7**	**55.6**	**79**	**31**	**3.9**	**0**	**1.5**
DYNA-GRO SAVOY	**44.3**	**53.7**	**77**	**30**	**4.6**	**0**	**3.3**
DELTA GROW 3500	**38.4**	**52.6**	**93**	**31**	**3.1**	**0**	**0.0**
SY CYPRESS	**36.2**	**52.9**	**76**	**29**	**3.7**	**8**	**2.7**
AGS 2055	**32.0**	**47.3**	**97**	**32**	**2.6**	**0**	**0.0**
PROGENY AG #TURBO	31.5	51.6	98	29	1.9	0	0.0
HILLIARD	**26.3**	**48.0**	**97**	**31**	**2.1**	**2**	**0.0**
MEAN	**42.6**	**53.3**	**85.0**	**32**	**3.6**	**2**	**1.2**
CV%	**13**	**3**	**2**	**5**	**23**	**240**	**63**
LSD (0.10)	**7.6**	**2.5**	**4.9**	**1**	**1.8**	**NS**	**1.9**
THREE-YEARS							
LA01110D-150-625	50.1	53.5	89	34	3.5	1	0.4
LA03200E-2	48.1	53.2	86	32	3.7	16	1.5
AGS 2035	**48.0**	**52.7**	**84**	**34**	**3.4**	**0**	**2.3**
LA01110D-150-241	45.5	52.0	92	34	2.2	0	0.5
AGS 2040	**44.9**	**53.6**	**81**	**31**	**3.5**	**0**	**1.2**
DYNA-GRO SAVOY	**43.6**	**51.6**	**79**	**30**	**4.8**	**0**	**3.0**
AGS 2038	42.7	52.2	88	35	3.4	0	1.6
PIONEER 26R94	42.1	52.1	84	34	4.0	0	2.2
DELTA GROW 3500	38.5	50.6	92	32	3.1	0	0.3
SY CYPRESS	**35.8**	**50.7**	**80**	**30**	**3.7**	**7**	**2.1**
AGS 2055	**28.6**	**46.8**	**97**	**32**	**3.8**	**0**	**0.8**
HILLIARD	**25.1**	**46.9**	**97**	**31**	**2.4**	**2**	**0.2**
MEAN	**41.1**	**51.4**	**87.3**	**32**	**3.5**	**2**	**1.4**
CV%	**14**	**5**	**2**	**5**	**31**	**236**	**75**
LSD (0.10)	**6.0**	**2.0**	**3.7**	**1**	**NS**	**6**	**1.7**

Data from 2015, 2016 and 2017 at the Rice Research Station (Crowley) and Iberia Research Station (Jeanerette), and from 2016 at Central Station (Baton Rouge).

AGS 2055 was included as a late-heading check.

Bold 'Brand/variety' indicates the entry is commercially available, others are non-released breeding lines.

Lodging 0 = none and 9 = severe.

Fusarium Headblight: symptoms on head prior to harvest. 0 = none and 9 = severe.

Table 3. Performance of early-heading wheat varieties across North Louisiana for 2016 and 2017. (Bold font indicates commercially available varieties, non-bold are experimental lines)

Brand / variety	Grain Yield bu/acre	Test Wt lbs/bu	Head Day of yr	Plant Ht in	Lod Score 0-9	Stripe Rust %	Leaf Rust %	Bacteria 0-9	Fus H Blt 0-9	FDK %
2017										
LA09264C-P5	65.3	58.0	72	37.2	3.0		0	0.9	1.7	20
AGS 2035	**60.1**	**56.0**	**75**	**40.7**	**3.7**		**0**	**1.4**	**2.5**	**38**
LA09225C-33	57.5	56.6	79	37.9	3.7		0	1.2	1.7	38
LA754	**56.2**	**55.1**	**75**	**38.5**	**4.6**		**0**	**1.0**	**2.8**	**83**
AGS 2038	**55.7**	**53.9**	**84**	**40.3**	**2.9**		**0**	**1.2**	**2.8**	**28**
LA10084C-74	55.6	54.7	74	37.3	4.2		2	0.8	2.8	38
PIONEER 26R94	**55.6**	**56.7**	**76**	**39.7**	**3.6**		**4**	**1.0**	**2.3**	**35**
AGS 2055	**55.4**	**53.4**	**88**	**38.2**	**2.8**		**0**	**1.2**	**0.0**	**53**
LA03200E-2	55.1	56.7	75	36.8	3.7		7	1.5	2.2	50
DELTA GROW 3500	**54.9**	**56.1**	**80**	**36.8**	**4.7**		**0**	**1.3**	**0.4**	**23**
DYNA-GRO SAVOY	**54.6**	**55.9**	**70**	**34.8**	**4.0**		**0**	**6.1**	**3.2**	**33**
AGS 2024	**53.6**	**53.6**	**76**	**36.9**	**3.3**		**0**	**2.9**	**3.7**	**68**
AGS 3000	**52.4**	**57.0**	**68**	**37.3**	**4.0**		**12**	**5.9**	**1.2**	**23**
LA09264C-P2	50.7	56.2	70	37.5	4.5		6	0.7	1.8	28
AGS 2040	**50.3**	**57.5**	**70**	**36.7**	**4.6**		**0**	**3.1**	**2.0**	**10**
SY CYPRESS	**49.2**	**54.6**	**73**	**35.3**	**3.8**		**5**	**3.8**	**2.3**	**35**
GA051207-14E53	42.6	52.8	86	38.0	3.1		8	1.1	0.0	28
Mean	**54.4**	**55.6**	**76**	**37.7**	**3.8**		**3**	**2.1**	**2.0**	**37**
CV%	**15**	**2**	**4**	**4**	**57**		**137**	**62**	**24**	**30**
LSD (0.10)	**11.9**	**2.2**	**4**	**2.1**	**2.0**		**6**	**1.8**	**NS**	**19**
TWO YEARS										
DELTA GROW 3500	**58.9**	**56.4**	**85**	**37.1**	**3.1**	**2**	**0**	**0.8**	**0.9**	**19**
AGS 2055 **	**58.5**	**50.8**	**92**	**39.0**	**1.7**	**0**	**0**	**1.0**	**0.0**	**45**
AGS 2038	56.8	53.5	88	40.3	1.5	4	0	0.6	3.0	29
LA03200E-2	55.5	55.6	82	37.5	2.3	2	13	0.9	1.9	32
PIONEER 26R94	**55.5**	**55.5**	**82**	**39.4**	**1.8**	**0**	**2**	**1.0**	**2.1**	**22**
AGS 2024	**54.1**	**53.5**	**83**	**36.7**	**2.1**	**1**	**0**	**1.3**	**3.0**	**38**
AGS 2035	**54.1**	**53.9**	**80**	**40.9**	**2.1**	**22**	**0**	**0.9**	**1.7**	**27**
AGS 2040	**51.6**	**56.4**	**78**	**37.4**	**2.4**	**0**	**0**	**3.0**	**1.2**	**11**
SY CYPRESS	**50.1**	**54.5**	**78**	**35.3**	**2.7**	**18**	**9**	**1.6**	**1.6**	**17**
DYNA-GRO SAVOY	**48.2**	**55.4**	**76**	**35.0**	**2.3**	**4**	**0**	**4.8**	**1.9**	**22**
AGS 3000	**45.0**	**57.2**	**73**	**37.5**	**2.0**	**0**	**7**	**4.1**	**0.9**	**15**
Mean	**53.5**	**54.8**	**81**	**37.8**	**2.2**	**5**	**3**	**1.8**	**1.7**	**25**
CV%	**15**	**2**	**2**	**4**	**88**	**80**	**202**	**89**	**41**	**28**
LSD (0.10)	**NS**	**1.7**	**3**	**1.7**	**NS**	**5**	**7**	**1.4**	**1.3**	**10**

Cultural and Site: Contains data from Alexandria, St. Joseph, and Winnsboro.

Phenotype: is overall physical appearance rated twice during the spring, with a 0 indicating very poor and a 9 indicating outstanding field appearance.

Bacteria: is bacterial streak (black chaff) rating with 0 = no damage and 9 = severe.

COMMENTS: A very warm winter and spring rsulted in a large difference in heading date.

Fus Hblt is severity of Fusarium headblight (FHB) head infection on a scale of 0 = nonoe to 9 = 100% damaged florets/glumes . It is an estimate of proportion of florets infected.

FDK is percent of kernels damaged by Fusarium Headblight (FHB)

Table 4. Performance of medium, and late-heading varieties across North Louisiana for 2017. (Bold font indicates commercially available varieties, non-bold are experimental lines)

Brand / variety	Grain Yield bu/a	Test Wt lbs/bu	Head Day of yr	Plant Ht in	Lod Score 0-9	Stripe Rust %	Leaf Rust %	Bacteria 0-9	Phenot 0-9	FDK NI %	Fus H Blt 0-9	FDK %
LA01110D-150-625	55.5	52.7	73	36.0	1.0	0	1	0.5	7.0	5	1.5	43
LA754	**52.9**	**52.8**	**72**	**37.1**	**1.5**	**1**	**1**	**0.6**	**6.0**	**3**	**1.7**	**38**
TX-EL2	51.9	51.2	77	34.8	1.0	0	14	0.7	5.8	10	1.7	40
GAJT 141-14E45	51.7	54.8	71	35.7	1.0	0	0	0.4	6.5	5	2.4	30
GA071012-14E6	51.2	51.5	70	35.5	1.0	0	38	1.3	6.3	5	6.5	70
AGS 2038	**50.5**	**53.2**	**79**	**37.0**	**1.0**	**0**	**0**	**0.8**	**6.8**	**48**	**1.0**	**40**
GA07353-14E19	50.0	54.4	72	35.3	1.0	0	0	1.5	6.5	18	3.1	43
AGS 2055	**48.4**	**52.8**	**86**	**37.6**	**1.0**	**0**	**0**	**0.8**	**6.3**	**35**	**0.3**	**63**
VA12W-72	48.1	51.0	75	35.1	1.0	0	30	0.8	6.3	38	3.8	43
LA01110D-150-241	47.9	53.4	76	36.9	1.0	0	1	1.0	6.3	15	5.0	50
VA12W-68	44.1	52.6	75	35.0	1.0	1	14	0.7	7.0	8	0.6	30
PROGENY AG PGX 16-1	39.7	52.8	84	37.2	1.0	0	0	0.6	6.0	13	2.8	45
PROGENY AG #TURBO	**39.4**	**52.4**	**90**	**34.4**	**1.0**	**0**	**11**	**0.3**	**4.8**	**8**	**2.5**	**10**
NC13-21213	39.2	54.6	91	36.7	1.0	0	3	0.6	5.8	5	0.7	28
PROGENY AG PGX16-4	39.0	55.1	86	37.2	1.0	0	1	0.8	6.0	8	0.9	55
USG 3536	**38.7**	**52.1**	**99**	**37.1**	**1.0**	**0**	**12**	**0.0**	**4.0**	**3**	**0.1**	**10**
PIONEER 26R41	**36.0**	**53.3**	**92**	**34.2**	**1.0**	**0**	**19**	**0.5**	**4.3**	**5**	**0.3**	**30**
VA11W-108PA	35.3	52.4	83	35.7	1.0	0	12	0.4	5.3	15	1.3	38
NC13-21987	34.1	55.1	86	35.0	1.0	0	0	0.6	5.8	1	1.5	18
PROGENY AG #BULLET	**33.8**	**53.3**	**97**	**37.9**	**1.0**	**0**	**10**	**0.0**	**5.0**	**1**	**0.1**	**15**
DYNA-GRO 9701	**32.9**	**52.4**	**97**	**37.2**	**1.0**	**0**	**12**	**0.0**	**4.0**	**1**		
DELTA GROW 1000	**32.8**	**50.5**	**95**	**35.9**	**1.0**	**2**	**16**	**0.0**	**4.0**	**3**	**4.5**	**5**
HILLIARD	**30.5**	**49.8**	**87**	**37.5**	**1.0**	**0**	**8**	**0.5**	**5.0**	**15**	**1.1**	**23**
NC10034-50	29.8	54.1	89	38.6	1.0	0	16	0.4	5.0	3	2.3	40
AGRIMAXX 473	**29.6**	**53.6**	**96**	**36.3**	**1.0**	**0**	**17**	**0.0**	**3.8**	**8**	**0.7**	**8**
NC09-20986	27.4	51.9	91	35.3	1.0	0	20	0.3	5.3	3	0.9	8
PROGENY AG PGX14-5	25.6	54.2	88	36.5	1.0	0	33	0.8	4.3	1	1.0	13
PIONEER 26R53	**25.6**	**53.4**	**92**	**30.0**	**1.5**	**0**	**39**	**0.0**	**4.3**	**13**	**0.1**	**35**
AGRIMAXX 444	**24.4**	**50.4**	**93**	**36.5**	**2.5**	**0**	**24**	**0.0**	**3.0**	**5**	**0.7**	**15**
SYNGENTA SX1790	22.5	50.6	90	36.4	1.0	0	44	0.3	4.5	3	0.4	13
AGRIMAXX 415	**22.4**	**50.1**	**89**	**35.0**	**2.0**	**2**	**34**	**0.8**	**3.3**	**3**	**1.3**	**28**
DYNA-GRO 9750	**22.0**	**51.6**	**90**	**32.1**	**1.0**	**0**	**29**	**0.0**	**3.8**	**8**	**0.8**	**5**
PROGENY AG #WARRIOR	**21.0**	**53.3**	**91**	**35.1**	**1.5**	**0**	**33**	**0.0**	**3.5**	**10**	**1.3**	**15**
USG 3228	**20.1**	**53.2**	**90**	**33.3**	**1.0**	**0**	**25**	**0.0**	**4.3**	**8**	**0.3**	**8**
USG 3448	**19.6**	**48.5**	**94**	**35.3**	**2.3**	**0**	**40**	**0.0**	**3.0**	**10**	**1.4**	**13**
DYNA-GRO wx16722	19.6	56.0	92	35.3	1.8	0	29	0.0	2.5		3.2	18
PROGENY AG #BOSS	**16.9**	**51.5**	**98**	**33.2**	**5.3**	**3**	**22**	**0.0**	**2.5**	**10**	**0.0**	**10**
SY VIPER	**15.6**	**51.4**	**94**	**35.8**	**6.5**	**0**	**37**	**0.0**	**4.0**	**3**	**0.6**	**25**
PIONEER 26R59	**14.2**	**46.9**	**92**	**30.8**	**2.5**	**0**	**47**	**0.0**	**3.5**	**10**	**2.4**	**15**
PROGENY AG PGX16-3	12.0	51.6	102	34.5	2.0	0	40	0.0	3.0	15	0.5	30
SY HARRISON	**11.6**	**50.8**	**94**	**34.1**	**5.3**	**0**	**53**	**0.0**	**2.5**	**15**	**4.2**	**15**
AGRIMAXX Exp 1786	9.8	53.2	103	33.3	2.5	0	42	0.0	2.5		2.0	40
PROGENY AG 243	**9.6**	**53.9**	**94**	**33.6**	**8.0**	**0**	**46**	**0.0**	**2.8**		**0.8**	**5**
PROGENY AG 357	**7.9**	**52.6**	**95**	**33.4**	**8.3**	**0**	**41**	**0.0**	**3.0**	**8**	**1.4**	**30**
Mean	**31.7**	**52.5**	**86**	**35.4**	**1.9**	**0**	**20.7**	**0.4**	**4.6**	**10**	**1.6**	**28**
CV%	**22**	**4**	**2**	**5**	**57**	**465**	**60**	**58**	**9**	**35**	**98**	**45**
LSD (0.10)	**15.3**	**4.2**	**8**	**2.9**	**1.3**	**NS**	**5.0**	**NS**	**0.7**	**6**	**NS**	**23.3**

Cultural and Site: Contains data from Alexandria and Winnsboro.

Phenotype: is overall physical appearance rated twice during the spring, with a 0 indicating very poor and a 9

Bacteria: is bacterial streak (black chaff) rating with 0 = no damage and 9 = severe.

COMMENTS: A very warm winter and spring rsulted in a large difference in heading date.

Fus Hblt is severity of FHB head infection on a scale of 0 = none to 9 = 100% damaged florets/glumes . It is an estimate of proportion of florets infected. This data came from a misted, inoculated nursery and not the normal variety

FDK is percent of kernels damaged by Fusarium Headblight (FHB). Shaded gray data is from the misted, inoculated nursery. Non-shaded is from the normal variety trial.

Bold 'Brand/variety' indicates the entry is commercially available, others are non-released breeding lines.

Table 5. Performance of medium, and late-heading varieties across North Louisiana for two and three years. (Bold font indicates commercially available varieties, non-bold are experimental lines)

Brand / variety	Grain Yield bu/a	Test Wt lbs/bu	Head Day of yr	Plant Ht in	Lod Score 0-9	Stripe Rust %	Leaf Rust %	FHB 0-9	FDK I %
TWO YEARS									
LA01110D-150-241	59.0	54.7	86	39	0.4	3	0	2.2	30
VA12W-72	57.0	52.4	86	36	0.7	0	13	1.3	25
AGS 2055	**56.3**	**49.6**	**92**	**39**	**0.7**	**0**	**0**	**0.1**	**47**
LA01110D-150-625	55.9	55.5	83	38	1.2	0	0	1.2	18
AGS 2038	**55.0**	**53.2**	**86**	**38**	**0.3**	**3**	**0**	**2.5**	**34**
PROGENY AG #TURBO	54.4	54.9	93	35	0.4	0	4	0.8	10
HILLIARD	**45.5**	**50.4**	**93**	**39**	**0.9**	**0**	**3**	**0.4**	**24**
DELTA GROW 1000	**45.1**	**52.3**	**102**	**38**	**1.7**	**0**	**5**	**0.9**	**10**
PROGENY AG #BULLET	42.5	52.7	103	39	1.4	1	4	0.0	11
PIONEER 26R41	**41.6**	**50.7**	**98**	**36**	**1.3**	**0**	**9**	**0.1**	**26**
SY VIPER	**28.8**	**50.5**	**96**	**38**	**4.6**	**0**	**35**	**0.4**	**18**
AGRIMAXX 415	**28.5**	**47.9**	**95**	**36**	**2.6**	**1**	**25**	**0.4**	**25**
PIONEER 26R53	**26.8**	**49.1**	**97**	**33**	**3.2**	**0**	**28**	**0.5**	**24**
AGRIMAXX 444	**26.3**	**46.5**	**101**	**38**	**2.4**	**0**	**27**	**0.2**	**17**
PROGENY AG 243	**23.7**	**47.4**	**98**	**38**	**5.1**	**0**	**29**	**0.2**	**17**
PROGENY AG #WARRIOR	23.6	43.6	98	36	2.6	0	27	0.4	22
PIONEER 26R59	**23.4**	**43.1**	**97**	**33**	**2.4**	**0**	**37**	**0.8**	**20**
SY HARRISON	**19.4**	**43.3**	**101**	**35**	**3.6**	**0**	**47**	**0.8**	**25**
PROGENY AG 357	**10.5**	**47.8**	**101**	**35**	**6.9**	**0**	**56**	**0.5**	**25**
Mean	**38.0**	**50.1**	**95**	**36.8**	**2.2**	**0**	**18**	**0.7**	**23**
CV%	**19**	**3**	**2**	**4**	**72**	**179**	**61**	**130**	**40**
LSD(0.10)	**8.9**	**3.4**	**4**	**1.9**	**1.6**	**NS**	**14**	**NS**	**9**
THREE YEARS									
LA01110D-150-241	57.9	52.4	93	39	0.9	2	0	4.5	31
AGS 2055	**56.0**	**48.8**	**96**	**38**	**0.9**	**0**	**0**	**3.8**	**45**
LA01110D-150-625	54.5	54.2	91	40	1.4	0	0	3.9	21
AGS 2038	**54.5**	**52.8**	**94**	**40**	**0.4**	**3**	**0**	**4.1**	**38**
PIONEER 26R41	**54.4**	**52.9**	**101**	**35**	**1.4**	**0**	**3**	**1.6**	**30**
HILLIARD	**54.2**	**52.3**	**97**	**39**	**1.0**	**0**	**1**	**1.9**	**30**
SY VIPER	**43.8**	**51.9**	**97**	**40**	**3.8**	**0**	**24**	**2.2**	**24**
PIONEER 26R53	**41.9**	**53.1**	**100**	**34**	**2.9**	**0**	**14**	**1.2**	**25**
AGRIMAXX 415	**41.5**	**51.8**	**98**	**36**	**3.0**	**1**	**16**	**1.5**	**30**
AGRIMAXX 444	**40.0**	**50.0**	**103**	**37**	**2.4**	**0**	**19**	**1.4**	**25**
PIONEER 26R59	**38.3**	**48.9**	**100**	**33**	**2.1**	**0**	**23**	**1.6**	**26**
SY HARRISON	**33.8**	**47.5**	**103**	**36**	**3.7**	**0**	**34**	**2.2**	**32**
Mean	**47.6**	**51.5**	**98**	**37.5**	**2.0**	**1**	**11**	**2.5**	**30**
CV%	**15**	**4**	**1**	**5**	**82**	**234**	**60**	**32**	**29**
LSD(0.10)	**11.8**	**3.1**	**2.3**	**2.1**	**1.7**	**1**	**12.0**	**1.4**	**8.8**

Data from Winnsboro for 2015, 2016 and 2017; Alexandria for 2016 and 2017; and St. Joseph for 2016.

Test Weights are low due to rainfall and delayed harvest.

FHB and FDK are Fusarium headblight rating (0 - none) and Fusarium Damaged Kernels . **I** indicates the data is from an inoculated screening nursery.

Variety selection

Choice of varieties for planting is a crucial management decision that sets the stage for yield potential and input costs. The 2016 and 2017 seasons were atypical and yields were poor, so growers should place more emphasis on yield means over three years within their region (north or south Louisiana). While grain yield is the most important factor, test weight, disease resistance and heading date are other important considerations, as they also impact economic return.

Test weight is important because low test weight results in dockage at the elevator. Heading day is an indication of cold requirement (vernalization) and day length (photoperiod) requirement, which determines when a variety heads out. Some varieties head very late or not at all in south Louisiana due to a long vernalization requirement or photoperiod response, while those same varieties perform better in north Louisiana. Late-heading varieties generally perform poorly in south Louisiana. By contrast, early-heading varieties sometimes perform poorly in north Louisiana due to spring freeze damage. Disease resistance protects yield and reduces input costs. Vernalization and photoperiod response are the primary reasons for dividing Louisiana into north and south regions.

Early-heading and early-maturing varieties permit earlier harvest and timelier planting in a double-crop system, while later-heading varieties guard against damage from a late spring freeze and can be planted earlier in north Louisiana. Early-heading varieties should be planted in the second half of the recommended planting window to avoid the likelihood of spring freeze damage. Lodging resistance helps guard against reduction in test weight and yield loss that results when near-mature heads come in contact with the ground.

Disease susceptibility is very important in terms of yield and profitability. The 2017 season was notable for severe Fusarium headblight (FHB) epidemics that occurred as a result of conditions favoring infection during flowering. There are no varieties fully resistant to FHB, but some have a moderate level of resistance. It should be noted that varieties less susceptible to disease may not always be the highest yielding, especially if disease pressure is not present. However, in high disease pressure situations, these varieties produce higher yields than susceptible varieties and enhance profitability by saving the costs of fungicide applications.

Triazole fungicides may suppress FHB. In earlier research, tebuconazole (Folicur and generics) reduced incidence and severity of FHB. Prosaro (prothioconazole plus tebuconazole), Proline (prothioconazole) and Caramba (metconazole) were somewhat efficacious on FHB in other studies. When applications are made under ideal conditions, one can expect a maximum of 50 percent control. On average, 40 percent control is more realistic.

Timing is critical, as there is a short window during flowering to make an effective application for FHB. The biggest problem is that ideal conditions (wet weather) for FHB infection are not ideal for making fungicide applications by ground. Head coverage also is critical. Sprayers should be calibrated to deliver maximum water volume (minimum 15 GPA by ground, 5 GPA by air) and optimal droplet size (300 to 350 microns). For ground sprayers, nozzles angled at 30 degrees to the horizontal may maximize head coverage. Some research has shown dual nozzles angled in opposite directions also will increase head coverage.

If similar weather conditions are encountered next year during flowering, expect to encounter FHB again in 2018. A risk assessment tool based on temperature and relative humidity is available online at www.wheatscab.psu.edu. The site has regional commentary that will help you determine your risk at a given location.

Crop management

Planting dates for Louisiana wheat depend on location and variety. For south and central Louisiana, optimum planting dates range from Nov. 1 to Nov. 30. The optimum planting for northern Louisiana is slightly earlier, ranging from Oct. 15 through Nov. 15. Early-heading varieties generally should be planted after the mid-date, while late-heading varieties can be pushed a little on the early side of

the planting window. The weather in north Louisiana is cooler in the fall and early winter, which slows growth and prevents excess winter growth. It is important that the wheat crop be well-established and fully tillered before going dormant in the coldest part of the winter. Additionally, because of the cooler conditions, the threat for fall pests (Hessian fly, army worms and rust) are decreased earlier in the fall compared to south and central Louisiana.

While these dates are the optimum planting window averaged over years, the timing will vary in some years depending on weather patterns. Additionally, if wheat cannot be planted within these optimum windows, planting later than the optimum window is usually better than planting too early. Early planting can result in greater insect and fall rust establishment, and also makes plants more prone to spring freeze injury due to excessive fall growth and development. Planting too late (more than 14 days after the optimum window) can result in significant yield loss due to slow emergence, seed rotting and a decreased tillering period, which results in fewer and smaller heads.

Wheat can be planted by broadcasting seed and incorporating into the soil; however, it is preferred that the seed be drilled. Drilling the seed increases the uniformity of depth and emergence. Use recommended planting rates for drilled wheat (60 to 90 pounds per acre) or broadcast wheat (90 to 120 pounds per acre) of quality seed into a good seedbed with adequate moisture. This higher seeding rate should be adapted for conditions in which high germination or emergence is not expected, as with late-planted wheat or heavy, wet soils. Late-planted seed should be planted at a higher seeding rate using a drill to ensure rapid, adequate and uniform emergence.

Good surface drainage is critical to successful wheat production. Saturated fields lead to diseases such as root rots and downy mildew, reduce tillering and vegetative growth, and decrease root development and nutrient utilization. Yields in wheat fields suffering from waterlogging stress are greatly reduced. Fields with marginal drainage should be ditched to ensure water stands for a minimal time after heavy rainfall.

Nitrogen (N) fertilization of wheat can be a challenging aspect of production. Total N application normally should range from 90 to 120 pounds per acre, but this will vary depending on soil type and rainfall after applications. Timing of N application depends on several factors. The wheat crop needs adequate N in the fall and early winter to establish ground cover and properly tiller. However, excessive levels of fall N can result in rank growth and increased lodging as well as a higher probability of spring freeze damage from early heading. If the wheat crop is following soybeans, soil residual or mineralizable N should be adequate for fall growth, and no pre-plant N is needed. However, if the wheat crop follows corn, sorghum, rice or cotton, the application of 15 to 20 pounds of N per acre typically would be beneficial. If the wheat crop is planted later than optimum, additional N may be necessary to ensure adequate fall growth prior to winter conditions. If the wheat crop did not receive a fall application and appears to be suffering from N deficiency in January, the initial top-dress N application can be made early to promote additional tillering.

Early spring is when the majority of N for the wheat crop should be applied. There is no universal rule on how early spring N should be applied. Each field should be evaluated based on tillering, stage of development, environmental conditions and crop color. A crop that has good growth and good color should not need N fertilization prior to erect leaf sheath (Feekes 5), usually sometime in February. However, the first spring fertilizer application should be applied prior to first node (Feekes 6) to ensure optimum head development, tiller retention and head size. Crop N stress around jointing (Feekes 6) will result in yield losses. Any additional N applied following flag leaf typically contributes very little to crop yield.

Splitting top-dress N into two or three applications is common in Louisiana production systems due to the increased risk of N losses often associated with heavy rainfall and our long growing season. Splitting N typically occurs by applying fertilizer N at or just prior to jointing, with a second application 14 to 28

days later. About 50 percent of the top-dress N normally is applied with the first split but this may be decreased if the first split is put out early and plants are not well enough developed to take up that much N.

Phosphorus, potassium and micronutrients should be applied in the fall based on soil test reports. All fertilizers applied as well as lime should be incorporated into the soil prior to planting. Required lime should be applied as soon as possible because it takes time for the lime to begin to neutralize the acidity of most soils.

The application of sulfur (S) is a growing concern in Louisiana production systems, with increasing deficiencies appearing every year. Oftentimes, early spring sulfur deficiencies are mistaken for N deficiencies and additional S is not applied. Because sulfur is mobile, similar to N, fall application alone may not be adequate. Supplemental applications of S with spring N applications often are warranted. §

Market outlook

BY KURT GUIDRY

Commodity markets currently are in a fairly typical summertime pattern. Changes in weather forecasts and conditions seen at this time of the year typically have significant impacts on market movement. This can cause a great deal of volatility in the market, which is exactly what we seem to be experiencing this year. Despite this, the general trend seen in most commodity markets has been sideways to up in the past month (**Table 1**).

While the improvement in new crop futures prices has been a pleasant surprise, basis levels are at sharp discounts from the levels experienced in the past couple of years. This is an indication that end users of these commodities have a dampened view of the price potential for these commodities.

After struggling to find value for much of the spring and early summer, the markets got a boost with the release of the U.S. Department of Agriculture's Acreage Report and Quarterly Grain Stocks Report on June 30 and its World Supply and Demand Estimates Report in July. With improved supply and demand fundamentals, the market has been more sensitive to weather conditions and forecasts and the development of the 2017 crop. While drought conditions in High Plains and concerns of hot and dry conditions in areas of the Midwest continue to provide some positive momentum for the markets, overall crop conditions remain at normal levels.

Table 1. Current new crop futures prices and basis offers as of July 26, 2017

	NEW CROP FUTURES PRICE, JUNE 26	NEW CROP FUTURES PRICE, JULY 26	CURRENT RANGE IN BASIS BIDS FOR AUGUST/ SEPTEMBER DELIVERY
Corn	$3.67	$3.73	From $0.28 under to even with current futures price
Grain sorghum	$3.77	$3.86	From $0.46 under to $0.35 under current futures price
Soybeans	$9.14	$10.00	From $0.15 under to $0.25 over current futures price
Cotton	$0.67	$0.68	N/A

Figure 1 shows the current crop condition index for selected commodities. Index values can run from 200 to 1,000. A value of 200 means 100 percent of the crop was rated very poor while a value of 1,000 signifies 100 percent of the crop being rated as excellent. For feed grains and soybeans, the most recent crop condition ratings show the crop rated at slightly below the previous week and previous year. In addition, current crop ratings are at or above the five-year average. Current cotton ratings are above both last year and the five-year average. So despite the weather concerns and premium in the market, the ratings continue to show average to above average yield potential for most commodities.

It is easy to get caught up in the current market strength and assume the market will continue to improve. While the latest supply and demand fundamentals paint an improved picture for price prospects than was the case one or two months ago, it is important to realize there is still potential for a downside market correction for most of these commodities. **Table 2** provides the supply and demand estimates for selected commodities in the past two marketing years and projections for the 2017-2018 marketing year.

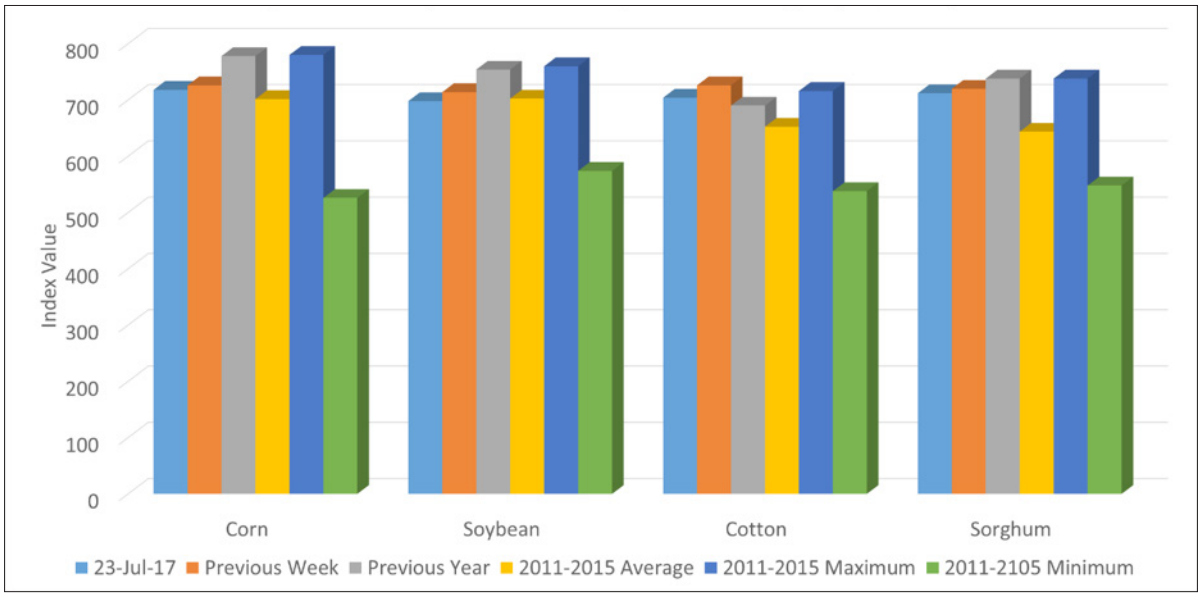

Figure 1. U.S. crop condition index for the week ending July 23, 2017

Table 2. U.S. supply and demand projections for selected commodities

	CORN			SOYBEANS			COTTON			GRAIN SORGHUM		
	2015-2016	2016-2017	2017-2018	2015-2016	2016-2017	2017-2018	2015-2016	2016-2017	2017-2018	2015-2016	2016-2017	2017-2018
Planted acres	88.0	94.0	90.9	82.7	53.4	89.5	8.58	10.07	12.06	8.5	6.7	6.0
Projected yield	168.4	174.6	170.7	48.0	52.1	48.0	766.0	867.0	816.0	76.0	77.9	67.0
Total supply	15,401	16,940	16,675	4,140	4,528	4,695	16.6	21.0	22.2	620	518	409
Total use	13,664	14,570	14,350	3,944	4,118	4,235	12.6	17.8	16.9	583	465	360
Ending stocks	1,737	2,370	2,325	196	410	460	4.0	3.2	5.3	37	53	49
Stocks-to-use	12.71%	16.27%	16.20%	4.97%	9.96%	10.86%	31.51%	17.87%	31.42%	6.35%	11.40%	13.61%
Average farm price	$3.61	$3.35	$3.30	$8.95	$9.50	$9.40	$0.61	$0.68	$0.61	$3.31	$2.65	$2.90

Despite the improved outlook in the past couple of months, supply and demand estimates still show significant increases in stocks-to-use ratios in the previous year for every commodity. With average or above average yields still a possibility for most commodities, there remains downside risk from current price levels. Following is a brief discussion of the market outlook for individual commodities.

Corn

Current futures prices are in the upper $3 per bushel range. Given the strong demand we have seen for corn in the past several months and the potential for lower overall supplies in the 2017-2018 marketing year, I still have hope that this market can make another run at the $4 per bushel level. At the very least, I think the outlook for this commodity has improved enough to suggest downside risk from current levels is relatively minimal. I project prices for the 2017-2018 marketing year to average somewhere between $3.75 and $4.25.

Soybeans

Current futures prices are around the $10 per bushel range. As with corn, strong demand in the past year has helped support this market. Currently, U.S. soybeans are reported as being 14 cents per bushel lower than soybeans from Brazil. This should keep the U.S. in a very positive export situation for the remainder of 2017. However, significantly higher acres in 2017 and the potential for sharply higher supplies give some concern regarding the potential for prices to remain at current levels if 2017 yields are at or above trend line levels. Without some type of yield reduction due to weather, I have a hard time seeing prices in the $10 range for the 2017-2018 marketing year. I project prices to average somewhere in the low to mid-$9 per bushel range, with a small chance of prices falling below $9.

Grain sorghum

The biggest issue with the sorghum market is the sharp discount in basis levels. Significant reductions in export sales and demand in the past 18 months has impacted cash prices for grain sorghum. Unfortunately, there does not appear to be any end in sight for this downturn in basis levels. While the overall supply and demand fundamentals have improved, it is difficult to project any significant improvement in prices. I project cash prices to average somewhere in the low to mid-$3 per bushel range for the 2017-2018 marketing year.

Cotton

Current futures prices are around 68 cents per pound. As with soybeans, I believe this market has some additional downside risk with higher acreage and the potential for sharply higher production in the 2017-2018 marketing year. A resurgence in export demand has been a positive for this market, but the potential size of the 2017 crop provides concern that prices could come under significant pressure later in the year. I project prices to average somewhere in the low to mid-60 cents per pound range for the 2017-2018 marketing year, barring a weather event causing a major reduction in expected 2017 production. §

Flood recovery grants available to farmers

BY KURT GUIDRY

The Louisiana Department of Agriculture and Forestry (LDAF) recently implemented the 2016 Louisiana Farm Recovery Grant Program. This program is designed to provide financial assistance in the form of grants to agricultural producers that suffered economic losses in the March and August 2016 floods.

This program is open to producers in the 51 parishes that were declared a disaster area by FEMA. To be eligible, producers must:

— Show they had more than $25,000 in gross farm revenue in at least one of the previous three years.

— Have been in business in 2016 and remained in business in 2017.

— Show evidence of more than $10,000 in economic losses in 2016.

Economic losses will be determined by a crop loss calculator developed for this program. This tool determines losses associated with reduced farm revenue caused by lower production or lower crop prices received due to quality damage. Increases in farm costs associated with selected farming activities also are considered.

Details and application packets can be found at http://www.ldaf.state.la.us/programs/2016-louisiana-farm-recovery-grant-program/.

The application period for this program began on July 26. It will run for 36 days, with an end date around Aug. 31. §

LSU AGCENTER SPECIALISTS

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Cotton	Agronomic	Dan Fromme	318-880-8079	DFromme@agcenter.lsu.edu
Corn	Agronomic	Dan Fromme	318-880-8079	DFromme@agcenter.lsu.edu
Grain sorghum	Agronomic	Dan Fromme	318-880-8079	DFromme@agcenter.lsu.edu
Soybeans	Agronomic	Todd Spivey	919-725-1359	TSpivey@agcenter.lsu.edu
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