Louisiana Crops Newsletter, February 2020

Corn planting dates
By Dan Fromme, LSU AgCenter corn specialist

Corn growth and development respond to temperature, not day length. This means the calendar date is not as important as soil and air temperature when considering when to plant corn. Good germination and emergence are expected when the soil temperature at a 2-inch depth is 55 degrees Fahrenheit by 9 a.m. for three consecutive days. This normally occurs in late February and March in Louisiana. In most years, the optimal planting window for the southern half of Louisiana ranges from Feb. 25 to March 23, and for the northern half of Louisiana, the optimal planting window ranges from March 24 to April 22.

Extending planting past the last optimal planting date can result in losses of .5 to 1% per day. The last optimal planting date for different parts of the state are shown in **Figure 1**. Yield reduction associated with late-planted corn gradually declines and escalates over an extended time period. Therefore, there is little justification to stop or abandon corn planting if planting is slightly delayed past the last optimal dates.

Frost may occur after these planting dates in some years; however, corn typically withstands frost with little economic injury. Corn younger than V6 (six-leaf stage) usually can withstand a light frost if the temperature does not drop below 28 to 30 degrees. A moderate freeze will burn any existing leaves and cause them to drop, but new leaves can emerge in four to five days with warm temperatures. However, as the growing point moves upward near the soil surface, the possibility of injury increases.

Figure 1. Last optimal planting date for different parts of the state. Extending planting past the last optimal planting date can result in losses of .5 to 1% per day.

###

Seed relabeling in corn
By Dan Fromme, LSU AgCenter corn specialist

Before you plant, check the tag on that bag of corn seed. Often in the seed industry, the same variety is sold under multiple brand names. In other words, just because the seed is in a different bag does not mean it is not the same variety.

This creates two significant problems for farmers:
— **Overpaying for seed:** Because different brands often sell the same variety for very different prices, some farmers significantly overpay, perhaps not realizing that other brands sell the same variety at a lower price.
— **Lack of genetic diversity:** When the same variety is sold under multiple brand names, it is easy for farmers to unknowingly purchase the same variety from multiple brands, thinking they are buying a

unique variety from each brand. This can lead to a failure to establish the genetic diversity that many farmers strive for when selecting their seed.

Federal and state seed labeling regulations typically require bags of seed to be labeled with the variety name. Each variety has a unique set of numbers and/or letters, which are typically in a sequence of six to 10 digits.

Photo caption
Look closely at the tag at left. The variety name is 1065462. On the tag at right, the variety name is 101542-05. That means these two corn varieties are not the same. If the numbers were the same, you would have been planting the same variety.

###

Should you apply an in-furrow starter fertilizer to corn?
By LSU AgCenter weed scientist Josh Copes, soil scientists Rasel Parvej and Syam Dodla, and corn specialist Dan Fromme

Phone calls have been coming in regarding applying an in-furrow starter fertilizer at corn planting. An in-furrow starter is commonly called a “pop-up” fertilizer that is applied in the seed furrow (in-furrow). This allows for ease of application and placing the nutrients close to the germinating seed, which allows the seedling to easily access nutrients. A good in-furrow fertilizer will contain a high percentage of phosphorus along with some nitrogen, but could also contain sulfur, potassium and micronutrients. In Louisiana, ammonium polyphosphate fertilizers such as 10-34-0 and 11-37-0 are commonly used in-furrow. When applied in-furrow, there is potential for salt and ammonia injury from fertilizers with high salt indexes or contain urea or ammonium-nitrogen. Therefore, urea is not recommended to be applied in-furrow. Adequate soil moisture at planting, however, decreases the likelihood of potential salt injury. Another starter fertilizer placement strategy is applying in a 2 by 2 band (2 inches to the side of the seed furrow and 2 inches below the seed depth). This method of application requires additional planter attachments and allows for use of higher rates of fertilizer at planting by avoiding salt and ammonia injury. In-furrow application rates in excess of 5 gallons per acre of ammonium polyphosphate in corn are not advised. If you would like to know more about salt index for fertilizers, visit http://www.spectrumanalytic.com/support/library/ff/salt_index_calculation.htm.

In Louisiana, considerable research has been conducted on the use of starter fertilizers in corn, either with 10-34-0 or 11-37-0 (Mascagni et al, 2006). In five out of 15 trials conducted from 1991 to 2005, corn yields were significantly increased when in-furrow starter fertilizer was applied. It should be noted that in each year, soil test-based phosphorus levels were considered high in the test area. Therefore, corn yield increase could still occur even though soil test phosphorus levels are high. Phosphorus deficiency symptoms and yield responses to the in-furrow fertilizer were most common in light textured soils (sandy loam and silt loam soils). Mascagni et al also documented that nitrogen-only fertilizers had

little effect on early-season plant growth while in-furrow fertilizers containing phosphorus increased early-season plant growth in all trials. This demonstrates that it is the phosphorus component that improved early-season plant growth. The enhanced plant growth from the phosphorus-containing fertilizers also resulted in hastened maturity of the corn crop. Mid-silk occurred four days earlier where yield responses were observed and three days earlier when no yield response occurred.

With low commodity prices and high input costs, producers question if they should spend the money on applying an in-furrow starter. Situations where a positive yield response will likely occur from the use of in-furrow phosphorus containing fertilizers are:

1. Planting earlier than recommended.
2. Planting in high residue/no-till situations.
3. When there is a need to apply phosphorus fertilizer based on soil test results.
4. Years with poor early-season growing conditions (low temperature and excessive rainfall). Soils, especially sandy and silt loam soils, are slow to warm in the spring. Cool soils can often result in reduced phosphorus uptake by the plant resulting in temporary phosphorus deficiency, even though soil test phosphorus levels are adequate.

Therefore, when planting earlier than Feb. 25 in south and central Louisiana and March 10 in north Louisiana, an in-furrow starter may be beneficial. High residue situations typically result in cooler and wetter soils that can result in poor early growth and phosphorus deficiencies. Also, early-season nitrogen deficiencies may occur in high residue/no-till situations. When soil tests recommend the addition of phosphorus, using an in-furrow starter would be recommended. As mentioned earlier, an in-furrow application of the fertilizer allows easy access of the nutrients since it is applied in a concentrated band with the seed. Unfortunately, we cannot predict early-season growing conditions, an in-furrow starter can be cheap insurance against detrimental cool and wet weather conditions often experienced in Louisiana in March.

In summary, if you are equipped to apply a fertilizer in-furrow and plan on planting as early as possible or into high residue/no-till situations then applying an in-furrow starter may be beneficial. If soil test reports call for the addition of phosphorus, then an in-furrow starter would be a good method to place the phosphorus near the developing roots. Also, nutrient use efficiency may be greater compared to a broadcast application of phosphorus, especially if the broadcast application occurred in the fall. This is due in part to time, since an in-furrow application is applied at planting, there is less time for soil reactions to tie up phosphorus from being available for plant uptake. Soil pH should also be considered for the decision of when to apply phosphorus. Phosphorus is most plant-available between 6.5 and 7.5 pH. If soil pH is outside this range, then phosphorus should be applied closer to planting.

###

Early-season corn insect considerations
By Sebe Brown, LSU AgCenter entomologist (adapted from Leonard and Baldwin, 2008)

Pre-plant pest management decisions
Burndown herbicides typically are applied 30 to 45 days prior to planting crops. Complete control of all weed species within in the field and on the surrounding field borders is necessary to eliminate alternate host plants of insect pests. Fields should be scouted at the time of planting to ensure the seedbeds are essentially weed-free. The presence of heavy plant residue following burndown applications or any green vegetation on the seedbeds can create a favorable environment for arthropod pests. Incomplete

termination of some weed species provides a refuge for insect pests until crop seedlings become available. Even at planting, a herbicide application or modified tillage treatment may be warranted to ensure a clean seedbed and remove alternate hosts of arthropod pests.

In addition, heavy residue from previous crops (corn, sorghum and soybeans) covers the soil surface and mediates soil temperature and moisture levels. This in turn increases the probability of insect pests such as corn earworms, corn borers and stink bugs successfully overwintering in those fields. Identifying these problems early provides producers with the information necessary to modify their insecticide use strategies at the time of planting.

At-planting and surface-applied insecticide applications should be used to manage cutworms if winter vegetation was not terminated well in advance of planting, if incomplete kill of winter weeds occurred, if any freshly emerged vegetation is observed on the seedbeds at the time of planting or if cutworms are observed in high numbers on plants in the field or along field borders. The most common insecticides used for this application include any pyrethroid. The lowest application rates have proven to be effective preventative treatments when applied properly. Producers should apply a broadcast treatment or in a wide band over the seed furrow. Cutworms exist below the soil surface feeding on root tissue and may not be exposed to the insecticide if only part of the seedbed is treated.

At-planting pest management decisions

Soil insecticides such as Counter 15G, Lorsban 15G and Aztec 2.1G were the standard insecticide treatments applied either in the seed furrow or at planting to control seed and seedling pests in corn. However, Gaucho 600FS, Cruiser 5FS and Poncho 600FS have become standard as seed treatments and have replaced granular and liquid soil-applied insecticides on considerable acreage. Regardless of the product(s) used, an at-planting insecticide treatment is essential for optimal seedling development. Producers should not reduce seeding rates below recommended levels when using at-planting insecticide treatments. Lower than optimal plant populations cannot consistently tolerate injury from seedling insect pests and recover to produce maximum yields.

Post-emergence and reactive pest management decisions

Generally, corn seed treatments, at existing rates, will exhibit enough residual efficacy for corn seedlings to develop beyond the susceptible stages to many above/below ground insect pests. However, when soil temperature is below 55 degrees, delayed germination and uneven emergence can increase the susceptibility of corn seedlings to arthropod pests. For producers using herbicide-tolerant crops, the co-application of foliar insecticides with post-emergence herbicides is a cost-effective practice when controlling above-ground pests. However, there are no rescue treatments for below-ground insect injury, and seedling protection is critical when planting corn in suboptimal conditions.

As conservation tillage systems continue to evolve, IPM strategies will need to adapt to address emerging pest issues. Pest managers and producers should scout fields and identify those situations that may result in pest problems. These fields should be considered high risk and managed with preventative pest management methods. An effective IPM strategy for field corn pests should include weed-free seedbeds well in advance of planting, optimal application dates and rates of cultural practices, and discriminate use of preventative and reactive chemical control strategies for pest problems.

Most of the extension IPM recommendations do not recognize general differences in insect management recommendations between conventional and conservation tillage systems. However, to improve the overall success of insect pest management in conservation tillage systems, crop advisors

and producers should timely apply broad-spectrum herbicide treatments to control winter vegetation not only within the field but also on field borders. Many of these insect pests are highly mobile and crop advisors should scout field borders and adjacent fields to observe potential refuges for these pests. Fields should be scouted regularly during the season and treated only as needed based on insect density and changes in plant development. Agronomic practices that enhance rapid seed germination and promote seedling growth should be used to reduce that period of time that plants are susceptible to insect pests. Chemical control strategies are effective against field corn insect pests, but the application method, product rate, and treatment timing must be adjusted for the requirements of each individual field. Seed treatments and soil applied insecticides are critical inputs in conservation tillage systems for field corn. Crop advisers and producers should recognize the potential for unidentified pest problems, intensify scouting practices and use all available resources to make an informed decision on the appropriate management strategy.

Southern row crop producers have incorporated significant changes in field corn production systems to decrease input costs and improve profits. These changes can significantly influence arthropod pest diversity and density as well as overall pest status. Conservation tillage systems or components of those systems have widespread acceptance among producers. However, several of those practices including educed tillage and winter cover crops have also been demonstrated to increase problems with some insect pests. There are numerous insect pests are capable of injuring field corn annually across the Southern region, but only a select few are directly affected with a change in tillage systems. Most of these are associated with seed germination and seedling development. There are, however, other pests that can be indirectly affected by conservation tillage production systems and occur as problems later in crop development. These indirect effects are the result of production systems that influence changes in the landscape across an entire farm or farm region. Fortunately, the impacts of insect pest problems have been minimized with the tools, technologies, and production practices that are now available.

The following table summarizes field corn pest problems common to the mid-South. The ranges of these effects are highly variable and depend on the environment of the local landscape and the production practices applied to individual fields.

Table 1. Common pest problems in mid-South field corn

Insect	**Effect**[a]	**Description of problems**
Southern corn rootworm	0 to +++	Fields to be planted to corn that contain winter weeds such as henbit is attractive to adults that lay eggs in the soil. The larvae hatch feed on corn seeds and roots. Timely vegetation management can reduce the impact of these pests.
Seed corn maggot	0 to +++	Adults prefer to lay eggs on fields with decaying crop residue. Wet soil conditions and cool temperatures can slow seedling development and make plants more susceptible for injury
Beetles	0 to +	Wireworm and carrot beetle larvae as well as sugarcane beetle adults may be serious pests of seedlings in fields with heavy crop and winter vegetation residue.
Cutworms	+ to +++	Cutworms can overwinter in no-tillage fields. The adults of some species prefer to lay eggs in fields with dense weeds, winter cover crops, or heavy crop residue. As pre-plant vegetation is destroyed, larvae feed on crop seedlings to survive.

Slugs	0 to +++	Winter vegetation and crop residues in wet soil conditions favor slug populations and seedling injury.
Chinch bug	+ to +++	Plant residue provides a favorable habitat for these insects. Chinch bugs prefer fields with surface vegetation which makes control with foliar insecticides difficult.
Corn borers[b]	0 to +++	Several species of borers overwinter in corn stubble. Con-till can increase overwintering survival and subsequent problems in corn.
Stink bugs	0 to +	Con-till fields usually have little effect on bug pests. Delayed herbicide applications can increase population in fields. Poor control of spring weeds such as marestail or primrose can increase populations. Vegetation management surrounding fields is critical to bug IPM.
Corn earworm	0	Winter survival of heliothine populations can be increased in con-till fields. Little economic injury occurs except for seed producers.

[a]"+++" = substantial increase in pests; "+" = some increase; "0" = no effect; "-" = decrease in pests.
[b]Borer pests include Southwestern corn borer, sugarcane borer and European corn borer.

###

Winter temperature effect on redbanded stink bug populations
By LSU AgCenter soybean specialist David Moseley and entomologists Sebe Brown and Jeff Davis

The 2019-20 winter season has delivered limited amounts of cold weather in Louisiana. As a result, the likelihood of stink bug infestations in soybean fields may increase in 2020.

Temperatures at 32 degrees for a week or 23 degrees over a four- to seven-hour period are required to reduce redbanded stink bug (RBSB) overwintering populations. This winter has seen very few hours at those temperatures. During unusually cold winters such as in 2010, 2014 and 2018, RBSB did not survive, and populations infesting soybean in those growing seasons were reduced. After a warmer winter, higher populations of RBSB may successfully overwinter.

When RBSB successfully overwinter, they survive by feeding on alternative hosts such as crimson clover and other legumes. There are often mixes in cover crops, and timely burndown is key to reducing stink bug food resources. Limited amounts of cold weather greatly increase the growth and development of alternative hosts, providing abundant food sources for RBSBs, leading to large increases in populations in early spring.

If stink bugs are present in the field during early vegetative growth, they may feed on leaves in the lower canopy. Injury from v-stage feeding is minimal and soybean plants will often grow out of any injury sustained early season. If large early-season populations of RBSB are left unchecked, they can potentially increase to economically damaging levels sooner and will be harder to control as the canopy closes. RBSBs are an annual threat to Louisiana soybean production and producers may experience larger than normal RBSB populations this year.

Managing RBSBs requires an integrated approach. Selecting cover crops that do not include legumes such as crimson clover and eliminating alternative legume hosts surrounding field edges may help reduce early-season population numbers. Planting soybeans early within the LSU AgCenter's recommended planting window may help lessen the number of later season stink bug applications. Utilizing thresholds and rotating insecticide modes of action help mitigate resistance and aid in

application decision making. The LSU AgCenter threshold for RBSB is four 4 per 25 sweeps. Producers should budget three to five applications for RBSB with late planted varieties in southern parishes potentially requiring more.

###

Cotton varieties for 2020
By Dan Fromme, LSU AgCenter cotton specialist

A summary of all the cotton variety trials and on-farm demonstrations that were conducted in 2019 are available at https://www.lsuagcenter.com/articles/page1579297540452.

###

Product-specific training requirements for the 2020 growing season
By Kim Brown, LSU AgCenter pesticide safety education coordinator

In recent years, there have been changes to training requirements for some pesticides. This article covers the 2020 growing season requirements for the new auxin technologies in Louisiana and paraquat training requirements found on the new product label.

Requirements for dicamba in-crop use for the 2020 growing season are that anyone who purchases or handles Engenia, XtendiMax, FeXapan or Tavium must be a certified applicator and go through a dicamba product-specific training. Attending or completing the Enlist product training will not satisfy this requirement. Handling includes anyone who applies, mixes or loads these products. Applications cannot be made under the direct supervision. Handlers using the dicamba cropping system must go through the dicamba product training and be a certified applicator. For the 2020 growing season, the Louisiana Department of Agriculture and Forestry is allowing handlers to do in-person training or online training. Records showing completion of this training should be retained for purchasing the product and for inspection. Refer to the pesticide label for application and record keeping specifics.

LDAF is encouraging training for the Enlist cropping system for the 2020 growing season for anyone who purchases or applies Enlist. Applications can still be made under direct supervision. Training may be done in-person or online. Records showing completion of this training should be retained demonstrating completion of the training. Refer to the pesticide label for application and recordkeeping specifics.

Effective November 2019, herbicide products containing paraquat require anyone that mixes, loads or applies to be a certified applicator, successfully complete the paraquat-specific training and pass a 15-question quiz. Application “under the direct supervision” of a certified applicator is not allowed with the new label requirement. This training is good for three years once an applicator has completed it. The training is only available online at www.usparaquattraining.com. Records showing completion of this training should be retained for inspection.

Once an applicator completes the training video, they will then be required to take a 15-question exam. The passing grade for the exam is a 100. An applicator can take the exam multiple times in order to pass. A certificate will be generated once the exam is successfully completed. You must retain this certificate for proof of completion of the label training requirement.

With changes to pesticide labels requiring handlers to be certified, the LSU AgCenter Pesticide Safety Education Program is working to provide certification training opportunities throughout the state. These classes serve as a test prep for the Private Pesticide Applicator Certification and also if an applicator would like to become a certified commercial pesticide applicator. Preregistration is encouraged for these trainings so that we can make sure that there are plenty of study materials for each attendee.

Please go to www.lsuagcenter.com/pesticide for more information. Dates and locations are below.

Date	**Time**	**Location**
Feb. 11, 2020	8 a.m. to 1 p.m.	Acadia Parish extension office 157 Cherokee Drive Crowley, LA 70526
March 17, 2020	8 a.m. to 1 p.m.	Tangipahoa Parish extension office 305 W. Oak St. Amite, LA 70422
March 19, 2020	8 a.m. to 1 p.m.	Macon Ridge Research Station Scott Center 212A Macon Ridge Road Winnsboro, LA 71295
March 24, 2020	8 a.m. to 1 p.m.	Red River Research Station auditorium 262 Research Station Drive Bossier City, LA 71112
April 9, 2020	8 a.m. to 1 p.m.	State Evacuation Shelter Located near LSUA and the Dean Lee Research and Extension Center 8125 Highway 71 South Alexandria, LA 71302

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