March Corn Planting

Dewey Lee

Soils are beginning to warm enough in some areas of south Georgia to establish corn however, I would not be in too much of hurry. Land preparation is behind due to recent rains and night and daytime temperatures have been slow to warm. Cold fronts have also been associated with these rainfalls, thus soil temperatures are slightly behind on average. Under these conditions, (cold, wet soils) growing degree (heat units) accumulation is minimal and seedling growth is slow. Poor root production, slow nutrient uptake, slow recovery to any injury (insect, nematodes, disease, and environment) typically increase when planting in cold, wet soils. In addition, more sidewall compaction occurs when planting in wet soils which further limit root growth. Hopefully, fields will begin drying soon. Encourage growers to begin the corn production season with good management practices. Have them review the following checklist.

1. **Make sure the soil pH is 6.0 or better.**

2. **Check soil temperatures.** They should be at least 55 to 60 degrees F at the 2 inch soil depth for 4 days in a row prior to planting. Soils in a conservation tillage system will be slightly cooler than conventional planting systems. Do not plant in wet soils as the planter coulters and press wheels can easily cause sidewall compaction and reduce early season root growth.

3. **Plant seed at least 1.5 to 2 inches deep**. Planting shallower can easily reduce nodal root production and subject them to excess wetting/drying events, herbicide and insect injury and sidewall compaction problems. This condition can lead to "rootless corn".

4. **If nematodes** (root-knot, stubby roots, and sting) **are known to exist** in the field at damaging levels, then **apply an at-plant nematicide to reduce potential yield loss.** Seed treatments such as Poncho 250 or Cruiser do not have any activity on nematodes.

5. **Use the appropriate seeding rates** for the hybrids (based on company recommendations). If your yield goal is 200+ bushels and your irrigation abilities can meet the peak demand, then adjust the seeding rate to the highest recommended rate. Usually this will be 32,000 + kernels per acre. If your irrigation system can not meet the demand, then plant at the lower recommended rate for irrigated fields (26,000 to 28,000 kernels per acre). Planting rate recommendations most often range from 18,000 to 22,000 kernels per acre depending on soil types (sandy to clay, respectively).

6. **Use a starter fertilizer.** In reviewing most old literature, economic responses to starter fertilizer in corn did not always occur. All of the research work was conducted with late or long growing season hybrids. Today's hybrids are shorter and accumulate growth more rapidly than hybrids 20 + years ago. Research today indicates in coastal plains soils, corn responds equally to nitrogen and phosphorus in early planted fields, particularly in very sandy soils. I suggest using 7 to 8 gallons of 32% or 28-0-05 with 6

to 7 gallons of 10-34-0 applied in a 2 X 2 configuration next to the row. Do not apply any closer as salt injury to the seedling roots can occur from the fertilizer.

8. **Plant slowly (2 to 4 mph).** Planting slowly improves depth control and seed placement. The best corn producers across the country insist that proper seed placement within the row is a key to successful high yield production. Slower planting improves singulation and individual seed placement and spacing in the row thus reducing intra-row competition.

University of Georgia Center for Agribusiness & Economic Development (CAED) to Conduct Georgia Grain Infrastructure Survey

Audrey Luke-Morgan

In 2007 US corn producers planted the highest acreage in 63 years—92.9 million acres—due to favorable corn prices. Georgia was no exception. As the current focus on renewable energy alternatives is helping drive an increase in demand and the price of corn, it is estimated that 530,000 acres of corn were planted in Georgia in 2007. This represents about a 90 percent increase over 2006 acreage. Current market conditions for corn and other grains could translate into similar trends for 2008.

This significant increase in production could yet again prove catastrophic at harvest time if an accurate assessment of current infrastructure for grain handling and alternative drying and storage solutions are not explored. Economic studies relating to corn drying and storing in Georgia are more than 20 years old. Therefore, a study considering current costs and technology advancements in drying, storing or handling is being carried out by the University of Georgia Center for Agribusiness and Economic Development to analyze the economic feasibility of various corn drying and storing options. A user-friendly decision aid tool that can be used to compare various alternatives for drying and storing corn and other grains in Georgia is also being developed. This study analyzes both short and long run decisions that producers and agribusinesses may encounter as the focus of production agriculture in Georgia shifts.

One objective of this study is to assess the current situation in Georgia related to the infrastructure available to dry, handle, and store corn and other grains at both the producer and commercial levels and assess the ability to move grain to buyers in the region in an efficient manner. Having a current assessment of Georgia's grain handling capacity will help in determining plans of action that may be necessary to better accommodate grain production in the state.

To meet this objective, the University of Georgia Center for Agribusiness and Economic Development, in cooperation with the Georgia Agricultural Commodity Commission for Corn, is conducting a survey to assess current infrastructure of the grain handling system in the state. Both commercial handlers and producers are being surveyed.

Surveys will be mailed the first week of March. We encourage you to participate in the survey. Completed surveys are to be returned by March 31, 2008. If you have any questions please contact Audrey Luke-Morgan at audreylm@uga.edu or 229-391-6877. Thanks in advance for your time and effort in this endeavor!

Corn Newsletter March 2008
Bob Kemerait

Plant parasitic nematodes that affect field corn are widespread across the production areas of Georgia and can reach damaging levels in specific fields. In a recent field survey conducted by county agents and supported by Dow Agrosciences, root-knot and stubby-root nematodes were found in over half of all fields that were sampled. This survey will be continued in 2008 to generate as much data as possible regarding the distribution and severity of nematodes that damage corn in our state.

In a field study conducted in 2007 in Seminole County, high populations of the southern root-knot nematodes severely affected the growth of the corn in the field. Use of Telone II, 3 gal/A, or Counter insecticide-nematicide (7 lb/A in-furrow at planting time) reduced early season levels of nematodes both in the soil and in the roots of the corn. Fumigation with Telone II led to dramatic increases in growth and also resulted in treated plants reaching tasseling approximately nine days ahead of corn not planted in fumigated soil. However at harvest, yields were similar in plots treated only with Poncho seed treatments, Counter, or Telone II + Poncho seed treatment. The University of Georgia will conduct more trials in 2008 to identify economic benefits for the grower when treating for control of nematodes.

Recommendations for 2008: Growers who will plant field corn where nematodes affecting the crop are believed to have reached damaging levels are encouraged to consider the use of a nematicide such as Counter (7 lb/A) at planting. In the past, growers who used Counter would not need to use an insecticidal seed treatment like Poncho because Counter is effective against the same early-season insect pests. However, in 2008 all corn seed from Pioneer will be pre-treated with Poncho, thus increasing the expense to the grower. Still, use of Counter can provide benefits to the grower in fields where nematodes damage the corn. Growers who use Counter at planting should not use an ALS herbicide in order to avoid phytotoxicity to the crop.

Fumigation with Telone II, 3 gal, per acre PRIOR to planting can help the growth of the corn crop; however the full benefits to yield at harvest continue to be investigated.

Bt Corn for Georgia
By David Buntin, Grain Crop Entomologist

There are an increasing number of corn hybrids available with Bt traits and an increased interest in growing Bt corn for Georgia. There are two general types of Bt traits available. The first is for lepidopteran caterpillars primarily corn borers. The second is for rootworm beetle larvae that feed on corn roots during mid-season.

Bt for moth larvae.
YieldGard - Corn borer (YGCB) contains the gene (Cry1Ab) with either the MON810 event or the Bt11 event. **Herculex I** contains the gene Cry1F. Both target caterpillar pests including European and southwestern corn borers, fall armyworm, corn earworm and other lepidopterans. YGCB toxin is expressed season-long throughout the plant although expression may be limited in seedlings. Herculex toxin also is expressed season-long throughout the plant, but activity in seedling and whorl-stage plants in greater than YGCB. Conversely, Herculex activity in ears and kernels is more limited than YGCB.

When to Use Bt hybrids for caterpillar control: Planting corn early or during the recommended planting time in your area usually avoids most damage by fall armyworm, corn earworm and corn borers. Therefore, when planting during the recommended planting time, studies have found little benefit from Bt traits. Hybrids with Bt corn borer should be considered for planting when the planting time is 1 month or more after the recommended planting time when risk of caterpillar damage is greatest. The Herculex 1 type Bt generally provided better control of cutworms on seedlings and fall armyworm feeding in the whorl than YGCB. YGCB provides good control of fall armyworm under moderate infestation, but substantial damage from fall armyworm may occur under severe infestations. Conversely, Herculex provides little protection against kernel damage by corn earworm, whereas YGCB usually provides a partial reduction in kernel damage by corn earworm infesting the ear.

Bt Hybrids for Rootworm Control: Several types of Bt rootworm products may be available, YieldGard-rootworm, YieldGard-VT RW, Herculex-RW, and Agrisure RW. Each product contains a different Bt gene that is active against rootworm larvae. Rootworm Bt products are not effective against wireworms, white grubs or southern corn rootworm in the seedling stage. Bt rootworm resistance targets midseason rootworms. The only midseason rootworm species in Georgia is the western corn rootworm, and it currently is present in the northern two thirds of the state. Western corn rootworm is only a pest when corn is grown continuously in the same field for several years. Therefore hybrids with rootworm Bt should be considered for where corn is grown continuously, such as in dairy operations, and western corn rootworms were present in the corn the previous year. Bt for rootworm control is NOT needed where corn is rotated annually with other crops.

Stacked traits. Hybrids with Bt traits often also contain herbicide tolerance to glyphosate or glufosinate. Some stacked products, such as YieldGard Triple stack and Herculex XTRA, contain both a corn borer type Bt trait and a rootworm type Bt trait.

IRM/ Refuge requirements.
Use of Bt corn must be done with various insect resistance management (IRM) requirements. This requires planting a non-Bt refuge as a way to minimize the chance of a target insects developing Bt resistance in the field.
Bt YGCB/Herculex I: In cotton-growing areas which includes all of Georgia, no more than 50% of the corn on a farm can be planted with Bt corn borer hybrids. The non-Bt refuge must not be more than ½ mile form the Bt field.
Bt rootworm: No more than 80% of the corn can be planted with Bt rootworm hybrids. The remaining must be non-rootworm Bt AND the refuge must be within or adjacent to the Bt rootworm field.
Bt Stacked product: No more than 50% can be stacked Bt hybrids on a farm and the refuge must be within or adjacent to the stacked Bt field.

For all Bt traits:
- Do not mix non-Bt with Bt seed.
- Plant non-Bt corn refuge "at the same time" as the Bt corn.
- Non-Bt refuge can be treated with non-Bt insecticide as needed.
- For the same type of Bt, YieldGard cannot serve as a refuge for Herculex or Agrisure corn and visa versa.
- A split-planter option producing alternating refuge strips is permitted; BUT strips must be 4 or more consecutive rows for Bt Corn borer hybrids and 6 or more consecutive rows for most Bt rootworm hybrids.
- Additional requirements may be listed for specific traits.

I generally do not recommend the split-planter option with refuge strips, because if fall armyworms infest the susceptible refuge strips and insecticide control is needed it usually is not feasible to only treat the strips. In this situation, the usefulness of the Bt trait is lost. Instead plant the Bt and refuges in blocks where each can be treated separately if needed.

It is the responsibility of grain dealers and seed sales representatives to provide IRM information to growers of Bt corn. The National Corn Grower's Association has a series of excellent web-based video-tutorial about Bt corn and IRM requirements.
http://209.98.199.114/ncga-irm/

Nitrogen Fertilizer, Wet Soils and Yellow Wheat

Dewey Lee

Growers are sharing an increasing concern of a possible shortage in nitrogen supply for this year's wheat crop given the frequent rains that have occurred lately. The best course of action for growers that have at least 80 to 120 lbs N per acre applied (Fall + Spring topdressing), is to wait and conduct a tissue analysis of a fully emerged flag leaf (with a collar). Nitrogen content should be maintained in excess of 3. 75% to 4.0%. If it is lower, I would apply 20 to 30 lbs of additional nitrogen either by air (or through a pivot if fertigating). If a grower has a total of 60 lbs N per acre or has not applied his topdressing then I would make applications of 30 to 40 lbs nitrogen (solid urea) by air as soon as possible. As the crop advances in growth, wheat generally responds to lower rates of nitrogen particularly as it approaches late boot and early heading. By this time (late boot), the crop will only respond to about 20 to 30 lbs of N because it has such a low yield potential.

Currently, the wheat crop is demonstrating multiple variations of yellowing, bleaching and light green coloration which can be attributed to differences in tillage, previous crops, lack of fall fertilizer, shallow and extremely wet soils, poor N:S ratios and tissue burns from using combinations of N + S + herbicides + surfactants. Tissue analysis and proper identification of growth stage is necessary to help identify the source of discoloration. Bear in mind, varieties express their coloration differently and so some side-by-side difference will be due strictly to genetics. If the crop is sulfur deficient, then correct the deficiency with an application of 10 to 20 lbs of S. A good source would be ammonium sulfate.

Most of the problems are associated with prolonged wet conditions and differences in soil physical properties. I expect to have more denitrification and run-off losses than leaching of the nitrogen. Wheat roots will extend several feet deep where hardpans have been disrupted and therefore pick up N that has moved through the soil profile. More problems may occur though, where wheat has been planted in fields that were only disked prior to planting.

Making Fungicide Applications in Wheat

Dewey Lee

Disease pressure has been low to moderate (powdery mildew) in most of the fields that I've seen. There have been some reports of leaf rust at the Plains Experiment Station but not in any producer fields. I would look for stripe rust, leaf rust, powdery mildew and Septoria leaf blight (Stagonospora). For identification, send samples to the disease clinic in Tifton or to Dr. Alfredo Martinez, Georgia Experiment Station, Griffin.

Encourage growers to scout their fields every three to four days, looking down into the canopy. If leaf rust is confirmed (prior to the boot stage) I would consider using a propiconazole (4 oz/ac) immediately then follow up with a low rate of strobilurin (ex. 6 oz Headline) at heading. If disease pressure continues to remain low then I would

encourage growers to make a fungicide application at heading. In this case, I would price compare: Stratego 10 oz per acre, Quilt 10.5 to 11 oz per acre, Headline 9 oz or (Headline 6 oz + 2 oz Tilt) and use the most efficient application. An application at heading should protect the flag leaf and head throughout most of the important grain fill time.

Cereal Leaf Beetle in Wheat
By David Buntin, Grain Crop Entomologist

Cereal leaf beetle larvae will begin to infest wheat in the next few weeks in some areas of northern Georgia and the upper coastal Plain region. Larvae cause defoliation of the upper leafs which may reduce grain filling and yield. Larvae are about 1/3 inch long and less and covered with a black mucus-like substance. The treatment threshold is 1 larva per 2 stems. Cereal leaf beetle is easily controlled by insecticides. Karate/Warrior and similar products at the lowest labeled rate provide excellent control when applied during egg hatch and when mostly larvae are present. Mustang MAX, Baythroid XL, and Malathion also provide excellent control after egg hatch is complete and larvae are present. These products also can be tank mixed with a foliar fungicide application. See the 2008 Georgia Pest Management Handbook, commercial edition for details. Always follow all label directions and restrictions.