

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 3

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Corn Crop Update (Dr. Angela T. McClure, Extension Corn & Soybean Specialist)



With continued rain showers and cool weather that hasn't helped to dry the soils, we have only a small amount of corn planted at this time. This year, I initiated a planting date study for corn at Jackson and below is an example of seed planted 2 inches deep in a silt loam soil on March 23rd-- radicle emerged, chilled and basically sitting there. You can tell how wet the soil is from the photo. So, if it helps anyone feel better who has not planted anything yet, corn planted in March has sat through more than one freezing nighttime temperature and is not emerging very quickly at all. Right now we are in our prime planting window for corn so we are still

in very good shape. Hopefully, we will get some drier weather after Sunday that will help us make some progress in corn planting. The following are tips to improve stands of April corn:

- Let the ground dry as much as practical. Wet soil does a poor job of closing around the seed and you are more likely to have partially open seed slots. Fields planted too wet often face irregular emergence patterns which can cause plant competition later (late emerging corn competes poorly when grown next to normal emerging corn, sometimes affecting pollination later on).
- Plant 2" deep in most cases. This improves early root development and birds have to work harder to pull seed out of the ground.
- Close the furrow to allow uniform germination and keep out herbicides and pests.
- Follow manufacturer recommendations for planting speed. Operating some older planters at high speeds can increase the amount of skips or doubles which wastes seed and may reduce the uniformity of stand enough to affect yield.

Seeding Rates for Corn

Corn seeding rates have increased in recent years partly due to the improved stress tolerance of newer hybrids. A typical seeding rate for non-irrigated corn **planted in April on productive soils** would be 30,000 seeds per acre to achieve a final stand of 27,000 to 28,000 plants per acre (Table 1). Some producers have planted up to 33,000 seeds per acre in this situation and been successful.

Adjust the seeding rate for row width used. In non-irrigated corn, seeding rates should be reduced slightly for wide (36" or wider) rows to avoid crowding plants within the row. Based on some work conducted in 2008, non-irrigated corn on 40" rows did not respond to seeding rates above 28,000 seeds

per acre. The advantage of a narrow row is that seed spacing within a row is greater at higher seeding rates and higher yields can be obtained when moisture is abundant. However, **soil moisture must be adequate to support higher seeding rates** and care should be taken to not over plant non-irrigated corn in narrow row systems.

(Table 1). Suggested seeding rates for corn.

Seeding Rate per Acre	Seed Spacing (Inches)			Final Stand	
	20" row	30" row	38" row	5% Loss	10% Loss
24,000	13.1	8.7	7.3	22800	21600
26,000	12.1	8.0	6.7	24700	23400
28,000	11.2	7.5	6.2	26600	25200
30,000	10.5	7.0	5.8	28500	27000
32,000	9.8	6.5	5.4	30400	28800
34,000	9.1	6.1	4.9	32300	30600

Shaded areas denote suggested seeding rate for non-irrigated corn at optimal planting date in productive soils. Irrigated corn can be seeded at 32,000 seeds /acre or more regardless of row width.

Nitrogen Fertilizer

Most growers have selected their best nitrogen fertilizer option for corn this season. One source that has not been available to TN until recently is polymer-coated urea (PCU). A company called Agrium, Inc. is marketing a more competitively priced PCU called ESN nitrogen. ESN is a surface-applied specially coated urea fertilizer that requires moisture and warm soil surface temperatures (>60 degrees F) to break down the polymer coating and to release the liquid urea. The thickness and other properties of the polymer coating determine the rate of urea release over time, and the technical literature suggests urea release is timed with warmer temperatures (i.e. more rapid corn growth and therefore nitrogen use). Results from other states have been promising, and the product does protect surface-applied urea from volatilization and other losses it would typically encounter. It also delivers a more uniform urea release compared to surface-applying regular granular or liquid urea. The product is more expensive than other N sources and growers should determine if a return on investment is likely or if cheaper sources can be utilized in ways that limit N losses and still protect yield.

Limiting N losses from urea fertilizers:

- Surface-apply granular urea before rain event or irrigate in within 2 days
- Delay surface urea applications until side-dress timing to limit losses that occur between planting and side-dress; side-dress N is typically applied at V4-V5 corn.
- Inject liquid UAN below the soil surface; banding liquid UAN is not ideal but is better than broadcast applying the material.
- Add Agrotain to reduce losses for up to 14 days or use ESN nitrogen
- Lime fields in the fall before using surface-applied urea sources in the spring

Weed Control (Larry Steckel, Weed Specialist)

Correction in the Tennessee Weed Control Manual. Halex GT is listed in the corn products pre emergence section (Page 14). **This is not correct!** Halex GT is only labeled post emergence in corn.

Recrop Intervals After Wheat Herbicides. Winter wheat for the most part looks very good at this point. There are some late planted fields however that may be more profitable to be burned down and replanted to another crop. Knowing when and what herbicides were applied to thin wheat stands is a major consideration on a potential recrop decision. Harmony Extra XP which is used on most wheat acres in Tennessee has a 45 day plant back restriction to several row crops. Osprey and Axial the herbicides we commonly use to control ryegrass have considerably longer recrop intervals. Below please find the recrop intervals for our commonly used herbicides in wheat:

<u>Herbicide</u>	<u>Grain Sorghum</u>	<u>Corn</u>	<u>Cotton</u>	<u>Soybean</u>
Express	45 days	45 days	45 days	45 days
Harmony Extra SG	45 days	45 days	14 days	45 days
Harmony Extra XP	45 days	45 days	14 days	45 days
Harmony GT	0 days	0 days	45 days	0 days
Osprey	10 months	12 months	90 days	90 days
Axial	120 days	120 days	120 days	120 days

Hands down the most common weed that folks wanted identified this spring has been grape hyacinth (picture right). At first glance it appears to be wild garlic. It typically emerges from bulblets. It will flower in a week or so and they will be blue. It apparently had a very good start last fall across West Tennessee. It could be found in some fields last year at this time but was not near as widely prevalent as it is this year. Most folks want to know what will control it prior to planting. A herbicide at this point is not warranted as it is will flower and to to seed in the next few weeks.



Corn Premixes. There are just a few fields of corn planted to this point. Many fields going to corn are still green. Gramoxone Inteon or glyphosate mixed with many of the typical herbicides applied pre (i.e. Atrazine, Bicep) can do a very good job taking out troublesome weeds like horseweed. Below are some thoughts on the more typical corn premixes and three new ones:

- **Bicep (Dual II Magnum + Atrazine)** Rate: 1.6 to 2.6 qts/A
 - Positives
 - a. Has been used on more corn acres than any other corn premix.
 - b. Provides good all around weed control with good crop safety.
 - Management Considerations
 - a. 2 qts/A rate provides 1.55 lbs ai of atrazine.

- **Harness Xtra 5.6, Degree Xtra, Breakfree ATZ (Acetochlor + Atrazine) Rate: 1.7 to 3 qts/A for Harness Xtra or 2.9-3.7 qts/A for Degree Xtra or 2.2 to 3 qts/A for Breakfree ATZ.**

Positives

- a. The non-encapsulated acetochlor formulations Harness and Breakfree have provided comparable pigweed and grass control to Dual II Magnum.
- b. Degree Xtra is an encapsulated formulation that releases slowly over time. Limited research has shown about a week longer residual control of pigweeds than other acetochlor formulations.

Management Considerations

- a. 2.1 qts/A rate of Harness Xtra provides 1.3 lbs ai of atrazine or 3.5 qts/A of Degree Xtra provides 1.17 lbs ai of atrazine or 2.5 qts/A of Breakfree provides 1.4 lbs ai of atrazine.

- **Lexar (Dual II Magnum + Callisto + Atrazine) Rate: 3 qts/A**

Positives

- a. Very good resistance management product with three modes of action for control of many broadleaf weeds.
- b. Callisto can provide good glyphosate-resistant horseweed and pigweed control.

Management Considerations

- a. 3 qts/A rate of Lexar provides 1.31 lbs ai of atrazine.
- b. 3qts/A of Lexar will provide 5.4 ozs/A of Callisto and is an economic way to buy Callisto.
- c. Cotton may be planted back 10 months after a Callisto application.
- d. Soybeans may be planted back 120 days after a Callisto application.

- **Halex GT (Dual II Magnum + Callisto + Touchdown) Rate: 3.6 to 4 pts/A**

Positives

- a. Very good resistance management product with three modes of action for control of many broadleaf weeds.
- b. Callisto can provide good glyphosate-resistant horseweed and pigweed control.

Management Considerations

- a. 3.6 pts/A of Halex GT will provide 3 ozs/A of Callisto and is an economic way to buy Callisto.
- b. Halex GT is only labeled to be applied post emergence in corn.

- **Expert (Dual II Magnum + Touchdown + Atrazine) Rate: 3 qts/A**

Positives

- a. Very good resistance management product with three modes of action for control of many broadleaf weeds.

Management Considerations

- a. 3qts/A of Expert provides 1.6 lbs ai of atrazine and 1.3 lbs ai of metolachlor.

Atrazine showing less residual. Recent research by my colleague Tom Mueller in Knoxville has shown that we are seeing only about 4 days of residual out of atrazine in fields where atrazine has been used in previous years compared to 14 days residual where atrazine has been seldom used. This research would suggest that in some cases atrazine or atrazine containing premixes are most efficiently used post emergence rather than pre plant in corn. In some fields particularly those prone to flooding the best management practice may be to go with a non-atrazine based product pre and then use a atrazine based product post.

Authority MTZ DF (Spartan + Sencor) Rate: 5.5 ozs/A

Positives

- a. Good residual control of many small seeded broadleaf weeds and morningglories.
- b. Allows for flexible replanting options.

Management Considerations

- a. 5.5 ozs/A of Authority MTZ provides 2 oz/A Spartan 4F + 2 oz/A Sencor DF.
- b. Plant corn 2” deep.
- c. Authority MTZ received a 24c in Tennessee with flood prone fields in mind. Spartan can be used 14 DBP to 3 DAP in corn. Corn or soybeans can be safely planted back after a failed corn stand where Authority MTZ was used.
- d. Can be tankmixed with Dual II Magnum for improved grass control.

➤ **Valor (Not a Premix) Rate: 2 ozs/A**

Positives

- a. Good residual control of many small seeded broadleaf weeds.
- b. Allows for flexible replanting options.

Management Considerations

- a. Valor can be applied 30 to 14 days before planting. Soybeans can be safely planted back after a Valor application on flood lost corn acres.
- b. Can be tankmixed with Dual II Magnum for improved grass control.

Foliar Fungicides for Wheat Disease Control (Dr. Melvin Newman, Extension Plant Pathologist)

Repeat of Previous Newsletter ...

Stage of Growth to Apply Wheat Foliar Fungicides: Close attention must be paid to the stage of growth to obtain maximum benefit from foliar fungicides. If the application is made too late, then infection could have already occurred. If application is made too early, the flag leaf and head will not be protected. Unless powdery mildew or a rust disease is threatening the flag leaf, the best time to apply a foliar fungicide is a **Feeke’s scale 10.3** (when ½ of the head has emerged). If weather and disease pressure are causing concern an early application could be considered at **Feekes’ scale F 8** (when flag leaf is still rolled and just visible). Then if disease conditions continue to develop a second application could be made **at F 10.3**. Folicur and Prosaro fungicides are both labeled for head blight **suppression** and should be sprayed **at F 10.5.1** (beginning of flowering) when continuous wet weather occurs during flowering.

Each application must be made in at least 5 gallons of water per acre by airplane or at least 20 gallons of water per acre with ground rigs. Always use a spreader-binder that is labeled for fungicides with either application method.

WHEAT FOLIAR FUNGICIDES				
Chemical Name	Trade Name	Formulation	Rate/A per Application	Diseases Best Controlled
Pyraclostrobin	Headline (BASF)	23.6 % EC	6 to 9 fl oz	Glume blotch and Septoria leaf spot, rust diseases, tan spot
Propiconazole	PropiMax (Dow)	41.8 % EC	4 fl oz	Rust diseases, powdery mildew, leaf blight and glume blotch and tan spot

Tebuconazole	Folicur (Bayer)	3.6 lbs/gal.	4 fl oz	Rust, glume blotch, powdery mildew, head blight suppression
Prothioconazole + Tebuconazole	Prosaro (Bayer)	1.76 lbs/gal. + 1.76 lbs/gal	6.5 to 8.2 fl oz	Rust, glume blotch, powdery mildew, head blight suppression
Azoxystrobin	Quadris (Syngenta)	22.9 % F	4 to 12 fl oz (general use: 6-9 oz)	Glume blotch and leaf blight, rust diseases, tan spot
Propiconazole	Tilt 3.6 (Syngenta)	41.8% EC	4 fl oz	Rust, glume blotch, rust diseases, powdery mildew, glume blotch and leaf blight
Azoxystrobin + Propiconazole	Quilt (Syngenta)	7 % + 11.7 % F	10.5 to 14 fl oz	Rust diseases, powdery mildew, glume blotch and leaf blight, tan spot
Propiconazole + Trifloxystrobin	Stratego (Bayer)	11.4 % + 11.4 %	10 fl oz	Glume blotch and leaf blight, powdery mildew, rust disease, tan spot

General Wheat Diseases Control Practices:

- Follow fertility recommendations closely
- Observe recommended planting dates and seeding rates
- Use resistant varieties if available
- Use recommended fungicides properly

Insect Control Considerations (Scott Stewart, IPM Specialist)

Cutworms. As corn planting begins in earnest, consider using a pyrethroid insecticide to prevent cutworm damage. There are certain scenarios that increase the likelihood of cutworm injury. No-till, late burndown, and planting non-Bt corn all increase the risk of cutworms (see previous comments below).



Reminder - It is best to maintain a clean seedbed for at least 2-3 weeks prior to planting corn. This will go a long way in eliminating the chances of cutworm infestations. If this is not possible, and it is often difficult for corn, then consider applying one of the labeled pyrethroid insecticides – the closer to planting the better. Relatively economical rates can be used for cutworms ([link to recommended insecticides](#)). Current insecticide seed treatments (e.g., Poncho 250, Cruiser) will not provide adequate control of significant cutworm infestations. YieldGard Corn Borer, and especially Herculex I, will help but do not guarantee adequate control of cutworms (especially if large larvae are present in the field).

Farm Management Update (Chuck Danehower, Area Specialist – Farm Managment)

The USDA Prospective Plantings Report was released March 31. I won't go into great detail on that report as my comments can be found on-line at <http://economics.ag.utk.edu/outlook.html>. Weekly crop market comments are posted at <http://economics.ag.utk.edu/cropcomm.html> on Friday afternoons.

Have you changed any of your crop mix because of that report? Planting intentions for soybeans are at 76.024 million acres, while a record, is 3.5 million acres less than expected. The acreage number is bullish, but will that be the actual acres that get planted? I would expect soybean prices to remain stable, trade sideways to slightly up over the next 2 months until we see what does get planted. In itself, if soybean prices move up much in the short term it could cause more acres to go to soybeans which would put pressure on harvest prices. Wet planting weather for corn and flooded wheat ground in the Upper Midwest could also cause more acres to go to soybeans. Another factor in prices is the current demand for soybeans is looking like it will be above current projections for this marketing year, leaving tight ending stocks. I think that between now and early summer, we will see our highest soybean prices as most likely the soybean acreage in the planting intentions report will serve as the lowest acres to be planted. The question will be how many acres will soybeans increase? Don't let opportunities slip by without pricing your crop. Forward price contracts and put option should be viable pricing alternatives. Put options will allow you to lock in a floor and also benefit if something unforeseen happens like weather problems, increase in demand, etc.

The same strategies could be said for corn as 84.986 million acres is intended. This a reduction of 996,000 acres from 2008, but 665,000 greater than expected. Most likely, this acreage estimate will be the high estimate and actually planted acreage will be less. Weather and yield estimates will have a strong influence on prices as will demand. If prices are to stay at current levels or increase, we cannot afford to have demand weaken from feed, ethanol, or exports. Any of those could be trouble spots.

Cotton acreage at 8.811 million acres is a reduction of 658,000 acres, but is it enough of a reduction to reduce ending stocks to the level prices will respond? The trade was estimating 8.5 million acres. If would take a high level of abandonment at 8.8 million acres planted to reduce the ending stocks to a more manageable level. Texas is in drought condition and 54% of the crop will be planted there so a high abandonment could be possible. However, with that planted acreage, it is looking more and more like 2010 will be the year that cotton prices will high enough to offer more than loan + a few cents equity. Call options should be explored to capture any increases above loan and also for hedging counter cyclical prices.

This Prospective Plantings report probably raised more questions than gave answers on the direction of the commodity market. We also have to contend with forces outside of the ag commodity arena as the financial markets, stock markets, hedge funds, value of the dollar, and crude oil prices will influence our prices as much as fundamentals. I would tend to keep cropping plans in place and not necessarily change them because of the planting intentions. Keep a diversified mix if possible to spread risk. If you need assistance in tweaking your farm plan, please contact your County Extension office.

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8 and June 30, 1914. Agricultural Extension Service, Tim Cross, Dean.

Scott D. Stewart (editor)
Extension IPM Specialist

A handwritten signature in black ink, appearing to read "Scott D. Stewart". The signature is written in a cursive style with a prominent initial "S" and a long horizontal stroke at the end.