The University of Tennessee

UT Extension

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IPM NEWSLETTER

Update for Field Crops and Their Pests

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Bookmarks: Corn Planting Reminders Corn Weed Control Farm Management

Corn Planting Reminders (Angela Thompson, Extension Corn Specialist)

The warm weather was nice while it lasted, but today's cold front means it is time to park the planters for a few more days. With all those extra corn acres going out this year, it was very tempting to start early in March and we did get a few acres planted. But most folks concentrated on getting their burndown out and fertilizer spread. Since seed supply is tight, it is best to plant the majority of our corn where conditions (soil temperature, soil moisture and short term weather forecast) are favorable for good germination and early growth. Hopefully, we won't have to make many replant decisions this year.

No-till corn seed germinates when morning soil temperature at a 2 inch soil depth is at least 55 degrees F for several days in a row. Air temperatures are NOT a good indicator of what is going on in the soil, especially under high residue situations, since the seed is placed up to 2 inches or more into the ground. When soil temperatures stay at 50 to 55 degrees, germination may take more than 2 weeks. At warmer soil temperatures, emergence is faster, plants are less stressed and less vulnerable to disease.

Below are some common planting reminders to think about while we wait for it to warm up again:

- Adjust seeding rate to field conditions and yield potential. A final stand of 26,000 to 28,000 plants fits many of our good to excellent dryland corn fields (table 1). Follow seed company recommendations for hybrids grown under irrigation.
- Corn should be planted 1.5 to 2 inches deep under most situations.
- Close the furrow to allow uniform germination and keep out herbicides and pests.
- Follow manufacturer recommendations for planting speed. Operating some 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 (table 2).
- Check seed output behind the planter periodically to make sure you are planting the population you intended to.

Table 1. PLANT TO PLANT SPACINGS FOR CORN POPULATIONS

Final Stand*	Seeding Rate	20" row	30" row	36" row	38" row
(Plants/Acre)	(Seeds/Acre)	(Inches between kernels in the furrow)			
23,500	26,000	12.1	8.1	6.7	6.4
25,200	28,000	11.2	7.5	6.2	5.9
27,000	30,000	10.5	7.0	5.8	5.5
28,800	32,000	9.8	6.5	5.4	5.2
*Accounts for a 10% stand loss from original population.					

Suggested Guidelines:
-Increase seeding rate by 10% when planting into rough no-till fields or when cool and wet or moisture deficient conditions are present.

Table 2. Final stand and yield of corn planted at two planting speeds with a John Deere MaxEmerge planter equipped with finger pickups. Intended seeding rate was 28,000 seeds/acre. (Flinchum et.al, 2001; Milan REC)

Planting Depth (inches)	Planting Speed (mph)		Final Stand (Plants/Acre)	Yield (Bu/Acre)
1.0	5		27,526	182.1
1.0	8		34,146*	181.9
1.5	5		28,920	189.4
1.5	8		32,056*	171.2
2.0	5		27,875	186.7
2.0	8		31,707*	188.7
2.5	5		27,878	189.6
2.5	8		32,753*	168.5
* Higher population from more doubles where corn was planted at the 8 mph speed.				

Corn Weed Control (Larry Steckel, Extension Weed Specialist)

Corn Premixes. Judging by phone calls over the last week it seems there is a good amount of uncertainty in which weed control program to go with in corn. This is understandable with all the new corn acres this year along with so many folks for the first time going with a Roundup Ready hybrid. The biggest confusion though seems to be in all the premixes being marketed and how best they fit in a given producers conventional or Roundup Ready Corn program. Confusion surrounding the corn premixes is nothing new. A famous extension weed scientist who retired recently, Marshal McGlamery, coined the term "can 'em and confuse 'em" to describe the corn premix phenomena decades ago. The reason there have been so many premixes marketed in corn is due to the simple fact that all herbicides work better with atrazine. Typically, the first part of a corn premix is atrazine which provides contact and residual control of most broadleaf weeds and some control of grassy weeds. The second component of a herbicide premix for corn enhances the residual control of grass weeds and small-seeded broadleaves. Below are some thoughts on the more typical corn premixes:

- **Bicep (Dual II Magnum + Atrazine)** Rate: 1.6 to 2.6 qts/A
  Positives
  a. Has been used on more corn acres then 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 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 control.
  c. 3qts/A of Lexar will provide 5.4 ozs/A of Callisto and is the most economic way to buy Callisto.

  Management Considerations

  a. 3 qts/A rate of Lexar provides 1.31 lbs ai of atrazine.

- **Steadfast (Accent + Resolve)** Rate: 0.75 ozs/A

  Positives

  a. Has been one of the more popular herbicide premixes used by Tennessee corn growers post emergence.
  b. Excellent post emergence Johnsongrass control and good residual annual grass control.

  Management Considerations

  a. Resolve is being marketed separately to provide residual grass control when mixed with glyphosate over the top of Roundup Ready corn. Be sure to add atrazine to this system to provide residual control of ALS resistant weeds.
  b. Atrazine is needed for good control of ALS-resistant Palmer pigweed.

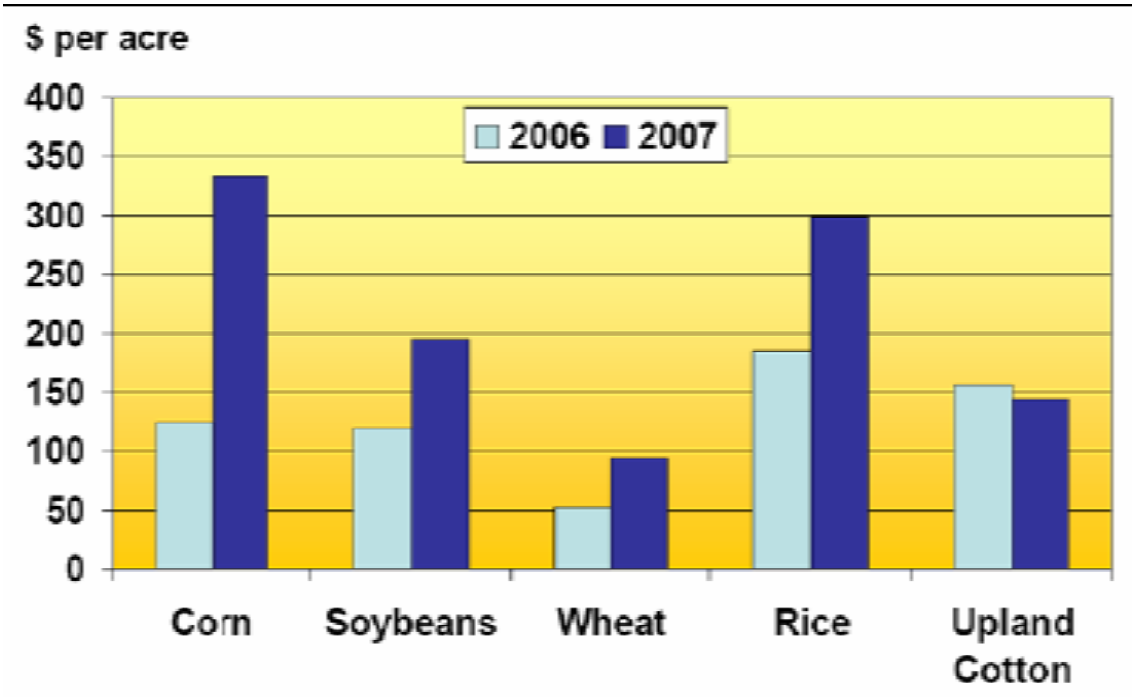
Regardless of whether the corn being managed is Roundup Ready or not, the best overall weed control will most often be achieved with some kind of two pass program. One reason this works best is due to being able to apply more atrazine in two passes (2.5 lbs/A) compared to all in one application (2 lbs/A). A good approach is to either use Gramoxone Inteon or glyphosate mixed with 16 to 32 ozs/A of atrazine for burndown. Then follow early post emergence (up to 12" corn) with glyphosate plus atrazine or even better with one of the premixes mentioned above. Many folks do not realize that herbicides like Dual II Magnum, Harness, etc. can be applied post emergence to corn. They can and I often recommend this method as those residuals are there when most needed. The premixes above will mix very well with glyphosate post emergence in corn. In non-Roundup Ready corn, dicamba, Aim or Callisto may need to be added to the premixes applied POST in corn to control any emerged Palmer pigweed.

Corn burndown with Clarity. Many have asked how close to corn planting Clarity can be applied as a burndown. As long as corn seed is planted at least 1.5" deep, Clarity at the 8 oz/A rate can be applied right up to and through planting. Clarity at the 8 oz/A rate can be applied post emergence in corn up to 3 ft tall. Clarity at the 16 oz/A rate can be applied post emergence in corn up to 8" tall. Do not use rates higher than 8 oz/A of Clarity before corn planting on sandy soils.

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

Looking at the chart below, one can easily see the excitement that bio-fuels (ethanol & bio-diesel) have caused across the U.S. This chart was recently presented at the USDA Outlook Forum and reflects the crops on a national scale.

Average Net Returns Above Operating Costs Per Acre



Corn planting has already started, so crop selection decisions should have already been made. With the exception of cotton, producer's returns above operating costs are expected to increase. This goes along with the sharp increase in price particularly for corn and soybeans. However, farm plans this winter indicated that the most profitable crop selection was highly dependent on an individual producer and his operation. For some producers, the most profitable crop may be corn, others soybeans and some can still make the most money with cotton.

If you still have a few acres that are undecided, use up to date cost information for each crop, and realistic yields and prices. It is doubtful that all corn and soybeans will be sold at the highs so average in what is contracted with some lower prices. It is also a good idea to examine different yield levels with each crop.

Fuel costs will again vary this year and most likely will be similar to 2006. Fertilizer prices will be higher than last year. With this increase it is always important to manage costs and keep track of them as you go through the year. We have the UT Budgets in an Excel spreadsheet which can be used to make changes and help you make cropping decisions. If you would like a copy, email me at scdanehower@utk.edu or call 731-635-9551.

DISCLAIMER STATEMENT

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label takes precedence over the recommendations found in this publication. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), The University of Tennessee, The Institute of Agriculture and the University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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