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AgVantage Green Notes

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Should I Consider Switching Corn Hybrids?

The recent wet weather will cause us big plating delays in the Ceres Solutions territory, particularly in the southern third where upwards of 3-5" fell in several areas. The following is an article from George Watters, WinField Solutions Agronomist.

As wet conditions continue to delay planting in some areas of the eastern cornbelt, growers may begin asking if they should switch to earlier maturing hybrids. Recent studies in Ohio and Indiana have shown no benefit in switching from "normal" full season hybrids to earlier hybrids before the end of May. Results of these studies found that hybrids of various maturities can "adjust" their growth in response to a shortened growing season, and will develop faster, and flower with less heat units, than when planted "on-time". Observed decreases in required heat units from planting to black layer averaged approximately 6.8 growing degree days (GDD) for each day of delayed planting. In addition, most of our newer genetics tend to dry down faster than those of several years ago, and this should also be considered along with maturity.

Approx. "safe" relative maturities for late planting dates in Indiana assuming crop will mature on week before expected fall frost

Crop District	Typical CRM	Expected Fall Frost	May 17	May 24	May 31
NW	109	Oct –6	109	108	106
WC	112	Oct 13	118+	118	116
SW	116	Oct 20	118+	118+	118+

Inside this issue:

Managing 2,4-D for No-Till Burndown Treatments—Bob Hartzler, ISU

2,4-D is commonly added to glyphosate for burndown of existing vegetation in no-till fields. The advantages of including 2,4-D include:

- better activity on dandelion, horseweed and many winter annual broadleaves than glyphosate alone,
- more consistent than glyphosate during cool conditions, and
- reduces selection pressure for glyphosate resistant horseweed.

However, as weather delays compress the time available to complete planting and associated field operations, the wisdom of including 2,4-D in burndown treatments may be questioned.

The risk associated with 2,4-D use is injury to emerging corn or soybean plants. For soybeans, a 7-day interval between application of 0.5 lb 2,4-D/A (2/3 pt of a 6 lb LVE formulation) and planting is required. For corn, most labels recommend applying up to 1 lb ae 2,4-D/A (1.3 pt LVE 6) 7 to 14 days prior to planting or 3 to 5 days after planting. Following these label restrictions minimizes, but does not eliminate, the threat of crop injury. The risk of injury to both crops is determined by how much herbicide reaches the depth of the germinating seed and developing seedling. This is determined by several factors, including

- depth of planting,
- 2,4-D rate and formulation
- soil type, and
- rainfall.

Planting the seed at the proper depth reduces the risk of injury by providing a more favorable environment for germination and minimizing the amount of herbicide reaching the seed.

Shallow planting or failing to close the seed furrow increases the risk of injury. Ester formulations are recommended for burndown applications because they are less mobile in the soil than amines, thus they are less likely to reach the seed. Adsorption of 2,4-D to soil colloids minimizes movement through the profile, thus injury is most likely to occur on coarse textured soils or soils with little organic matter.

Finally, rainfall is required to move the herbicide through the profile to the depth of the emerging seedlings. Since 2,4-D breaks down relatively quickly in the soil (approx. 10 day half-life), it is the rainfall that occurs within the first two weeks after application that determines the threat of injury. After this period the 2,4-D should have degraded to levels unlikely to injure the crop. Corn is most sensitive to 2,4-D when the herbicide is present in the water that is initially imbibed by the seed, this is why 2,4-D can be applied shortly after planting.

2,4-D is a valuable tool in no-till systems, but it must be used properly to manage the risk of crop injury. In situations where the planting interval restrictions cannot be followed, alternative products are available.

Monitor Down Pressure Closely In Wet Soils

An article from “No-Till Farmer” Magazine—Many planter operators are now faced with wet soil conditions. Operators will want to wait for suitable conditions to avoid "mudding in" a crop with significant investments in crop inputs, says Mark Hanna, ISU agricultural engineer.

"Once in the field, attention should be paid to the weight being transferred from the planter frame through parallel links to the individual row units," Hanna says. "Use only enough down pressure on depth-gauge wheels to ensure that they stay in contact with the soil surface.

"In wet soil conditions, excess load transferred to the depth-gauge wheels beyond the point where they firmly touch the soil simply adds more potential compaction to the seed zone. Compacted soil can be more difficult for seedling roots to penetrate, particularly if subsequent weather allows soil to become dry and hard.

Hanna urges farmers to adjust spring pressure on closing wheels to a relatively light setting, using only enough down pressure on the soil to establish seed-to-soil contact. Too much spring pressure adds excessive down force, he says, compacting soil and building excessive soil strength around the seed.

Allowing the closing wheels to "float" on the soil surface without spring pressure may be adequate to establish soil contact with seed.

Check behind the planter by digging up a few seeds to evaluate conditions, Hanna adds. Using a finger-type or spader wheel might be considered in place of a conventional closing wheel for one or both wheels if they are easily available for use. These types of closing wheels, used by some operators in wetter soil planting conditions, tend to leave soil looser over the seed.

"A key point is to recognize existing soil conditions and be willing to make planter adjustments to improve the chances of good early plant growth," Hanna says. "In wet soils, inserting the double-disc seed opener into the ground and establishing seed-to-soil contact typically does not require as much down pressure on depth-gauge wheels and closing wheels as is required in drier soils."

Tips To Coping With Delayed Soybean Planting

Another article from “No-Till Farmer” Magazine—Spring rains and cool temperatures are likely to delay soybean planting past the optimal planting dates where soybeans produce the highest yield. Even so, soybean growers should not to rush their planting this spring.

ISA and Iowa State University Extension agronomist Palle Pedersen urge growers to wait until seedbed conditions are right, handle seed carefully and plan ahead for a forecasted drought.

1. Wait for the right conditions. The optimal date for planting soybeans in the southern two-thirds of Iowa was April 25 (similar in Indiana). Farmers who were not able to plant during this time frame understandably get impatient, says Pedersen. "However, planting into a seedbed that is too wet can cause problems later in the season," he says. "Sidewall compaction is only the beginning of growers' problems if they plant in a seedbed that is too wet."

In addition, a disease like sudden death syndrome (SDS) seems to be worse when soybeans are planted into a wet seedbed. "We only need to go back to 2007 where we also had a wet spring to see what damage SDS did in many fields later in the 2007 season," Pedersen notes.

2. Protect fragile seed. Seed quality is an issue this year throughout the United States.

"The supplies of many popular soybean varieties are extremely tight this year, and the opportunity to replant with high-yielding varieties may be limited," Pedersen says. "We want to wait until the conditions are right to plant to give the seed every advantage we can. Moreover, we don't want to have to replant. If we get into a replanting situation, seed quality may be worse."

In addition, seed may be fragile this year and should be handled carefully. Pedersen suggests that growers consider the use of a fungicide seed treatment to ensure a good stand.

3. Plan ahead for predicted drought. If we experience a drought this summer, as many climatologists are predicting, the restricted root development from sidewall compaction may haunt us later in the season, Pedersen says.

"We want an optimum seedbed to obtain early vegetative growth and canopy closure," adds David Wright, ISA director of contract research. "Early weed control is also important so weeds don't rob moisture from the soybean plants."

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Ceres Solutions South Summer Crops Meeting—The Ceres Solutions South Summer Crops Meeting will be held Friday June 20th at the Farmersburg Answer Plot along US 41 just north of Farmersburg. Topics will include: High Yield Corn Management, High Yield Soybean Management; How to Make Your Glyphosate $ Go Further; Ceres Solutions Nutrient Profile/ Tissue Testing Program. We will also discuss what we are investigating in our research plots. The mornings activity will start around 9:00 a.m. and conclude with a hot catered lunch. PARP will be award.

Corn Issues

When Will My Corn Emerge? - By Georg Watters, WinField Solutions Agronomist - For corn to properly germinate and emerge in a normal fashion, soil temperatures at a depth of 4" should consistently average 50 F or higher. Germination and emergence will not occur quickly or uniformly when soil temperatures hover at or below this mark. Once adequate soil temperatures have been reached, the growing degree days (GDD) required for corn emergence will typically vary between 100-150 GDD, with 125 GDD as a good average.

$$GDD = \frac{(\text{Min temp} + \text{Max temp})}{2} - 50$$

Most elite hybrids can remain in cold soils for 3-4 weeks and still emerge to produce excellent stands. However, soil moisture and other factors such as insects and disease often impact stand health when emergence is slowed. The greatest concerns for slow emergence seedlings would be soil insects such as wireworm or white grub, and seedling diseases such as pythium. Look for feeding damage, or seed with poorly developed radicles (primary root) or coleoptiles (shoot), showing dark brownish lesions or rot.

Diagnosing Emergence Problems in Corn—Peter Thomison, Pierce Paul and Ron Hammond, OSU—In some Ohio counties, corn planting is nearly complete and corn is emerging, whereas in others, little or no corn has been planted due to persistent rain and cool soil conditions.

Diagnosing emergence problems early is critical in identifying solutions and developing successful replant plans, if needed. Here's a list of a few common things to look for if you encounter an emergence problem in corn this spring. (some of this information has been adapted from a newsletter article by Dr. Greg Roth, my counterpart at Penn State).

- No seed present. May be due to planter malfunction or bird or rodent damage. The latter often will leave some evidence such as digging or seed or plant parts on the ground.
- Coleoptile (shoot) unfurled, leafing-out underground. Could be due to premature exposure to light in cloddy soil, planting too deep, compaction or soil crusting, extended exposure to acetanilide herbicides under cool wet conditions, combinations of several of these factors, or may be due to extended cool wet conditions alone.
- Seed with poorly developed radicle (root) or coleoptile. Coleoptile tip brown or yellow. Could be seed rots or seed with low vigor. Although corn has just started to emerge or has not yet emerged, growers should carefully inspect seedlings for symptoms of disease. This is especially true in lower lying areas of fields where ponding and saturated soils were more likely. Seeds and seedlings that are brown in color, are soft and fall apart easily while digging are obviously dead or dying. Seeds and seedling roots or shoots that have a weft of white to pinkish mold growing on them are likely victims of fungal attack and will likely die. Pythium and Fusarium are common fungi that attack plants and cause these damping-off or seedling blight symptoms under wet, cool conditions. It is more difficult to diagnose disease damage on plants that also show abnormal growth caused by cold soil conditions or by crusting of the soil surface. However, dark, discolored roots and crowns, instead of a healthy creamish-white appearance, are typical symptoms of seedling diseases problems. So, it is best to check these seedlings very closely for dark brown or soft areas on seedling roots and shoots. Any discoloration will indicate a problem that could worsen if the soils remain cold or wet.
- Seed has swelled but not sprouted. Often poor seed-to-soil contact or shallow planting- seed swelled then dried out. Check seed furrow closure in no-till. Seed may also not be viable.
- Skips associated with discolored and malformed seedlings. May be herbicide damage. Note depth of planting and herbicides applied compared with injury symptoms such as twisted roots, club roots, or purple plants.
- Seeds hollowed out. Seed corn maggot or wireworm. Look for evidence of the pest to confirm.
- Uneven emergence. May be due to soil moisture and temperature variability within the seed zone. Poor seed to soil contact caused by cloddy soils. Soil crusting. Other conditions that result in uneven emergence already noted above, including feeding by various grub species.

Note patterns of poor emergence. At times they are associated with a particular row, spray width, hybrid, field or residue that may provide some additional clues to the cause. Often two or more stress factors interact to reduce emergence where the crop would have emerged well with just one present. Also, note the population and the variability of the seed spacing. This information will be valuable in the future.

Don't forget that corn may take up to 3 to 4 weeks to emerge when soil conditions are not favorable (e.g. temperatures below 55 degrees F, inadequate soil moisture). This was widely observed in many fields in 2005 when corn planted in mid April did not emerge until the first or second week of May. As long as stands are not seriously reduced, delayed emergence usually does not have a major negative impact on yield. However, when delayed emergence is associated with uneven plant development, yield potential can be reduced.

Late Corn Planting—How Will Some Insects Respond—by Mike Gray, U of IL— *Corn rootworms (CRW).* CRW larvae typically hatch in late May. In some very cool and wet springs, hatch can be as late as mid-June. If corn planting were delayed until late May, some starvation of larvae would occur. Generally, early planting (April through early May) tends to favor good establishment of CRW larvae.

European corn borer (ECB). With the use of Bt hybrids, ECB has almost become a "forgotten pest" of corn. By late May through early June, we should see moths seeking to lay egg masses on corn plants. Egg laying occurs during the evening. Early planting tends to favor good establishment of the first generation ECB. Late planting promotes better establishment of the second generation.

Black cutworms. (BLCW) Late planting of corn tends to promote more problems with BLCW. Fields that are tilled later in the spring and subsequently planted are often prime targets for BLCW. Migrating moths prefer to lay their eggs in fields with abundant winter annual weed cover. Larvae that can go through several molts on weeds may be able to inflict significant injury on some corn seedlings.

White grubs (WG). Years ago, when it was less common to plant as much corn in April as we've come to expect in recent years, annual WG (including Japanese beetle) were not significant threats to corn.

Because true WG feed all summer long during their second year, they can cause economic damage to corn. Annual WG were less of a threat due to the shorter period corn seedlings were exposed to root hair pruning. This year, annual WG injury should be more limited. Cold, wet soils also may delay grub development and result in longer exposure of corn seedlings to root hair pruning by larvae.

Wireworms (WW). Delayed planting and cool, wet soils may result in greater densities of WW remaining in the upper soil profile and feeding on root systems of corn seedlings. In addition to direct seed tunneling, WW can feed within the growing point tissue of plants. If this occurs, significant stand reductions may result.

Seedcorn maggots (SCM). Late planting of corn into cool and wet soils will increase the risk for SCM injury to seedlings. Fields with an abundance of decaying organic matter, especially those with frequent manure applications, are particularly vulnerable to stand reductions.

Grain Update

USDA Summary—May 9, 2008

Estimates in Million Bushels

Corn	**May USDA—07/08**	**Apr USDA-07/08**
Carry-in	1383	1304
Production	12,125	13,074
Total Supply	13,523	14,393
Feed and Residual	5300	6,150
Ethanol	4000	3,100
Exports	2,100	2,500
Total Use	12,760-	13,110
Carry-out	763	1283
Soybeans		
Carry-in	145	574
Production	3,105	2,585
Total Supply	3,258	3,169
Crush	1,850	1,840
Exports	1,050	1,075
Seed	90	92
Residual	82	2
Total Use	3,073	3,009
Carry-out	185	160
Wheat		
Carry-in	239	456
Production	2,392	2,067
Total Supply	2,732	2,613
Food	960	950
Seed	84	86
Feed & Resid	230	60
Exports	975	1,275
Total Use	2,249	2,371
Carry-out	483	242

Delivery, Basis and Cash Bids for Ceres Solutions Elevators as of Tuesday May 13th.

Pleasant Ridge	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.35	5.80
	Jul 08	-0.29	5.86
	Fall 08	-0.48	5.90
Soybeans	May 08	0.22	13.11
	Jul 08	0.12	13.01
	Fall 08	-0.94	11.95
Wheat	July 08	-1.75	6.31
Kersey	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.47	5.68
	Jul 08	-0.35	5.80
	Fall 08	-0.60	5.78
Soybeans	May 08	0.12	13.01
	Jul 08	-0.02	12.87
	Fall 08	-1.06	11.83
Wheat	July 08	-1.85	6.21
Roselawn	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.47	5.68
	Jul 08	-0.35	5.80
	Fall 08	-0.60	5.78
Soybeans	May 08	0.12	13.01
	Jul 08	0.02	12.91
	Fall 08	-1.06	11.83
Wheat	July 08	-1.85	6.21
Teft	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.48	5.67
	Jul 08	-0.36	5.79
	Fall 08	-0.61	5.77
Soybeans	May 08	0.12	13.01
	July 08	0.02	12.91
	Fall 08	-1.07	11.82
Wheat	July 08	-1.85	6.21
Ade	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.47	5.68
	July 08	-0.35	5.80
	Fall 08	-0.60	5.78
Soybeans	May 08	0.12	13.01
	July 08	0.02	12.91
	Fall 08	-1.06	11.83
Wheat	July 08	-1.85	6.21
Cherry & Whitesville	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.26	5.89
	Jun 08	-0.24	5.91
	July 08	-0.20	5.95
	Fall 08	-0.52	5.86
Soybeans	May 08	0.27	13.16
	June 08	0.17	13.06
	July 08	0.15	13.04
	Fall 08	-1.07	11.82
Wheat	June/ July	-2.00	6.05
Wingate	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.27	5.88
	June 08	-0.26	5.89
	July 08	-0.24	5.91
	Fall 08	-0.58	5.80
Soybeans	May 08	0.26	13.15
	June 08	0.16	13.05
	July 08	0.14	13.03
	Fall 08	-1.11	11.78
Browns Valley	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.31	5.84
	June 08	-0.30	5.85
	July 08	-0.280	5.87
	Fall 08	-0.62	5.76
Soybeans	May 08	0.17	13.06
	June 08	0.07	12.96
	July 08	0.05	12.94
	Fall 08	-1.16	11.73
Brazil	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.33	5.82
	June 08	-0.31	5.84
	July 08	-0.29	5.86
	Fall 08	-0.70	5.68
Soybeans	May 08	-0.41	13.02
	June 08	-0.37	13.06
	July 08	-0.33	13.10
	Fall 08	-1.20	11.69
Wheat	Jun 08	-2.40	5.66
	July 08	-2.40	5.66
Clay City	**Delivery**	**Basis**	**Cash**
# 2 Yellow Corn	May 08	-0.35	5.80
	Jun 08	-0.30	5.85
	July 08	-0.26	5.89
	Fall 08	-0.70	5.68
Soybeans	May 08	-0.41	13.02
	Jun 08	-0.37	13.06
	July 08	-0.33	13.10
	Fall 08	-1.20	11.69
Wheat	Jun 08	-2.40	5.66
	July 08	-2.40	5.66