



AgVantage Green Notes



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Comments from Mosaic and Cargill CEO on Crop Nutrients

The American Retailers Association of which Ceres Solutions is a member and has been a member through the Ceres partners for several years held their annual meeting in early December. Of course high on the list of topics discussed was the high price of crop inputs particularly crop nutrients (fertilizers). The following are questions and comments from Jim Prokopanko, CEO of fertilizer manufacturer Mosaic and Greg Page CEO of Cargill.

What are the short term challenges we in agriculture are facing? Prokopanko—Our current business style has locked up. Producers are unwilling to commit acres to corn until they see more positive prices. Ag retailers are unwilling to purchase more crop nutrient inventories until their expensive holdings are depleted, and manufacturers continue to produce high demand products at high input costs. What we need is for the markets

to unlock and start trading again. That will take some recalibration of pricing and some feeling that people in all links of the food supply chain from producers to retailers to manufacturers will get paid for services rendered. Fear is currently the limiting factor.

But there are long term opportunities for agriculture? Prokopanko—Yes, the world population continues to grow and will need to eat. We will also see the world economy recover and producers will need to keep producing.

How will the unprecedented market volatility we've experienced in agriculture lead to change at the ag retail level? Prokopanko—Everyone will need to live up to the contracts they've agreed upon. Retailers will need to honor the contracts they've agreed to in purchasing crop nutrients and other crop inputs. Grain buyers will need to honor contracts purchasing grain and crop producers will need to honor the contracts they've entered purchasing crop

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Conventional Tillage Not Required, but Crop Rotation Still Beneficial for High Yield Corn

The following is a report of results from Tony Vyn, Cropping Systems Specialist and Terry D. West, Purdue University. Many farmers in Indiana experienced a year with low stress if they did not suffer from either too much rain in spring or from too little rain in summer. Low corn plant stress in 2008 was primarily evident to our own frequent plot scouting this summer in the forms of low insect pressure, low incidence of silk clipping during pollination, low foliar disease pressure and, perhaps most importantly, moderate temperatures during pollination and much of the grain filling period. Low temps during the reproductive period contributed to delayed maturity and higher grain moisture contents than expected for a given hybrid maturity, but these were also beneficial to yield (as long as moisture was not limited).

Our long-term tillage plots were no exception to the numerous on-farm trends for realizing exceptional yields; we also achieved record corn yields in multiple experimental locations in 2008. Was tillage beneficial in 2008? Our recent corn yield results can provide some perspectives on the latter question, and on the related question as to whether continuous corn yields could match those for corn after soybeans in a high yield year.

Corn Yield Results in 2008—Corn yields at our long term tillage plots on the dark prairie soil near West Lafayette have never been so high in our 34 year history at that site. Nevertheless, even then, the 2008 results confirmed that it is entirely possible to get yields above 250 bu/A in continuous no-till and that no-till corn yields after soybeans were not significantly lower than those after conventional tillage. The yield

results for the long term no tillage study (34 years) are as follows: Fall moldboard corn after beans—261 bu/A, fall moldboard continuous corn—251 bu/A; fall chisel corn after beans 262 bu/A, fall chisel continuous corn—243 bu/A; no-till corn after soybeans 256 bu/A and no-till continuous corn—231 bu/A. Furthermore, it would have been challenging to economically justify either chisel or moldboard plowing following soybean for this location in 2008. Tillage was only beneficial for continuous corn; in that case corn yields were from 12-20 bushels higher with these full width primary tillage systems than after no-till.

Our short-term tillage experiment results provide further evidence of the small yield differences within a common planting date between no-till and either chisel or strip till when corn follows soybean. The results of the short term tillage plots at the same location are as follows: fall chisel corn after beans planted April 22—241 bu/A; fall chisel corn after soybeans planted May 27—216 bu/A; no-till corn after soybeans planted April 22 235 bu/A; no-till corn after soybeans planted May 27 209 bu/A; fall strip-till corn after soybeans planted April 22—241 bu/A; and fall strip-till corn after soybeans planted May 27—218 bu/A. As in other research, the sole benefit potentially associated with strip-till corn, compared to no-till corn following soybeans, is if the strip till provided an opportunity to gain yield because of enabling earlier planting.

At our northern IN location (Wanatah), corn yields in our 12 yr tillage study were very similar in 2007 and 2008 so the results are averaged for those two years. The results are as follows: fall moldboard corn

Highest No-till Yields at Purdue Reach 284 bu/A

Here is more research from Tony Vyn and Terry West, Purdue investigating the interactions between hybrids and plant populations in no-till. At the end of the discussion results from Ceres Solutions will also be discussed. -

Within Tony Vyn's research this year at Purdue, the highest no-till corn yields this season were achieved in a 6-rep experiment investigating the interactions between hybrids and plant populations. In the experiment, no-till corn followed no-till soybeans, two hybrids were compared at 6 different populations—20,000; 25,000; 30,000; 25,000; 39,000; and 44,000. The results illustrate the large effect of density on final yield in a year with ideal conditions for pollination. For hybrid A maximum yields were obtained at 35,000 to 39,000 plants per acre. At 20,000 yield was about 220 bu/A, at 25,000 yield was about 250 bu/A, at 30,000 yield was about 260 bu/A, at about 35,000 yield was about 273 bu/A, at 39,000 yield was about 275 bu/A and at 44,000 yield was about 250 bu/A. For hybrid B, maximum yields were achieved at a population of 30,000 plants per acre. At 20,000 yield was about 225 bu/A, at 25,000 yield was about 255 bu/A, at 30,000 yield was about 284 bu/A, at 35,000 yield was about 252 bu/A, at 39,000 yield was about 247 bu/A and at 44,000 yield was about 250 bu/A.

Although the economically optimum density for this year and location/environment is dependent on seed costs as well as hybrid characteristics, it is interesting to observe how corn yields in 2008 increased by 30 bu/A, by a simple increase of 5,000 plants per acre in the final stand.

There is no reason to believe that optimum corn plant densities are any higher or lower in no-till than they are in tilled soils. In fact, final

Soybean Rust—2008 Review

By Daren Mueller, Department of Plant Pathology—Iowa State University—While 2008 will be known for its early season rains, this did not translate into soybean rust arriving in Iowa (nor Indiana). Soybean rust was reported in Alabama, Florida, Louisiana, Mississippi, Texas and Mexico in January. However, dry weather during early spring in southern Texas and Gulf Coast states helped keep soybean rust from building up inoculum and spreading early in the season.

Since January 2008, soybean rust has been reported in 396 counties in the U.S. and Mexico, which is more than any previous year

Another bullet dodged So what happened? Why did soybean rust once again fail to infect soybeans and cause yield loss in Iowa? Soybean rust overwintered in the right (or wrong, depending on your perspective) places and we had plenty of rain. There were hurricanes and other storm systems coupled with cooler-than-normal temperatures for portions of the summer that provided ideal conditions for

Current PARP Opportunities in December and January

The following is a list of current PARP opportunities from now until December 31, 2008. Remember to keep a your private applicator certification you must attend 3—2hour PARP sessions in 5 years. No more than 2 PARP sessions can be attended in one year. To check for more events see the PARP calendar on the Private Applicator Recertification Calendar within the Purdue Pesticide Programs website. Most of these sessions are located in the southern part of Ceres Solutions trade territory. Remember the fee for each PARP is \$10.

Jan 6, 2009—8:30 a.m. Breakfast; 9:00 a.m. PARP—Vincennes

plant populations have been equal in no-till versus conventionally tilled plots for at least the past decade because of generally superior seed treatments and improved seed placement by modern planting equipment.

Ceres Solutions Results:

Objective:To evaluate the affect of higher planting populations on corn yields compared to standard planting rates.

Summary: Several on-farm strip trials were conducted by cooperating growers in Ceres Solutions across multiple counties. Growers planted their normal rate and then increased planting populations in strips and compared yields.

Most growers normal planting population was between 30,000 and 34,000 and higher planting populations were normally in the 34-38,000 range. Not all trials captured the planting and harvest populations and would be suggested if this type of trial is repeated in 2009. The studies were completed across several soil types, planting dates, hybrids, tillage practices, fertility levels, nitrogen products used and nitrogen timings.

The trend was generally consistent across counties and hybrids. Populations above 34,000 did not seem to increase yields. This one year data seems to suggest that achieving a harvest population of 30,000-32,000 is a good target in 30" row spacing.

disease establishment and development. We even had a late-planted crop and a season that lagged about two to three weeks behind, extending the vulnerable period for yield loss into early September.

Despite all of these factors that increased our chances for getting soybean rust, we didn't. In most of the places where the pathogen overwintered, it petered out as spring became summer. Disease did not spread or completely disappeared in the overwintering sites in Alabama, Mississippi, Louisiana and Texas. The infected crops in Mexico were harvested. Bottom line, the inoculum did not build up in the south like it did in 2007. So all of the storms that would have been major problems in 2007 were not, as there was little to no inoculum to transport.

Tractor Inc, Hwy 41 S. Topics include transporting farms chemicals; poly tank compliance with IDOT, clean sweep pesticide disposal.

There will be several opportunities to get PARP points this winter. The meetings times, dates, locations and topics are still being developed. I have heard there will be a couple of meetings in January in Clay Co. There were also be meetings in north west and west central IN in January and February. See next months newsletter for more info. Also check the Purdue Pesticide Programs website.

Learning Opportunities Abound at National and Regional Winter Crops Meetings

Growing and Marketing Identity Preserved and Specialty

Grains—The Indiana Soybean Alliance and Indiana Corn Marketing Council are partnering to host workshops on identity preserved (IP), non-genetically modified (non-gm), and specialty grains opportunities.

Much has changed in the last decade with it comes to IP and specialty grains markets. Containerized shipping and a growing demand for food and grain products that offer traceability, high consistency of quality and reliable supply are favored by buyers worldwide.

Three workshops are being offered January 6, 7, and 8 in locations across Indiana. The half-day workshops are designed to provide information about the global demand situation, where opportunities exist and production management on both agronomics and economics. These workshops are made possible by the Indiana soybean and corn check-off programs.

Invited speakers include representatives from the specialty grains industry and Purdue agronomists who will present this information in an open discussion format. If you are looking to diversify your current cropping system, please visit www.indianasoybean.com or www.in-corn.org for more info and to pre-register for the workshop.

Meeting dates and locations:

January 6, 2009—The White Linen Hall, Portland, IN

January 7, 2009—The Pines Restaurant, Seymour, IN

January 8, 2009—The Beck Agricultural Center, Agronomy Center for Research and Education (ACRE), West Lafayette, IN

All are from 8 a.m.–1 p.m. EST.

2009 Crop Management Workshops—The Purdue Pest Management Program is offering a series of crop management workshops at

five locations in Indiana. Topics this year include: 2008 Pesticide Applications—One Step Forward, Two Steps Back—Joe Becovitz; Weeds Bad—Herbicides Good—Bill Johnson; Field Crop Insects—They Didn't all Drown—John Obermeyer; Getting the Most Out of Soil Testing to Optimize Fertilizer Use—Jim Camberato; Are Fungicides Hurting Your Corn? - Bob Nielsen; Should you Spray? Decision Aids for Fungicide Use in Field Crops—Greg Shaner and Kiersten Wise; The Wonderful World of Crop Diagnostics—Bob Nielsen; A Flood Response Plan for Agricultural Retailers—Fred Whitford.

Meeting Dates and Locations:

January 26th—The Porter County Expo Center—Valparaiso, IN

January 27th—Wells Co Community Center (4-H Park) - Bluffton, IN

January 28th—Pewter Hall Banquet Facility—Brownstown, IN

January 29th—Beckes Student Union, VU Campus, Vincennes, IN

January 30th—Beck Ag Center, Agronomy Center, West Lafayette, IN

All programs are from 8:30 a.m.-4:30 p.m. EST. Registration is available online with credit card at www.conf.purdue.edu/crop.

17th Annual National No-Tillage Conference - January 14-17th in Indianapolis IN. The following are topics that will be discussed at the National No-till Conference: Efficient Fertilizer Placement in No-Till Systems; 5 Keys to Raising 200-300 bu/A No-till Corn; Getting a Pay-back with Variable Rate Fertilization; New Strategies for High-Yielding No-Till Soybeans; Figuring Your ROI with Current Fertilizer Costs; What I have Learned from 20 Years of Strip-tilling; New Ideas to Boost Plant Nutrient Uptake; and much more. The National No-Till Conference is a tough provoking set of meetings. To view the conference program and download a registration form or to register online, visit www.NoTillConference.com or call toll free (866)-839-8455.

Insect Year in Review

2008 was the perfect example of how environmental extremes can have detrimental effects on insects. Simply stated...insects do drown! Overall, this past season was a bust for many field crop insects, especially those utilizing the soil for a portion of their biology, e.g., western corn rootworm. Certainly this year's wild swings in moisture and temperature wasn't unique to Indiana alone, but most Midwestern states saw dramatically lower insect pressure.

How is western corn rootworm (WCR) larval survival impacted by saturated soils? WCR adults have a tendency to lay eggs during late summer where soil is a little more moist and cooler than surrounding soil. These areas are typically found in soil types and field depressions that tend to collect and hold moisture in late summer. This is why the distribution of WCR injury in the following year tends to be clumped. These same areas that are attractive to WCR adults for egg laying are where soils tend to become saturated first and remain wet longest when rain is extensive. Therefore, the impact of drenching rains on rootworm can be significant if the timing is correct. Overwintering rootworm eggs are very resistant to flooding and fields would have to be submerged many days before adverse impact would occur. Newly hatch larvae, are particularly susceptible to saturated soil and will die after being denied air for a less than a day. Hatching this past year occurred in late May to early June, just as rains were saturating much of the state's soil. Second instars that are still embedded in roots will generally not survive in submersed or heavily saturated soil after a day or two. The warmer the soil, the more rapidly stressed larvae die. Reported root larval damage and silk-feeding beetles were very low this past season, suggesting that rootworm pressure will be lower for 2009.

Interestingly, the soybean aphid bucked the trend of the "odd-year" phenomena. Since year 2000, soybean aphid has been a threat in only uneven years. Up through the first-week of August, it looked as though they would cooperate and be a LOW-show in Indiana soybean

fields. By the third-week in August, pest managers were reporting a sudden surge of aphid numbers in northern Indiana fields. To complicate issues, spider mites too were flourishing where dry conditions persisted throughout the later portion of the summer. Scouting paid dividends, because of the tremendous variability in aphid and mite numbers from field to field. Though it is unknown how extensive the aphid/mite infestations were, certainly higher commodity prices made treatment decisions easier even though soybean were mostly in the R5/R6 (full seed) growth stages, on the late side of an economic return. Too, I am hinting at the possibility of fields being treated with insecticides far below threshold levels.

Worms feeding in corn ears were probably the most interesting story for the year, admittedly from my perspective. With many late-planted fields this year, later-developing corn was in abundance. This set the stage for ear-feeding insects, i.e., corn earworm, fall armyworm and western bean cutworm. The arrival of the western bean cutworm into the state, first moths captured in 2006, has encouraged pest managers to inspect corn ears while visiting fields later in the season. This is especially true because Herculex (HX1 and XTRA) is more efficacious against western bean cutworm than YieldGard, thus a marketing advantage. The reality is that statewide, corn earworm has, and still is, the greater threat to cause ear damage (which by the way, all above-ground Bt events are only marginal in earworm control). However, in northwestern counties, western bean cutworm has shown in a few fields how severe damage can be. Though there is much to be learned about this new species of cutworm in Indiana, there seems to be a higher correlation of damage to fields in continuous corn and lighter textured soils. Larvae, and their damage, have been found as far east as Marshall County, moth captures in northeastern Indiana and northwestern Ohio indicate that this damage will likely continue eastward. How far, and how fast, is anybody's guess.

Grain Update

USDA Summary—Dec 11, 2008

Estimates in Million Bushels

Corn	Dec USDA—08/09	Nov USDA-08/09
Carry-in	1624	1624
Production	12,020	12,020
Total Supply	13,659	13,659
Feed and Residual	5350	5,300
Ethanol	3700	4000
Exports	1,800	1,900
Total Use	12,185	12,535
Carry-out	1,474	1,124
Soybeans		
Carry-in	205	205
Production	2,921	2,921
Total Supply	3133	3,133
Crush	1,715	1,715
Exports	1,050	1,050
Seed	90	90
Residual	72	72
Total Use	2,928	2,928
Carry-out	205	205
Wheat		
Carry-in	306	306
Production	2,500	2,500
Total Supply	2,915	2,905
Food	950	960
Seed	82	82
Feed & Resid	260	260
Exports	1000	1,000
Total Use	2,292	2,302
Carry-out	623	603

2009 New Crop Protection Products

The following are some new crop protection products we thought you should be aware of that will be available next year.

Ignite 280 SL—Replacement for Liberty in Liberty Link crops. Ignite contains a higher concentration of the active ingredient than Liberty. The standard use rate is 22 oz/A. In LL corn and soybeans, Ignite is most effective when applied following a preemergence application of a broad spectrum residual herbicide and is most effective when applied with atrazine. Apply from corn emergence through V5.

Grizzly Z—Replacement for Taiga Z. A Winfield Solutions product similar to Warrior.

Caramba— A new fungicide from BASF for wheat in our area. Strengths include good activity on head scab as well as other leaf diseases. If conditions are good for head scab development an application of Caramba at heading will be required.

Quadris Extra— A new fungicide for soybeans that includes a combination of a strobiluron fungicide with a triazole.

Max In ZMB—This is a foliar feed product not a crop protection product but could also fall into the plant health area of products. This product combines zinc, manganese, a little boron and a little nitrogen with a surfactant package to improve uptake of the nutrients by the plant. Max In ZMB can be used in both corn and soybeans and be applied with other crop protection products at various growth stages.

ARA Conference cont.

inputs. Building trust and maintaining confidence in our food supply system will be key.

Greg Page CEO and President of Cargill, Inc also spoke at the convention. The following are some excerpts from his discussion.

So the theme of the conference was the race for global resources—just what is the race and what was it's impact? Page: - Prior to September the race was taking place all across the world. Those with rising to middle incomes were improving their diets. This put a lot of pressure on world food demand, so the world invested more capital to ensure an increased world food supply. For example producers improved machinery, purchased improved genetics as well as crop nutrients to ensure world food supply. As oil prices increased dramatically and with it food prices there came about demand destruction. Broiler production in US has scaled back 8-10%, world protein production has scaled back, good weather increased overall food supply decreasing food prices while there are lots of expensive input prices still in the food chain.

You mentioned the importance of free trade, expand on that? Page: The opposite of free trade is self sufficiency. If a country or area is blessed with good resources that may OK, but most of the world is not. Most of the world cannot grow a wide diversity of ag products economically or sustainably. It is important to determine what crops and animals a country can grow most efficiently and trade these products for other products that another country can grow most efficiently.

Is the future of US agriculture secure? Page: I have the opportunity to travel the world and compare the US to other countries. With our infrastructure, our land grant universities that continue to provide the most up to date info for producers, new technology that we introduce every year, the ability to move large amounts of food products with relatively low fuel usage and all the farm machinery that allows us to plant the US crop in days to weeks rather than months the future of US agriculture is secure.

Tillage Study cont.

after soybeans -239 bu/A; fall moldboard continuous corn -225 bu/A; fall chisel corn after soybeans—238 bu/A; fall chisel continuous corn -221 bu/A; no-till corn after soybeans -227 bu/A; no-till continuous corn—210 bu/A; fall strip-till corn after soybeans—239 bu/A; and fall strip-tillage continuous corn - 221 bu/A. Although no-till corn yields were slightly lower (11 bu/A) than those after chisel plowing in both continuous corn and corn-soybean systems, it is equally clear that strip till corn yields were virtually identical to those after chisel plowing in both rotation scenarios. The latter is not new information; fall strip-till corn yields have equaled those after fall chisel plowing for the last 9 years at this site.

Furthermore, the crop rotation yield advantage associated with corn after soybeans is till noticeable even when continuous corn yields are above 220 bu/A. The observed crop rotation advantages in 2008 were as low as 4% for the moldboard plow situation and as much as 10% for the continuous no-till system at West Lafayette. Corn rotation yield advantages averaged about 7% at the Wanatah location. We have observed that the rotation advantage is smaller with current hybrids and management than it was 20-30 years ago, and that the percent yield advantage for rotation corn is highly dependent on the tillage system chosen for the comparison.

Summary—In summary tillage system choice has less consequence for achieving high yields than other management factors. Hybrid selection, achieving optimum plant densities and fertility levels are generally more important factors in the pursuit of high yield corn. Conventional tillage is not essential for achieving high corn yields. Even in situations (such as corn following corn) when no-till corn yields are somewhat lower, fall strip tillage is preferred over chisel plowing as the alternative to no-till because strip tillage usually yields and, if everything else is equal, yield-contest aspiring farmers should still avoid continuous corn.