

May 27th, 2005

This is the second issue of a regional newsletter being distributed every 2 weeks dealing with agronomic issues in the Northern Business Unit of Helena Chemical Company. It will contain articles from many individuals throughout the season and is meant to provide helpful information for growers, dealers, crop consultants, and salesman to help in decision making.

The editors are well known by most of you:

Dr. Greg Willoughby, Division Agronomist North Central Division

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It is our hope that you enjoy this newsletter. Also be looking for information from :

Proprietary Products Group on products in their Technical Bulletin series

WHY ASK? Agronomic Bulletins from the Division Agronomists in the NBU

There have been reports of malformed wheat heads in Northern Indiana this season. Heads are often still attached at the tip and are not emerging correctly from the boot stage as it moves past the flag leaf attachment area. This is leading to crooked heads or heads that are looped. This can be attributed to two factors often related but not always. Some herbicide chemistries may cause this when applied late in season especially under environmental stresses. Also environmental stress by itself can cause this symptom. Variations in weather during dormancy break can cause some hormonal changes by interrupting metabolism that alters development later in the season, just as some chemistries can. The number of rows and kernels are not affected, but some development may affect test weight or germination. Yield loss varies depending on severity.



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Malformed Wheat head in East Central Indiana, 2005

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One

INOCULANTS



1

"Flooded soil can seriously affect crop production for both the year of the flood and also the following year. Floods also reduce rhizobia, nitrogen-fixing bacteria which allow soybean plants to manufacture their own nitrogen. An easy way to restore rhizobia populations is to inoculate your soybean seed.

Long periods of soil saturation and anaerobic conditions decrease the bacterial population of flooded soils. Floods limit the amount of oxygen to the living organisms, and rhizobia need lots of oxygen to grow and live. Laboratory studies indicate that only 20 percent of the bacteria are alive and healthy after only one month's storage in a condition without oxygen. Silt deposited by a flood may have added to the problem by sealing the field and preventing oxygen from entering the soil.

Another reason why you should inoculate your soybean seed is that the rhizobia populations are unknown in the deposits left on flooded fields. Silt, sand and other contaminants may be deposited into fields, forming new soil layers with unknown quantities of rhizobia." Information from [Nitragin®](#) makers of [Optimize®](#) and [Cell Tech Inoculants®](#)

Inoculation is one tool you can use to minimize the risk to your soybean yields following a flood. There are several types of inoculants available to match your planting needs. Helena's line of HiStick® inoculants have a proven track record that span several years and with different universities across the Midwest. These inoculants have shown time and again that they are not only able to out yield out non-inoculated beans, but beat their competition as well! Helena has further solidified this record by adding another bacterial strain to their inoculants package – *Bacillus subtilus* (Subtilex®). Subtilex® is an EPA registered bacterial fungicide that helps to protect the plants roots against invading fungal diseases.

With the combination of nitrogen producing bacteria and disease fighting bacteria all combined in one package, HiStick® inoculants have raised the bar in soybean inoculation - Eric Mowen

ALFALFA-update

The yellowing of alfalfa reported two weeks ago (#2) has improved with better growing conditions or the applications of foliar boron sources like CoRoN®. Harvest has begun throughout the region and yields are looking favorable and above last years in some places. Do not forget the advantages of Alfalfa programs combining foliar Nutrition with Bayfolan Plus® and CoRoN® with Insecticides for high quality hay or haylage.



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Photo courtesy of Todd Hecht, Martin, Oh.

Plot-update on CoRoN®

Recent reports from Indiana show CoRoN® application looking equal to or even exceeding in number of kernels in wheat (left in #4). This was a split application with the first part of nitrogen going down as UAN and the second application as CoRoN®. Look for yield info to come!



4

Photo from Bill Steinecker and Bill Hirschy, Berne, IN

WHEAT-update

Wheat is 2 weeks from harvest to joint across the North Central Division. Flowering in the central part has just about finished with little conditions favorable for scab development as compared to last year. Reports of a lot of viruses (#3) have come in lately in western Ohio and extreme eastern Indiana. Variety susceptibility is obvious this year and growers are seeing an increase in these over years past occurring in the same fields. Genetic selection and proper identification can help in selecting tolerant numbers for this fall. As always proper nutrition is essential in the jointing and heading stages. Products such as Ele-Max® Copper/Copflow can help in that application.



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Photo courtesy of Greg Chreech, Berne, IN.

Nitrogen Timing and Diet for Optimum Corn - Steve Curley

Fine tuning nitrogen fertilizer applications for corn to coincide with critical demand and nitrogen form requirements can have significant profitable returns. Returns to nitrogen fertilizer can be as high as 8:1 (Voss; Iowa State University), and refinements in nitrogen fertilizer timing, form and availability can create positive N-use efficiencies and responses in corn.

The “priming” effect of optimizing corn tissue N concentration during the V5-V10 growth stages positively affects ear girth and length, kernel depth of fill, kernel weight, and resulting yield and percent moisture at harvest. In a separate study done by Tsai and Huber, and further substantiated by Below at Illinois, when ammonium nitrogen could be supplied as a higher percentage of the nitrogen diet relative to nitrate, particularly during the V5-tassel timeframes, better corn yield responses occurred (Table below).

	-----Nitrogen-----				
%NH4	0	0	25	50	100
%NO3	0	100	75	50	0
Hybrid Type	-----Grain Yield Bu/A-----				
3. High Fertility	123	151	175	187	175
2. Intermediate	118	147	155	167	159
1. Low Fertility	122	137	145	154	153

Both timing and nitrogen form are essential in optimizing N fertilizer responses in corn. The “priming” effect of optimizing corn tissue N concentration during the V5-V10 growth stages positively affects ear girth and length, kernel depth of fill, kernel weight, and resulting yield and percent moisture at harvest.

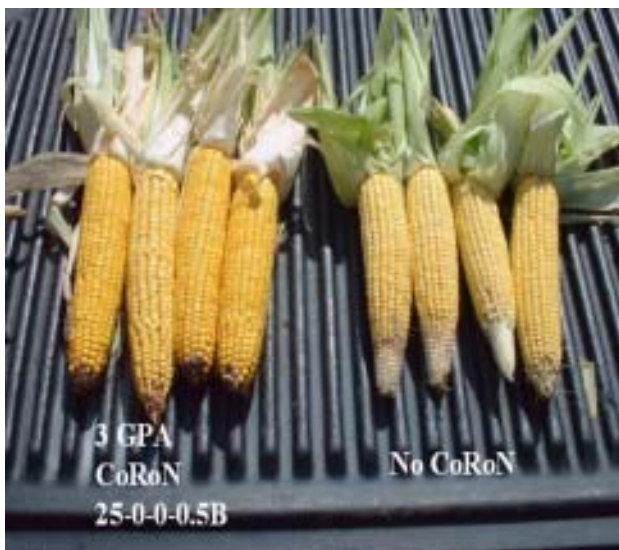
Recent availability and refinements of liquid, slow release nitrogen for foliar applications on corn have capitalized on the need for corn nitrogen requirements during the V5 through tassel growth stages. Foliar N sources are 4-6 times more efficient than soil applied sources, due to elimination of nitrogen loss as a result of leaching, denitrification, and immobilization. Additionally, by building the foliar N source in the ammonium form and formulating a portion of the N in a slow release, non burning form, tissue nitrogen can be maintained with the most efficient form of N during the entire V5 through tassel timeframe.

Optimizing corn yields by efficiently managing N fertilizer availability is very critical, considering current concerns regarding N fertilizer costs, availability, and potential negative impacts on the environment. Soil applications of N must be closely managed to match crop needs, previous crop and manure credits ,as well as residual soil N carryover amounts.

O'Neil Nebraska CoRoN® Plot

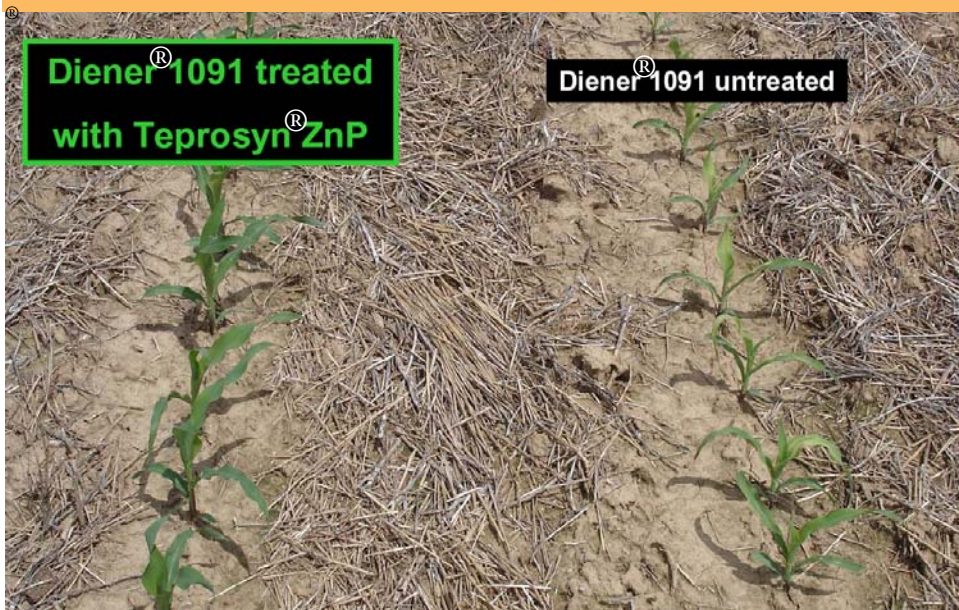
In an independent study done in 2004 at O'Neill, Nebraska on irrigated corn, CoRoN® (25-0-0-0.5B) controlled release N was applied at three gallons/A at V6 as a supplement to 209 pounds of N/A of soil applied N as urea, which yielded 11 more bushels per acre than the conventional soil applied urea at 259 pounds of N/A. The cost savings of applied N and the added bushels equated to a net \$20/A benefit to the split application technique utilizing postemerge CoRoN controlled release N. Figure 4, done as a field trial at Marshall, Minnesota, shows a 20-30 bu/A corn response to three gallons/A of CoRoN® applied at V6 to adjust for earlier soil

applied urea leaching losses. Note the extra rows around and obvious tip fill response to the foliar CoRoN® application, and as an additional bonus, the CoRoN application had 7-12 days earlier maturity and lower percent moisture at harvest time.



Planning to integrate both soil applied and a supplemental postemerge, foliar application of CoRoN® can greatly enhance N use efficiency by helping to reduce normal N soil loading and associated losses, while increasing yields. Further efficiency of operation can be accomplished by combining CoRoN® with planned postemerge applications of herbicides, insecticides and/or fungicides.

Teprosyn® Plot with Helena® Owensboro, KY. - Ebelhar Farms in Stanley, KY



Early season reports show nutritional seed treatments are performing well throughout the NBU. We look forward to the yield results come fall. Early season vigor set the stage for later season yields!

Soybeans

Recent questions have been raised about the poor color quality of soybeans in the area. Most of these soybeans are in the V2-V4 growth stage. Although there is some micronutrient deficiencies present this year, most of the poor color is due to a temporary lack of sufficient nitrogen. During these growth stages nodulation is not geared up to full capacity. In addition, cotyledon drop starts occurring which can further stress the plant as it switches from seed reserves to root/soil supply. These events occurring during wet and/or cool weather patterns can cause this discoloration. Bayfolan Plus® can be used at this time at 2 qts/ac to help alleviate temporary nutrient stresses. Its combination of N-P-K with micros and other well researched Helena additives are designed to nurse crops through stress times caused by the environment, herbicide applications, and any other stress causing situations.

Fall Herbicides

Herbicide applications in the fall are a hot topic, especially in no-till. Take a look at the difference it made at The Throckmorton Purdue Agriculture Center in Lafayette, IN. Treated on the left and control on the right. Look for more on this to come in the fall.



Questions & Comments

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