



Crop Observation and Recommendation Network

C.O.R.N Newsletter 2008-13

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A) Scouting Wheat and Proper Fungicide Use - Dennis Mills, Anne Dorrance, Pierce Paul

It is time to start scouting wheat fields for leaf diseases. The wheat is now between growth stages 8 and 10. This marks the beginning of the period during which we recommend that fields be scouted to determine which disease is present and at what level. Leaf diseases across the state are rare but in a few isolated cases they are beginning to show up on highly susceptible varieties in some fields. Fungicides are available to control these diseases in Ohio; however the decision to use these fungicides should be based on the susceptibility of the variety planted, the level of disease in the field, weather conditions, and the yield potential of the field. When the level of disease in the field is high on the top two leaves, wheat growers could benefit from applying fungicides, but in low disease years, fungicide applications would not be economical. Under favorable weather conditions, on susceptible varieties, leaf diseases can cause substantial reduction in wheat yield. Yield response to fungicide application is directly dependent on the amount of disease in the field and the susceptibility of the variety to that disease. Resistant varieties rarely benefit from application of fungicides.

Temperatures have been too cool this season for many diseases to develop, but when more favorable conditions occur: Stagonospora leaf and glume blotch, powdery mildew, and leaf rust are the most important yield-reducing leaf diseases in Ohio. The growth stage of the wheat crop when disease develops influences the impact on yield and timing of fungicide application. The earlier the growth stage, the greater the potential to impact yield. Yield losses are greatest when the upper two leaves of the plants become diseased at or before heading. When this happens, yield losses can be as high as 25 to 30%. Hence, the main purpose of making fungicide applications in wheat is to keep the upper two leaves and the head healthy between growth stages 8 (flag leaf emergence) and 10.5.4 (flowering).

Scout wheat fields now for these diseases. For powdery mildew randomly collect 30 to 50 tillers from throughout the field and look for the small white pustules on the lower leaves and leaf sheaths. If powdery mildew is present in a field planted to a susceptible variety you should watch its development over the next week or so and decide whether fungicides should be applied. Fungicides should be applied for powdery mildew control (on susceptible varieties) when 2 to 3 pustules are detected on the leaf (leaf two, counting from the top) below the flag leaf (the top-most leaf) anytime between growth stage 8 (flag leaf emergence) and 10 (boot).

Stagonospora leaf and glume blotch is most severe when frequent rains occur during the months of May and June with temperatures 68 - 80°. Scout fields between growth stages 8 (flag leaf emergence) and 10.5.4 (flowering) and if 1 to 2 lesions are detected on the leaf below the flag leaf on a susceptible variety, fungicide should be applied.

There are several different fungicides available for use on wheat. If powdery mildew is the target disease then Tilt or PropiMax should be applied. Tilt, PropiMax, Quadris, Quilt, Stratego, and Headline have good effectiveness against Stagonospora leaf blotch, other leaf blotch diseases and leaf rust. Obtain current pricing of fungicides to determine the most economical control option. Use 20 gal water/A with ground equipment and 5 gal water/A if applying by airplane. Using less water will lower effectiveness. Check labels for application timing restrictions.

Pictures of all of these leaf diseases can be found on the Ohio Field Crop Disease website <http://www.oardc.ohio-state.edu/ohiofieldcropdisease> or the Corn, Soybean, Wheat and Alfalfa Field Guide, Bulletin 827 available at County Extension offices or online at <http://estore.osu-extension.org/>. Help in diagnosis of these wheat leaf diseases can be obtained from OSU Extension or other crop consultants.

B) Alfalfa Weevil Update - Ron Hammond, Andy Michel, Bruce Eisley

We have been getting numerous reports of alfalfa weevils in alfalfa fields across the state. Although alfalfa looks great from a pickup truck, growers should realize that the only way they can determine the presence and densities of weevil larvae is to get into the field and scout for the insect. Seeing the feeding injury from the road for the first time is seeing it after economic damage has been done. See C.O.R.N. Newsletter #8 from April 7 for an article that discusses how to sample and when to treat. Remember that the closer we get to the first cutting, the best management tactic often becomes early harvesting. We normally recommend early harvesting when the alfalfa is over 16 inches in height and more than 4 larvae per stem are present.

C) New Insecticides on Soybean - Ron Hammond, Andy Michel, Bruce Eisley

Two insecticides have recently been registered for soybeans to control various foliage insects, and for one of the materials, two spotted spider mite. Both are restricted use pesticides. The first material is Leverage 2.7, which is a combination of imidacloprid, a neonicotinoid that is also the active ingredient in Gaucho seed treatment, and cyfluthrin, a pyrethroid that is also the active ingredient in Baythroid XL. Leverage is a product of Bayer. Among the insects listed on the label are aphids, bean leaf beetle, grasshoppers, green cloverworm, adult Japanese beetle, and Mexican bean beetle. It is important to note the long preharvest interval (PHI), 45 days. Soybean producers will have to consider potential harvest dates before deciding to use this product in August. The second material now available on soybean is Hero, a material containing the combination of bifenthrin and zeta-cypermethrin. Along with controlling many of the same insects that are on the Leverage label, Hero also has two spotted spider mites on the label, with bifenthrin giving the mite control. Hero has a relatively short PHI of 21 days.

D) Armyworm and Black Cutworm Update - Ron Hammond, Andy Michel, Bruce Eisley

Growers should be aware that the potential for armyworm problems over the coming weeks is high, much more than in other years. To our south, Kentucky has reported extremely large collections of adult armyworm moths. According to their reports, these have been the highest captures they have recorded. These moths are also being captured in Ohio in relatively high numbers. With these higher moth collections, growers should be aware that the potential for problems this spring from armyworm larvae is high. Growers should be concerned and thus, they should begin sampling wheat, grass pastures, corn adjacent to wheat fields, and corn planted in rye cover crops. This last scenario is especially important because we often see entire corn fields heavily damaged when grass cover crops are used. Reports have been received of black cutworm cutting corn plants as they emerge from the soil, including in seed treated fields. Please let us know of any outbreaks of either of these pests.

E) Use of Rock Phosphate in Agronomic Crops - Keith Diedrick, Robert Mullen

With the high prices of fertilizer inputs, alternative sources to commercial fertilizer are being explored by producers and consultants alike. One particular input of interest is rock phosphate, which sells for about a third the price per pound of P compared to TSP (triple superphosphate), MAP (monoammonium phosphate), and DAP (diammonium phosphate). So, is this an economically-viable alternative to crop producers with no access to manure or sludge?

The short answer is "highly unlikely." For a fertilizer product to have any benefit to plants, it must be in soil solution to be plant-available. Most phosphates mined from the ground are minerals (apatites) that are extremely insoluble in water. To make the P available, it is treated with an acid to make a new, much more water soluble and concentrated mineral for field use. The vast majority of our crop production soils are not acidic enough to replicate that industrial process.

Rock phosphate, after it is purified and processed, contains about 11.5 to 17.5% P (27 to 41% on a P₂O₅ basis). Of that, none of it is water soluble, and only 5-17% of P is citrate-soluble. Comparatively, commercial sources are usually 80% water soluble or higher. Unless it is very finely ground, used in soils with low pH and low P, and applied at three times the rate of DAP or MAP, plant needs are highly unlikely to be met by rock phosphate application.

Even if the stated 3x rate of rock phosphate application worked on all soils (not just P-depleted and very acidic), the increased costs of the larger amount of material, delivery, and application already exceed the cost of using TSP, MAP, or DAP at a lower rate.

Another suggested use of rock phosphate is for soil maintenance over the long-term. Again, with rock phosphate being insoluble in near neutral pH fields, this is unlikely a viable use, either. The ground-up rock will unlikely supplement P and will still be ground-up rock for a very long time. Optimum levels of soil P are between 30-80 pounds per acre (15-40 ppm). Plants do not benefit from levels far exceeding those levels; maintenance of soil P would be more inexpensive with materials that are soluble.

Consider also that MAP and DAP contain plant-available nitrogen (another expensive crop input), at 11 and 18%, respectively. Rock phosphate contains none.

Rock phosphate is important to the phosphorus fertilizer industry as a raw material, not a finished product. The finished products of TSP, MAP, and DAP are soluble P sources and are better choices for crop production.

References:

Havlin, J.L., et al. 1999. Soil Fertility and Fertilizers, 6th ed. Prentice-Hall, Upper Saddle River, NJ.

OSU Extension. 2005. Ohio Agronomy Guide 14th ed. Ohio State University Extension, Columbus, OH.

F) Planting Delays and Switching to Earlier Maturing Corn Hybrids - Peter Thomison

Persistent rains have caused major delays in corn planting, especially in NW Ohio. Most of the corn acres in these areas may not be planted for another 1 to 2 weeks. According to the USDA/NASS (<http://www.nass.usda.gov>) as of Sunday May 11, Ohio corn acreage planted was at 50 percent, 5 days behind last year and 9 days behind the five-year average. Corn emerged was at 14 percent, compared to 23 percent last year and 29 percent for the five-year average (2003-2007).

Is there a need to switch from full season to shorter season hybrids due to these weather delays? Probably not - in most situations full season hybrids will perform satisfactorily (i.e. will achieve physiological maturity or "black layer" before a killing frost) even when planted as late as May 20-25, if not later in some regions of the state.

Results of studies evaluating hybrid response to delayed planting dates indicate that hybrids of varying maturity can "adjust" their growth and development in response to a shortened growing season. A hybrid planted in late May will mature at a faster thermal rate (i.e. require fewer heat units) than the same hybrid planted in late April or early May).

In Ohio and Indiana, we've observed decreases in required heat units from planting to kernel black layer which average about 6.8 growing degree days (GDDs) per day of delayed planting. Therefore a hybrid rated at 2800 GDDs with normal planting dates (i.e. late April or early May) may require slightly less than 2600 GDDs when planted in late May or early June, i.e. a 30 day delay in planting may result in a hybrid maturing in 204 fewer GDDs (30 days multiplied by 6.8 GDDs per day).

There are other factors concerning hybrid maturity, however, that need to be considered. Although a full season hybrid may still have a yield advantage over shorter season hybrids planted in late May, it could have significantly higher grain moisture at maturity

than earlier maturing hybrids if it dries down slowly. Moreover, there are many short to mid season hybrids with excellent yield potential. Therefore, if you think you may end up planting in late May, consider the dry down characteristics of your various hybrids.

In past years, some mid to full season hybrids had grain moisture levels at harvest similar to those of short season hybrids because of rapid dry down rates. Keep this in mind before you trade the hybrids you originally planned to use for shorter season alternatives. Also, late planting dates increase the possibility of damage from European corn borer (ECB) and warrant selection of ECB Bt hybrids (if suitable maturities are available). In recent OSU studies, Bt hybrids planted after the first week of June consistently out yielded non-Bt counterparts even at low to moderate levels of ECB. Since many corn growers will be planting triple stack hybrids this year, which include Bt resistance for ECB, this may be a non-issue unless there's a need to switch to earlier maturing hybrids.

Corn planting in the northern third of Ohio is most likely to be impacted by more wet weather. If planting delays continue beyond next week, growers in parts of northeast and north central Ohio may want to consider corn hybrids that require 100 to 150 fewer GDD than the adapted full season hybrids usually planted. These areas of the state historically accumulate fewer GDDs during the growing season than other regions of Ohio. For more information on selecting corn hybrids for delayed planting, consult "Delayed Planting & Hybrid Maturity Decisions", a Purdue/Ohio State University Extension publication available online at: <http://www.agry.purdue.edu/ext/pubs/AY-312-W.pdf>.

G) Delayed Preemergence and Early Postemergence Herbicides in Corn - Mark Loux

We have observed quite a variety of weed control situations in cornfields across the state. Some fields in southern Ohio were planted several weeks ago, and did not really receive adequate rainfall for herbicide activation until this past weekend. Wet weather in the northern part of the state has resulted in situations where the corn was planted a week or more ago, but herbicides have not yet been applied. Fieldwork may be difficult to accomplish this week, due to wet soils and a forecast for more rain, and it's a good bet that weeds will have emerged in many fields before herbicides can be applied. The result of this can be that what was initially supposed to be a preemergence herbicide application must be adapted to an early postemergence situation. The good news here is that most preemergence corn herbicides can be applied to emerged corn, and some of them have enough foliar activity to control small, emerged weeds without the need to include postemergence herbicides. In addition, the majority of the corn planted in 2008 is resistant to glyphosate and/or glufosinate (Liberty/Ignite), and these can be combined with preemergence herbicides to control weeds emerged at the time of application.

An early postemergence application of foliar plus residual herbicides can be just as effective at preventing yield loss due to weed interference, compared with a program of consisting sequential applications of preemergence and postemergence herbicides.

However, early postemergence treatments may not provide adequate "season-long" control of weeds that tend to emerge late, such as grasses, giant ragweed, and waterhemp. They also will not provide adequate control of weeds that are not well controlled by preemergence herbicides, such as shattercane, johnsongrass, and burcucumber. Fields treated early postemergence should be scouted later in the season to determine if an additional postemergence herbicide is needed. Some considerations for an early postemergence approach:

- 1) Most preemergence corn herbicides are also labeled for application to emerged corn. Notable exceptions are products containing isoxaflutole (Balance, Radius, Epic) or simazine. Corn herbicide descriptions in the current "Weed Control Guide for Ohio and Indiana" contain information on maximum size of corn for postemergence application of preemergence herbicides. A recent article on the Iowa State University Weed Science website (<http://www.weeds.iastate.edu>), "Delayed PRE herbicide applications in corn", also indicates the maximum crop and weed sizes.
- 2) Be sure to check labels or consult manufacturer representatives, local agronomists, etc for information on the use of adjuvants in postemergence applications. The addition of surfactant or crop oil concentrate will often be needed to ensure control of emerged weeds, but use of inappropriate adjuvants can increase the risk of crop injury. Control of emerged grasses with atrazine will require the addition of crop oil concentrate.
- 3) Most corn herbicides cannot be applied using 28% as the spray carrier after the corn has emerged. Degree and Degree Xtra are the exceptions to this rule. These products can be applied in 28% to corn up to 6 inches tall as long as air temperatures do not exceed 85 degrees.
- 4) Fields should be treated before most annual weeds exceed 2 to 3 inches in height, to avoid yield loss due to early-season weed interference. When applying within a week or two after corn planting, we suggest using full rates of preemergence corn herbicides. It is possible to reduce rates somewhat when the early postemergence application stretches out to 3 weeks or more after planting, but we suggest reducing preemergence rates by no more than 33% even then. Where the plan is to definitely make another application of postemergence herbicides, lower rates can be used. However, keep in mind that the difference between full and half rates of atrazine premix products can be as little as \$7 to \$9 per acre, or a bushel to a bushel and a half of corn at current crop prices.
- 5) Treatments that contain atrazine will control many small, emerged broadleaf weeds. Among preemergence herbicides, Lexar/Lumax and mixtures of SureStart plus atrazine provide the broadest spectrum of broadleaf weed control, especially as weeds get larger. Emerged grass weeds tend to be more of an issue. Atrazine is the only preemergence herbicide that has activity on emerged grasses, and it is most effective when applied at high rates to very small (less than one inch) grasses. Larger grasses will require the addition of postemergence herbicides. Glyphosate and glufosinate are not the only choices here. Impact and Laudis can control emerged grasses at a cost similar to glyphosate and glufosinate, and they also control many broadleaf weeds. Impact and Laudis should be mixed with atrazine for most effective control.

H) Late tillage – spray the field first? - Mark Loux

As we move later into spring and weeds become larger and deeper rooted, it becomes more difficult to remove weeds with tillage alone. Tillage implements that are designed to prepare seedbeds with minimal soil disturbance do not always effectively remove large weeds. Effective control of weeds with tillage usually involves complete uprooting or at the very least, severing of the stem as close to the roots as possible. Failure to accomplish this level of disruption can result in weeds that appear bent over and fairly beat up, but these weeds often recover within several weeks. Weeds that survive tillage can be difficult to control with postemergence herbicides, and may persist throughout the entire growing season.

Solutions include more thorough and deeper tillage, or treatment of weeds with herbicide prior to tillage to ensure complete control. When using a combination of herbicides and tillage to control weeds and prepare a seedbed, apply the herbicide at least 24 hours prior to tillage to allow translocation. Glyphosate is probably the most logical choice for an herbicide treatment prior to tillage. Gramoxone could also be used, but may be less effective on large weeds. The use of 2,4-D or dicamba should generally be avoided, even when planting corn, because tillage can distribute herbicide within the seed zone and increase the risk of crop injury.

I) Preventing algae in spray tanks - Mark Loux

Some applicators are apparently experiencing the growth of algae in nurse tanks, because weather is preventing applications and delaying use of water. Algae in these tanks can be controlled/prevented by the addition of copper sulfate to the water. Dissolve one ounce of copper sulfate in 1 pint of water in a glass jar. Add one fourth pint of this solution per 1000 gallons of water. This concentration of copper sulfate will not affect herbicides. Do not use harsh agents such as bleach to control algae, because they have the potential to degrade herbicides that are subsequently added to the water. An alternative to the use of copper sulfate is to paint tanks black.

J) Weather Update - Jim Noel

Well, La Nina is rearing its ugly head. Historical data points to lower crop yields in years with La Nina events, especially for corn. Wheat and soybeans can go either way. We hope to present this research at the annual National Weather Association meeting this October in Louisville. Most of the time it is a wet and cool early spring followed by a dry early summer that causes this.

However, the exceptional wet winter and early spring means subsoil moisture levels are full. Hence, even some rain is filling things up to where it is causing issues.

It appears after a 3 week dry spell in April, May has opened with cool and moist conditions. It looks like this will linger for 2 more weeks. Not great news. This is against historical data which supported a near normal temperature May and below average rainfall. In fact, it is going to go down as a cool May with near normal rainfall and pockets of above normal rainfall. The real problem is the frequency of systems. They are coming every 2-3 days. The pattern is one not of real heavy and flooding rains, but frequent rainfalls. Expect another system Wednesday statewide mainly under 0.50 inches, another one in southern Ohio later Thursday or early Friday and another over the weekend and another next week.

In summary...

Below normal temperatures and near normal rainfall with frequent light to moderate rains can be expected the next 2 weeks. It appears a warmer and drier pattern will close out May into early June.

K) 2008 Great Lakes Regional Manure Handling Expo - Tami Combs

Row crop farmers and certified crop advisors (CCA) should plan to attend the 2008 Great Lakes Regional Manure Handling Expo, "The Economics of Recycling" on July 9, 2008 at the Molly Caren Agricultural Center in London, Ohio.

The event is sponsored by Ohio State University Extension, the Ohio Agricultural Research and Development Center, Michigan State University, Purdue University, Penn State University and Cornell University. Additional sponsors include Ohio Composting and Manure Management and the Midwest Professional Nutrient Applicators Association.

The one day event will include commercial field demonstrations, educational demonstrations, educational sessions, and commercial vendor displays. Twelve CCA continuing education credits will be offered that day. Admission is free with the gates opening at 8:30 a.m.

The following is a sample of some of the educational sessions being offered at the event:

*Manure 101: The Superior Fertilizer. Understanding how the application rate and timing affect utilization of nutrients is key to maximizing the value of manure. Learn to calculate the value of manure nutrients as well as the role of calibration. Presented by Robert Mullen, Ohio State University soil fertility specialist.

*Records: What? Why? How? Good documentation of manure application can save time and money. Records are important in determining nutrient needs and essential evidence in the event of an accidental spill. Presented by Kevin Elder, Ohio Department of Agriculture, Livestock Environmental Permitting Program.

*Growing a Management Team. Good communication between producers and applicators is the key to a successful team. What key pieces of information do producers and applicators need to ask and tell each other? Presented by Bill Knapke, Cooper Farms.

*Safety Concerns. Livestock buildings and other spaces where manure is confined may create safety issues such as high emissions of gasses or particulates. How can these emissions be reduced and what safety measures should workers follow? Presented by Dee Jepsen and Tim Butcher, Ohio State University Extension, Agricultural Safety Group.

Case studies will also be presented and will include:

*Using Liquids on Crops. How do manure application rates and timing affect crop production, the environment and the bottom line? Experiences from two farms will be shared. Presented by Byron Gearhart, Gearhart Farms and Eric Dresbach, W.D. Farms Inc. as well as a representative of Keoman Farms and Dan Vanenette, Agri-Serve.

*Brokering and Custom Application of Poultry Manure. Excess manure nutrients can provide an additional source of income. How can a third party help market those nutrients? What are the potential risks and liabilities? Presented by Joe Beiler, VanTilberg Farms.

*Environmental Management. The role of the custom applicator is expanding to include assessing the whole farm nutrient

balance and recommending application practices. How can the producer and applicator ensure quality control to enhance economic and environmental goals? Presented by Jim Cullman, Integrated Ag.

*Extending the Application Window. Management of manure storage is important to maximizing value and minimizing risks. How can practices such as side dressing help? Presented by Glen Arnold, Ohio State University Extension.

Educational demonstrations will round out the Great Lakes Manure Handling Expo.

Topics to be covered include solid manure application; liquid manure application; best management practices of stockpiling manure; slurry seeding application; soil compaction and the importance of maintenance and proper handling of equipment to ensure safety.

To learn more about the Great Lakes Manure Handling Expo, log on to, <http://oema.osu.edu>, or contact Tami Combs at (614) 292-6625 or combs.155@osu.edu.

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