Crop Advisory Team

Alert

MICHIGAN STATE UNIVERSITY EXTENSION

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Field Crop Advisory Team Alert

In this issue

Final issue for 2008

This is the last issue for the 2008 season of the *Field Crop CAT Alert* newsletter. Included in this issue is an index of articles to help guide readers through the topics covered this year. Educators and specialists have worked hard to inform readers about current issues and crop production throughout the last few months.

Now we would like to hear from you! Please send us suggestions on topics that you would like us to cover in 2009. Take our survey at http://www.ipm.msu.edu/cat08field/fc09-18-08.htmto let us know how you are benefitting from the newsletter and to give us feedback on improvements for the print publication and web site.

Please send your comments via catalert@msu.edu or mail them to the address on the back of this newsletter. Indicate whether you are referring to our fruit, vegetable, field or landscape edition.

Thank you. *-Joy Landis, editor, Andrea Buchholz, asst. editor, Victoria Morris, associate editor*

Check summer seeded alfalfa in a few weeks to determine potential root rot damage to the new stands

Richard Leep and Doo-Hong Min, Crop and Soil Sciences

Because of excessive rainfall in many areas of Michigan this past week, many newly seeded alfalfa fields may show poor growth in wet or poorly drained fields which may be due to several diseases. Seedling diseases should be suspected when emergence is poor or there are stunted, discolored, or dead seedlings.

Aphanomyces root rot can cause death and stunting of seedlings as well as more subtle disease of established plants that can result in significant yield reduction. This disease is caused by a soilborne fungal-like pathogen. Other diseases that occur in wet or poorly drained soils include Phytophthora root rot and Pythium seed and root rot. Plants infected with Aphanomyces usually become stunted and chlorotic (yellow) before they wilt and die, whereas Phytophthora and Pythium tend to kill seedlings quickly before plants become severely chlorotic. Another clue to a problem with Aphanomyces is root rot of an alfalfa cultivar that is highly resistant to Phytophthora.

Although not much is known about Aphanomyces root rot in Michigan, it is known to be a serious problem in nearby states including Wisconsin, Indiana, and Iowa. We suspect this disease is also a problem in some Michigan fields. Perhaps because alfalfa disease that occurred in wet soil was attributed to Phytophthora, Aphanomyces root rot of alfalfa was not recognized as a serious problem until the early 1980s. Aphanomyces root rot is best managed by avoiding poorly drained soils and using Aphanomyces-resistant alfalfa varieties. However, this past week, even well drained fields have been water-saturated due to abnormally high rainfall in the past few days.

Fungicides are not available for control of Aphanomyces root rot of alfalfa. Phytophthora and Pythium root rots of seedlings can be controlled with fungicidal seed treatments, such as Allegiance-FL, Apron-XL, or Apron-FL, but these seed treatments are not effective against Aphanomyces.

Alfalfa varieties rated highly resistant (HR) or resistant (R) to Aphanomyces root rot should be planted where slowly drained

soils occur and where Aphanomyces may be a problem. A list of varieties and their disease resistance can be found at the Michigan State University Forage Information Systems web site at http://www.msue.msu.edu/fis/ and clicking on the Extension bar and then the Perennial Forage Legume and Grass Varieties for Michigan. Control of Aphanomyces root rot became more challenging when different races of this pathogen were discovered. Many commercial alfalfa cultivars are now available that have resistance to race 1, the first race discovered. Another race (race 2) of Aphanomyces was identified in the early 1990s that overcomes race 1 resistance. Alfalfa cultivars developed for resistance to race 1 are killed by the aggressive race 2 isolates. Race 2 isolates have been identified in a number of states including Wisconsin, Iowa, and Kentucky. Race 2 has not yet been confirmed in Michigan. Alfalfa varieties with resistance only to race 1 may be genetically vulnerable to Aphanomyces root rot in many regions due to the presence of race 2. Several commercial alfalfa varieties are now available that have resistance to both races of Aphanomyces. If resistance to race 2 is not specified for an Aphanomyces-resistant alfalfa cultivar, then you can assume it is resistant only to race 1.

The overall distribution and impact of races 1 and 2 of Aphanomyces are uncertain, but Aphanomyces root rot should be considered as a potential problem in many parts of Michigan. If you have an alfalfa seeding that has failed this fall due to the excessive rainfall this past week, it should be safe to replant with alfalfa again next spring since compounds which cause autotoxicity do not accumulate in seedlings. Phytophthora- and Aphanomyces-resistant varieties (treated with Apron XL) are recommended for replanting failed seedings. Spring alfalfa re-seeding should be done as early as possible in the spring.

For a photo of Aphanomyces symptoms on alfalfa, please look at this issue online at: http://www.ipm.msu.edu/cat08field/fc09-18-08.htm **IPM**

Fall forage management for hay and pasture

Doo-Hong Min and Richard Lee, Crop and Soil Sciences

Among the four seasons, fall is one of the most important seasons in terms of preparing for winter survival and spring regrowth by storing carbohydrate and protein reserves in the crowns and roots. Fall is also the season for regeneration and the formation of the shoots or growing points. Since plants become dormant in the fall as air temperature is getting lower and day length is shorter, nutrient uptake becomes accordingly slower. The following are things to consider for fall forage management for hay and pasture:

1) **Soil fertility and liming:** Since the price of fertilizer is so high these days, it's important to use phosphorus (P) and potassium (K) efficiently. One of the best ways to save fertilizer costs is to test soil phosphorus and potassium on the hay fields and pasture. In particular, potassium is directly related to winter survival rate and it's more susceptible to winter kill when soil potassium level is lower than the optimum level.

Fall is also a good time for liming. Having optimum soil pH is a key to having a healthy forage stand. Grasses generally perform well at a pH of 6.0 or above while most legumes require a pH of 6.5 or more. With low soil pH, plant growth can be very poor caused by poor nutrient uptake, which results in poorer winter survival and more weed problems. This can also result in poor animal performance from low forage yield and nutritive value. Since increasing soil pH is a long-term process, it's important to apply lime materials at least six to 12 months before the results can be shown, depending on the fineness of lime materials (the higher mesh numbers, the quicker response). It's good to have fine lime materials, particles that pass a 100-mesh sieve react 100 percent with the soil in six months or less, to increase the soil pH in a short time period. In summary, it's very critical to soil before putting any phosphorus, potassium or liming materials to the forage fields.

2) Fall harvest management of alfalfa: In the late summer and early fall, alfalfa must either be cut early enough so it can regrow and then replenish root carbohydrates and proteins, or so late that the alfalfa does not regrow more than eight inches and use root carbohydrates. This has resulted in the recommendation in Michigan of a "no-cut" window beginning in September and lasting until the killing frost. However, recent research in Quebec, Canada has helped to redefine this window by assuming that if 500 growing degree days accumulate after the last cutting, there will still be enough regrowth of alfalfa for good carbohydrate accumulation before a killing frost and good winter survival and yield the following year. So a producer can cut in September without hurting the stand as long as there is enough warm weather remaining in the growing season (accumulation of 500 growing degree days) before a killing frost. These growing degree days are calculated as the average of the daily minimum and maximum above 41°F until a killing frost of 25°F. The Quebec research also showed that cutting later in the fall was acceptable as long as less than 200 growing degree days accumulated after cutting. When less than 200 growing degree days accumulated, there would be little regrowth to use up valuable stored carbohydrates and proteins in the alfalfa roots. This would result in good winter survival of the alfalfa plants. For additional information including probability graphs of late summer growing degree days for your area in Michigan, check out the following web site: http://www.ipm.msu.edu/cat08field/pdf/9-18LateSummer.pdf

3) Fall pasture management: Most producers want to extend the grazing season as late as possible before entering winter since the weather condition in the fall is suitable to some degree for forage growth. This can sometimes result in overgrazing the pasture, which is not desirable for stand longevity. Therefore, it's important to leave six

inches of stubble before entering winter, which will be helpful to catch snow and regrow in early spring. Like fall harvest management of alfalfa, testing soil phosphorus, potassium and pH will be important to maintain good quality pasture and follow the soil testing recommendations. In particular, if you have a new late summer seeding, leaving the new seeding without grazing will be important. Grazing newly planted pasture can be damaged by trampling and close grazing. Fall is also a good timing to check the status of your pasture to see if your pasture needs to be frost-seeded next spring using red clover. To do this, pastures should be closely grazed or mechanically mowed in the late fall or winter to open stands and expose soil. A chain drag or light disking can also be an option to help open the stand to increase the opportunity for better seed to soil contact. **IPM**

Reducing soybean harvest losses

Mike Staton, MSU Extension Agricultural Educator and Soybean 2010 Coordinator

Reducing harvest losses is a simple and effective way to increase soybean yields and profitability. Losses of 10 percent are typical and can reach 15 percent. With careful maintenance and operation, harvest losses can be maintained at three percent. Reducing harvest losses from 10 to three percent in a 45 bushel per acre soybean crop will increase the marketable yield by 3.1 bushels per acre. With market prices projected to be around $12.00 per bushel, this translates into more than $36.00 per acre of additional income.

Harvest timing

Properly timing your harvest operations is critical to reducing harvest losses. Harvest operations can begin any time after the beans have initially dried to 14 to 15 percent moisture. Depending on weather conditions, this is usually about five to 10 days after 95 percent of the pods have reached their mature color. Try to harvest as much of your crop as possible before the moisture level falls below 12 percent to reduce splits and cracked seed coats. Shatter losses have been shown to increase significantly when seed moisture falls below 11 percent and when mature beans undergo multiple wetting and drying cycles. Shatter losses can be reduced by harvesting in the morning or the evening when relative humidity is higher.

Equipment maintenance

Before harvest operations begin, inspect and repair the cutting parts on the header. Make sure that all knife sections are sharp and tight. Check the hold-down clips to ensure that they hold the knife within 1/32 of an inch of the guards. Adjust the wear plates to the point that they lightly touch the back of the knife. Consider switching to quick cut knives if the existing knife sections need replacing or if shatter losses have been high.

Equipment adjustment

Information from the University of Arkansas shows that a skilled combine operator can add more than $150 per hour in additional profits over an inexperienced operator or one that is trying to hurry or cut corners. Despite this, statewide surveys indicate that only 10 percent of combine operators check their combine adjustments regularly and match forward speed to field conditions. Combine operators should understand how losses occur and how to make the proper adjustments.

Nearly 80 percent of harvest losses occur while cutting and gathering the plants into the combine. Most of these are due to shattering. The following recommendations will reduce gathering losses:

- Maintain ground speed at three mph or less. Slower speeds will be required if the crop is lodged or if the stubble is high and ragged. Higher speeds are possible when using quick cut knives.
- Set the speed of the reel to run 25 percent faster than the groundspeed. If the beans are lodged, increase the reel speed up to 50 percent faster than the ground speed. Setting the reel speed too fast will cause the beans to be beat out of the pods before reaching the combine. Setting the reel speed too slow will cause cut plants to fall forward and out of the combine.
- Position the reel axle six to 12 inches ahead of the cutter bar. Ideally, the reel should leave the beans just as they are being cut. Set the height of the reel just low enough to control the beans. Positioning the reel too far forward will increase shatter losses due to excessive flailing action. In lodged conditions, operate the reel as low as necessary to pick up plants. Setting the reel too deep in the canopy will also increase shattering and cause plants to ride over the reel. **IPM**

Fall wheat fertilization

Darryl Warncke, Crop and Soil Sciences

Planting time fertilization of wheat is very important for phosphorus and potassium nutrition of the crop. Having adequate phosphorus and potassium available for fall growth is important for root system development, winter survival and tillering of the plants in the spring. A 100 bushel per acre wheat crop removes 63 lbs P_2O_5 and 37 lbs K_2O in the grain. And each ton of straw contains 13 lbs P_2O_5 and 23 lbs K_2O. Therefore, a 100 bu/a wheat crop with two tons of straw per acre removed will remove 76 lbs P_2O_5 and 60 lbs K_2O per acre. Be sure to soil test to determine the available level of phosphorus and potassium in the soil. Generally, no yield benefit occurs from applying phosphorus when the soil test value is above 25 ppm. Below this value, wheat yield may be improved by applying the recommended amount of phosphate.

The critical potassium soil test ranges from 85 ppm in sandy soils to

125 ppm in clay loam soils. Above these values yield benefit does not usually occur from K application. Below the critical value applying recommended amounts of potash may improve crop wheat. Even when soil levels of phosphorus and potassium are adequate, applying 25 lbs each of P_2O_5 and K_2O per acre along with 25 lbs N/a will insure good fall root establishment and plant vigor. Studies in Ontario have indicated that application of phosphorus and potassium in bands near the seed at the time of seeding the wheat increased the potential for producing top yields as compared to broadcasting. When soil phosphorus and potassium levels are within 15 to 20 ppm above the critical level, it is good to apply maintenance amounts, equal to crop removal, of phosphorus and potassium if financial resources permit.

In an MSU study of the 2007 - 2008 growing period, various combinations of phosphorus, potassium, and sulfur broadcast just prior to seeding did not improve wheat grain yield over applying only nitrogen even though the soil potassium level was below the critical value. Including copper, manganese and zinc had no effect on yield.

Most of the nitrogen is usually applied for wheat in the spring prior to green up. Slow release nitrogen fertilizers now in the market place make it possible to apply more nitrogen in the fall prior to seeding with minimal concern for loss. In nitrogen studies conducted in 2005 through 2007 (harvest year) wheat yields with broadcast-incorporation of nitrogen as polymer coated urea (ESN) in the fall resulted in grain yields equal to those produced with urea or UAN applied at the same rates just prior to green up in the spring. However, applying the ESN prior to green up resulted in the best yields, six to eight bushels more than fall applied ESN or spring applied urea or UAN. Slow release nitrogen materials provide another option for nitrogen management in wheat. **IPM**

Are your soils compact?

Darryl Warncke, Crop and Soil Sciences

With harvest operations comes trafficking over the fields by combines, tractors, wagons, grain carts, trucks etc. With trafficking comes soil compaction. The degree of compaction that occurs depends on soil moisture. Excessively wet soils will compact more than dry soils. The larger the tire, the deeper the compaction occurs. Compaction is most evident during harvest, but compaction may also have occurred during seedbed preparation. Chiseling or subsoiling can be done to help alleviate the effects of compaction, but prior to doing this find out at what depth the compact layer occurs. Studies have shown that chiseling two inches below the compaction zone or depth is very effective in breaking up the compaction layer. Chiseling deeper than this depth provides no additional benefit, and uses a lot more fuel. The presence of a compaction layer and the depth can be determined with a tile rod or even a soil probe when there is good soil moisture. An increase in resistance to pushing the rod in the ground is an indication of compaction. Some consultants may have a penetrometer to use that measures the actual resistance the rod encounters as it is being pushed into the ground. Probe the soil in several different spots in a field to determine whether or not compaction is a concern or the depth of compaction. Also, check the soil moisture at the depth of subsoiling. The soil should break apart when handled and not stick together in a clump when squeezed. If the soil is too wet, subsoiling will not be of benefit. The shanks should shatter the soil and not create a smeared channel. **IPM**

Soybean production and management information resource

Diane Brown-Rytlewski, Plant Pathology

There is a great resource for soybean producers available at the Plant Management Network at the Focus on Soybean website. The site contains webcasts with PowerPoint slides narrated by university researchers from around the country, with presentations related to crop production, and crop protection. Topics include use of foliar applied fungicides for soybean in the North Central United States, choosing specialty soybeans for the right niche market, sudden death syndrome, soybean cyst nematode: biology, scouting and management and others. A sample webcast, Seedborne Pathogens of Soybean can be accessed at: http://www.plantmanagementnetwork.org/edcenter/seminars/SampleWebcast/

The soybean new section contains timely articles related to soybean production. One of the latest articles posted was written by Mike Staton, "Strategies Available to Help Soybean Growers Reduce Harvest Losses." A subscription to Plant Management Network includes access to applied journals, pesticide trials, crop management variety trials and more. Subscriptions are $45 per year and can be ordered at : http://www.plantmanagementnetwork.org/Subscriptions/ **IPM**

Grain moisture measurements may divert mold and insect infestation

Note: This article appeared on September 9, 2008 in Plant Health Progress.

Grain storage bins are routinely monitored for temperature to control insect and mold problems. Now an Agricultural Research Service (ARS) scientist and his colleagues at Kansas State University (KSU) have preliminary

research findings showing that monitoring carbon dioxide, along with humidity and temperature, also may help detect problems more effectively.

Grain moisture content and temperature are the primary factors affecting grain deterioration in storage. If these factors are not properly monitored and controlled, grain quality can deteriorate quickly due to mold growth and insect infestation.

ARS engineer Paul Armstrong at the agency's Grain and Marketing and Production Research Center in Manhattan, Kansas, and Haidee Gonzales and Ronaldo Maghirang at KSU monitored a simulated grain storage bin during aeration to determine if high-moisture grain, or adverse storage conditions, in the bin top could be detected using sensors to measure relative humidity, temperature and carbon dioxide levels.

Relative humidity and temperature can be used to estimate grain moisture, while carbon dioxide levels indicate the amount of respiration due, primarily, to molds. Current technology allows relative humidity and temperature sensors to be placed at multiple points within the grain mass. Carbon dioxide sensing is more feasible at an aeration duct.

In the study, sensors were placed at different depths in the bin. High-moisture grain, comprising about 11 percent of the volume, was placed at the top of the bin and produced high amounts of carbon dioxide, which in most cases was easily detectable during aeration.

Lowering grain temperature with aeration diminished the amount of carbon dioxide produced, making it more difficult to detect unless the carbon dioxide sensor was located very close to the wet grain.

Relative humidity and temperature sensing gave good estimates of grain moisture for all conditions, but under some grain conditions, high carbon dioxide levels persisted for grain considered to be at safe moisture and temperature conditions. Combining relative humidity, temperature and carbon dioxide measurements gave reasonably accurate measurements of grain moisture content as well as overall storage conditions. ARS is the Unites States Department of Agriculture's scientific research agency. **IPM**

Custom machine rates guide

Ned Birkey, EANRA

Many farmers hire some farm machine work to be done or else perform custom work for others. What is a fair amount to charge or to pay for such work? Michigan State University has Extension Bulletin E-2131, Revised October 2002 available free of charge, which outlines labor, tractor, and machine rental rates based upon a survey from around the state of Michigan.

Because there is no standardized market structure for custom machine services, determining a fair price can be difficult. Rates will vary across the state due to many factors, such as field size, weeds or stones in the field, non-farm traffic and transport, weather, distance to the field or elevator, timeliness of work, and even the yield.

Custom machine charge usually includes the machine, power unit, fuel and operator. Determining a fair custom charge can be difficult and there can be many other factors that can influence the cost of custom machine work.

Some custom machine rate numbers for the following items might be helpful for farmers as they settle up accounts for tillage work. The following numbers are average rates, which means half of the survey numbers are lower and half are higher. All rates are per acre unless otherwise noted. **IPM**

Moldboard plowing	$15.00
Chisel plowing	$12.50
Mulch tilling (disk-chisel)	$13.15
V-ripping (14 inches deep)	$15.75
Tandem disking	$10.15
Soil finisher	$11.25
Field cultivator	$8.40
No-till corn planting	$17.70
Drilled, minimum till soybeans	$14.40
Mowing and conditioning hay	$10.25
Baling small square bales of hay	$ 0.50 per bale
Baling small square bales of straw	$ 0.45 per bale
Tractor rental 100-149 hp	$28.60 per hour
Four wheel drive tractor over 175 hp	$47.90 per hour
Custom spreading lime without GPS	$11.00
Pull type pesticide spraying	$6.15
Harvesting wheat	$21.30
Hauling grain (not sugar beets)	$0.17 per bushel or $2.25 per loaded mile

The price of diesel fuel has increased since this survey was taken. The MSU county Extension offices should have copies of E-2131 available free of charge.

Web links to articles on corn harvesting

The University of Minnesota Crop eNews published a couple resourceful articles recently. Below you will find brief summaries and links to the articles on the web.

Avoid excessive harvest of corn residue to maintain soil productivity

In most fields, corn residue remaining after grain harvest is incorporated into the soil with tillage or is left on the soil surface. Currently, corn residue is being harvested by some livestock producers, and there is interest in producing ethanol from corn residue in the near future (Perlack et al., 2005). However, soil productivity (synonymous with soil carbon) will be reduced if all corn residue in a field is harvested regularly and there is not another source of carbon being returned to the soil to replace the carbon removed with the residue. Read more at: http://www.extension.umn.edu/cropenews/2008/08MNCN28.html

Energy costs for corn drying and cooling

The purpose of this brief article is to provide enough information so that readers can estimate costs for drying and cooling corn. Grain needs to be dry to be stored through warm weather and it takes some energy to remove moisture from grain, but there are things that can be done to manage energy use. Read more at: http://www.extension.umn.edu/cropenews/2008/08MNCN27.html **IPM**

Employee dismissal

Vera Bitsch, Agricultural, Food, and Resource Economics

Dismissal is the involuntary termination of an employee's employment. Because emotions are often high, dismissals need to be handled with great care, or avoided. How can managers avoid dismissals? Careful selection, training, and management decisions serve to reduce the number of dismissals. In any case, a dismissal should only be considered after other options have been tried and did not lead to the desired results. Except in cases of gross misconduct, the dismissal should not come unexpected to the employee. Managers need to make sure that sufficient opportunities for changes were provided and a fair disciplinary process was followed. In addition, regular evaluation of an employee's performance and a paper trail regarding performance appraisals and disciplinary actions is a must should a terminated employee challenge the dismissal in court.

Michigan is an at-will employment state. What this means is that in the absence of a contract, the employee can resign at any time and for any reason and the employer can terminate for any reason or with no reason. Two exceptions apply in Michigan: the public-policy exception and the implied-contract exception. The public-policy exception prevents employees from being terminated for an action supported by the State's constitution and statutes. For example, civil rights and equal employment opportunity legislation prohibit discharge based on an employee's protected characteristics, including race, color, religion, sex, national origin, age, and disability status. Other examples are the reporting of dangerous workplace conditions, union activities, and the refusal to break the law on the employer's request.

The implied-contract exception is brought on by an employer's oral or written assurances with respect to job security or disciplinary procedures. For example, an employee handbook describing procedures to be followed if disciplinary action becomes necessary or statements to the effect that no employee will be fired without just cause create an implied contract. Then the employer needs to follow the described procedures. Also, if a manager in charge of hiring, or the employee's supervisor tells him or her that the employment will continue for as long as the work performed is adequate, an implied contract is created.

If an employee's dismissal does not comply with the law or does not comply with contractual agreements stated or implied in handbooks, application forms, or other company documents, it is considered a wrongful discharge. A wrongful discharge may be actionable in court. Even if a plaintiff does not prevail, management time and attorney costs are reasons to carefully review company policies before dismissal decisions, in particular when the dismissal is without cause. As a preventive measure employers need to review and regularly update their employment documents, if they want to ensure an at-will employment relationship with their employees. However, less job security may also result in less loyalty from the employees.

Other important decisions in dismissal are how to conduct a termination interview and whether to offer severance pay.

To read Dr. Bitsch's complete newsletter go to her website at http://www.msu.edu/user/bitsch. Under "News" click on "Agricultural Labor Issues in Michigan" for a list of available newsletters. Please remember that these newsletters serve educational purposes only and do not constitute legal advice. **IPM**

1 – Southeast

Ned Birkey

Weather

Weather has finally given southeast Michigan some rain, from three to eight inches. Most of the rain this past weekend fell gently enough that there was not a lot of runoff. We were so dry that many tile lines are still not running.

Crop report

Alfalfa seeding will finally take

hold. The third cutting was minimal, with potato leafhopper damage and likely Boron deficiency as well. There will probably not be enough time for regrowth for a fourth cutting this fall. I expect hay prices to be high again this winter.

Corn plants have been drying up with some combines starting to roll. I have heard reports of grain moisture running from 23 to 29 percent. Test weight is light, 52 pounds in one case and ear diameter is small. Stalks are brittle and weak in many fields due to the excessive and prolonged dry weather in late July, throughout August and into September. Some lodging occurred over the weekend. Some harvest will begin this week as the fields dry out. Insect traps were pulled out a week ago as there was very little European corn borer, corn earworm, variant western corn rootworm and western bean cutworm activity.

Soybean harvest started before last week's rains. Initial yield reports are low due to the dry weather. Harvest will begin in earnest as fields dry out this week. I doubt that the STARS fungicide, insecticide and foliar fertilizer plots will produce a benefit this year as we were too dry for soybeans to do any mid- to late season growing. I suspect that Hurricane Ike sent viable soybean rust spores our way this past week. I will be monitoring the double crop soybeans for rust until we get a killing frost.

Wheat planting will begin as soon as the soybeans are off the fields. It will be interesting to see if more soft white wheat gets planted this fall as Nabisco wants more white wheat. Farmers with on-farm grain storage would benefit the most as they could combine at slightly higher moisture next summer and keep the wheat in good condition.

Miscellaneous

We need good fall harvest weather to salvage the lower yielding crops. **IPM**

4 – Central

Paul Gross

Weather

The region has been receiving more than adequate rains over the past weeks. The rains last week brought over four inches in some areas. This has left fields saturated in some areas and brought field work to a halt. Some farmers are getting back into the fields Wednesday to chop corn silage. We expect field work to continue with the warm dry weather the last few days.

Crop report

Harvest of **corn** silage is starting again as fields dry out. Some areas already have silage harvest wrapped up while in the northern part of the region harvest is just getting under way. The yields vary widely and depend mostly on how much rain was received over the summer. Harvest of high moisture will begin soon while **grain** harvest is several weeks away. Most farmers think yields will be all over the board depending on rainfall. Farmers are advised to scout fields for western bean cutworm. We have been finding this pest in nearly all parts of the region.

Soybeans are beginning to turn rapidly and some harvest should begin later next week if field conditions allow. Most farmers are expecting average yields as the dry weather in August was just more than the crop could tolerate.

Alfalfa harvest of third and fourth cutting is underway or just complete. Most are reporting very good yield and quality. This year seems like last in that the later cuttings are higher yielding than the earlier cuttings. While forage supplies are still short across the state, we are starting to see inventories build.

Dry bean harvest has been halted by the rains over the past week. Some farmers are optimistic about yields where rains were adequate.

Wheat planting will get underway when field conditions allow and soybeans are harvested. Most wheat acres follow soybeans in this area

Sugar beets are doing very well with the rains. They are putting on the tons. Yields estimates and prospects look very good. **IPM**

Weather news

Jeff Andresen, Agricultural Meteorology, Geography

Tropical visitors

What a difference a week makes. During the latter half of the 2008 growing season, the majority of Michigan and the eastern Midwest region experienced much drier than normal weather, with less than half of normal precipitation mid-July through early September. Enter the Atlantic hurricane season. Relatively weak upper air winds and warm sea surface temperatures across the subtropical Atlantic basin have led to a very active season thus far, with 10 named storms. While hurricanes, generically referred to as "tropical cyclones," and their remnants typically move poleward from tropical and subtropical origins at some point in their lifetime, it is somewhat unusual for them to impact Michigan and the Great Lakes region as the storms must make landfall in an area potentially upwind of the region and then upper air winds have to be just right to advect or transport the remnants here before the system completely dissipates. After making landfall, the storms weaken as they lose the major source or their energy, water vapor from a warm ocean, and if they move poleward and persist long enough, they may transform into their mid- and upper latitude sibling, the extra-tropical cyclone, the type of low pressure area that brings us the majority of our precipitation year-round.

This year, we have really beaten the odds, as three separate tropical-origin systems have impacted the state. The first was Hurricane Gustav, or more precisely, its remnants, which initially made landfall in Louisiana and moved through Michigan on September 3 and 4. This system brought over four inches of rain to western sections of the Lower Peninsula. Because the rain with this system fell in a steady, moderate intensity over a several hour period, in contrast with a heavy thunderstorm event in which the rain falls at sometimes torrential rates over short

periods and runs off, the vast majority of precipitation soaked into the soil profile.

This past weekend (September 12-14), Michigan was 'visited by two more tropical systems. The first was the remnants of Tropical Storm Lowell, which made landfall in northwestern Mexico last week. The remnant moisture from this system was caught up in strong southwesterly low-level winds and transported into the Midwest. An extratropical upper air disturbance and cool front at the surface moved into the region last Friday, providing strong lift for the residual moisture. The result was a widespread area of heavy rain from Illinois and Indiana into southern Lower Michigan overnight Friday into Saturday. More than six inches of rain fell in the Chicago area, setting a new all-time record for precipitation in a 24-hour period. Just a day later, Hurricane Ike made landfall in the Galveston, Texas area. The southwesterly winds that brought the remnants of Lowell into the Midwest were still in place across the region, and Ike's remnants moved quickly north and eastward into the Great Lakes region by early Sunday morning, Galveston is about 1,200 miles away from Michigan and it moved here in approximately 30 hours, which is an average rate of about 40 mph, with another round of heavy rain. Relatively strong winds, 15-25 miles/hour with higher gusts, were still present with the system as it moved through southern Lower Michigan.

The spatial pattern of rainfall during the last 30 days illustrates well the movement of the three tropical systems into the Great Lakes (see Figure 1). More than 10 inches of rain have fallen at some locations across the southwestern Lower Peninsula, leading to flooding and water-logged soils, and some new rainfall records. Normal rainfall for this period generally ranges from three to four inches. Unfortunately, the recent rainfall generally missed some northern sections of the state, and drought conditions continue there. Finally, it is interesting to note that the wettest month climatologically over most of Michigan tends to be a summer month (e.g. June). However, September also shows up as the wettest month at some locations. After this past weekend, we at the state climatologist's office are very curious about the role of tropical moisture in our climate and how frequently it is a factor in Michigan (maybe more than we had suspected previously). A study is under way...

Figure 1. Radar- estimated precipitation totals (inches) across the Continental United States from August 16 though September 15 (figure courtesy of NOAA National Weather Service).

Looking ahead

In contrast to the turbulent weather of the past week, high pressure across the Great Lakes region should lead to generally fair and dry conditions into the weekend and likely longer. This weather pattern should be very favorable for crop drydown, harvest, and fieldwork activities. Temperatures will remain at near normal levels during the next couple of days, with highs Thursday from the 60s north to the low and mid-70s south and lows generally from the mid-40s north to mid-50s south through the early weekend.

A weak cool front is expected to move through the state late Friday into Saturday, but given little moisture ahead of the front, any rainfall with the system should be light and isolated, with most locations remaining dry. Temperatures will fall back a few degrees Sunday and Monday following the passage of the front, but warmer temperatures, highs back into the 70s to near 80°F in many locations, are likely again much of next week with the eventual formation of an upper air trough across western sections of North America and ridging across the east, which typically results in a warmer and drier than normal pattern in Michigan.

NOAA medium range forecasts follow this trend as well, with National Weather Service **6 - 10 day,** covering September 23-27, and **8 - 14 day**, covering September 25-October 1, outlooks both calling for above normal mean temperatures statewide. Precipitation totals are generally forecast to range from below normal levels in eastern sections of the state to near normal levels in the northwest.

Longer lead outlooks from NOAA's Climate Prediction Center (CPC) for the next few months in Michigan remain generally vague. The NOAA 30-day outlook for the month of September calls for cooler than normal mean temperatures across large areas of the Midwest and Great Plains regions. The outlook also calls for above normal precipitation totals across much of the southeast United States due to an active tropical storm season in the Northwest Atlantic Basin. For Michigan, the official outlook still places all of the state in the equal odds scenario of below, near, and above normal mean temperatures and precipitation totals. The NOAA outlook for September through November continues to call for increased odds of above normal temperatures state- and regionwide, but no forecast direction for precipitation (i.e. the equal odds scenario). **IPM**

Michigan State University Cooperative Agricultural Weather Service
Cumulative Precipitation Summary For 09/17/2008*

STATION	DIST	PRECIPITATION TOTALS SINCE 09/11/2008 (last week) Actual	09/04/2008 (last 2 weeks) Actual	Dev. Norm.	08/21/2008 (last 4 weeks) Actual	Dev. Norm.	04/01/08 (since Apr.1) Actual	Dev. Norm.
MARQUETTE	WU	2.42	2.75	1.07	3.06	-0.56	16.98	-1.46
STEPHENSON	WU	1.39	1.79	0.11	2.42	-1.20	17.13	-1.31
CHATHAM	EU	1.88	2.41	0.83	3.96	0.66	17.03	-0.26
SSMARIE	EU	1.15	2.31	0.73	3.25	-0.05	15.53	-1.76
LAKECITY	NWL	1.47	3.11	1.59	4.83	1.69	23.62	7.34
PELLSTON	NWL	0.63	1.76	0.24	2.98	-0.16	16.58	0.30
ALPENA	NEL	0.97	3.37	1.85	3.62	0.53	17.64	1.34
HTNLAKE	NEL	1.04	2.75	1.23	5.31	2.22	20.66	4.36
OSSINEKE	NEL	1.26	3.25	1.73	4.37	1.28	18.31	2.01
ROGERCITY	NEL	1.26	3.25	1.73	4.37	1.28	20.31	4.01
FREMONT	WCL	1.88	4.47	3.05	5.04	2.01	17.68	1.11
LUDINGTON	WCL	1.81	3.40	1.98	3.55	0.52	20.84	4.27
ALMA	CL	4.53	7.60	6.33	8.88	5.85	18.28	0.91
WHEELER	CL	2.34	4.73	3.46	5.80	2.77	16.22	-1.15
AKRON	ECL	3.02	4.42	3.30	5.32	2.79	19.10	3.61
BADAXE	ECL	2.73	3.95	2.83	5.28	2.75	22.67	7.18
PIGEON	ECL	2.19	4.11	2.99	4.90	2.37	16.15	0.66
SAGINAW	ECL	2.79	4.21	3.09	4.99	2.46	18.59	3.10
SAGVALLEY	ECL	3.58	5.03	3.91	5.63	3.10	18.16	2.67
STANDISH	ECL	2.04	4.59	3.47	5.77	3.24	20.04	4.55
ALLENDALE	SWL	4.05	8.05	6.68	8.34	5.57	25.92	8.07
GRAPIDS	SWL	4.60	8.83	7.46	9.68	6.91	25.71	7.86
GULLLAKE	SWL	10.06	13.09	11.72	13.50	10.73	32.01	14.16
SOUTHBEND	SWL	10.92	13.62	12.25	14.77	12.00	26.59	8.74
ALBION	SCL	7.87	9.23	8.08	10.31	7.67	26.32	8.65
BATH	SCL	5.03	6.19	5.04	7.31	4.67	18.22	0.55
CERESCO	SCL	8.58	8.59	7.44	8.97	6.33	24.20	6.53
COLDWATER	SCL	6.77	7.78	6.63	8.51	5.87	20.83	3.16
IONIA	SCL	4.22	7.40	6.25	8.35	5.71	19.67	2.00
LANSING	SCL	5.69	7.39	6.24	7.78	5.14	19.90	2.23
OWOSSO	SCL	4.66	5.99	4.84	7.72	5.08	19.51	1.84
FLINT	SEL	4.90	6.03	5.00	8.47	6.01	20.29	3.34
HELL	SEL	6.00	7.53	6.50	8.86	6.40	25.72	8.77
LAPEER	SEL	3.86	4.84	3.81	6.10	3.64	21.69	4.74
PETERSBRG	SEL	3.31	4.14	3.11	4.75	2.29	17.49	0.54
ROMEO	SEL	4.11	5.52	4.49	7.19	4.73	19.39	2.44
TIPTON	SEL	5.50	6.22	5.19	6.46	4.00	22.49	5.54
TOLEDO	SEL	3.01	3.60	2.57	3.84	1.38	19.58	2.63

ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1 2008 (*)

STATION OR DISTRICT	BASE 42 BE DEGREE-DAYS AS OF 2007	09/17 2008	BY 09/22	BY 09/27	BASE 50 BE DEGREE-DAYS AS OF 2007	09/17 2008	BY 09/22	BY 09/27
WEST UP NORMS**		2822	2886	2938		1773	1808	1833
MARQUETTE	3095	2572	2621	2678	1986	1542	1566	1589
STEPHENSON	3306	2965	3022	3087	2193	1873	1902	1930
EAST UP NORMS		2583	2648	2700		1550	1582	1604
CHATHAM	2920	2427	2476	2531	1860	1470	1493	1513
SSMARIE	3042	2688	2742	2803	1923	1605	1631	1652
N.W. LP NORMS		3119	3200	3264		2014	2061	2095
LAKECITY	3355	3044	3101	3173	2186	1929	1959	1992
PELLSTON	3190	2912	2966	3036	2083	1823	1852	1883
N.E. LP NORMS		3050	3128	3189		1946	1991	2022
ALPENA	3364	3075	3134	3206	2211	1950	1982	2014
HTNLAKE	3359	3140	3200	3274	2197	2000	2032	2066
OSSINEKE	3325	3052	3110	3182	2172	1928	1959	1991
ROGERCITY	3403	3015	3073	3143	2257	1895	1926	1957
W. CENT. LP NORMS		3394	3483	3554		2234	2288	2328
FREMONT	3805	3406	3481	3567	2553	2221	2263	2307
CENT. LP NORMS		3480	3569	3640		2308	2362	2402
ALMA	3993	3544	3617	3703	2720	2351	2392	2436
WHEELER	3809	3392	3462	3544	2570	2223	2262	2304
E. CENT. LP NORMS		3515	3609	3687		2339	2397	2441
AKRON	3711	3409	3481	3575	2498	2231	2273	2321
BADAXE	3686	3449	3522	3617	2487	2266	2308	2358
PIGEON	3576	3326	3396	3488	2378	2155	2195	2242
SAGINAW	3954	3635	3712	3812	2689	2422	2467	2520
SAGVALLEY	3717	3520	3594	3691	2491	2336	2380	2431
STANDISH	3515	3180	3247	3335	2338	2054	2092	2137
S.W. LP NORMS***		3832	3936	4025		2600	2667	2719
ALLENDALE	3819	3382	3452	3547	2539	2191	2230	2280
GRAPIDS	4338	3885	3965	4074	3032	2646	2693	2753
GULLLAKE	4684	4219	4306	4424	3340	2935	2988	3054
SOUTHBEND	4495	4015	4098	4210	3161	2751	2800	2863
S. CENT. LP NORMS		3747	3848	3932		2536	2601	2650
ALBION	4196	3746	3825	3927	2842	2504	2550	2604
CERESCO	4011	3663	3740	3840	2719	2428	2473	2525
COLDWATER	3930	3728	3806	3908	2652	2493	2539	2593
IONIA	3865	3512	3586	3682	2604	2315	2358	2408
LANSING	4072	3770	3849	3952	2786	2539	2586	2641
OWOSSO	3776	3534	3608	3705	2529	2341	2384	2435
S.E. LP NORMS		3769	3872	3960		2547	2614	2666
FLINT	4016	3799	3875	3980	2737	2567	2612	2669
HELL	4019	3675	3749	3850	2734	2460	2503	2557
LAPEER	3793	3572	3644	3742	2544	2360	2402	2453
PETERSBRG	3969	3711	3785	3887	2701	2486	2530	2584
ROMEO	3903	3649	3722	3822	2655	2431	2474	2527
TIPTON	3998	3763	3839	3942	2715	2518	2562	2618
TOLEDO	4377	4091	4173	4286	3041	2827	2877	2939

* Since weather data for some agricultural stations are not available prior to April 1st, GDD values for those stations during February and March are estimated with closest available station data.
** District normals were calculated as the mean of daily GDD totals at several stations within each district for the period 1951-1980.

Crop Advisory Team Alerts
Integrated Pest Management Program
Michigan State University
B 18 Food Safety & Toxicology Building
East Lansing, Michigan 48824 -1302

The *Field Crop Advisory Team (CAT) Alert* is brought to you by:

MSU Extension Field Staff
Ned Birkey, ANR Educator, Monroe, Wayne, Washtenaw Co.
Mike Staton, ANR Educator, Van Buren Co.
Dan Rajzer, Ext. Director, Cass Co.
Bruce MacKellar, Distr. Field Crop Educator, St. Joseph Co.
George Silva, ANR Educator, Eaton Co.
Paul Gross, Ext. Director, Isabella Co.
Marilyn Thelen, ANR Educator, Clinton Co.
Paul Wylie, ANR Educator, Allegan Co.
Fred Springborn, ANR Educator, Montcalm Co.
Dan Rossman, ANR Educator, Gratiot Co.
Bob Battel, Extension Educator, Osceola Co.
Mark Seamon, ANR Educator, Saginaw Co.
Steve Poindexter, Sugar Beet Specialist
Dave Pratt, ANR Educator, Tuscola Co.
Martin Nagelkirk, Ext. Director, Sanilac Co.
Dale Mutch, Dist. Field Crop IPM Educator
Phil Kaatz, Ext. Director, Lapeer Co.

MSU Extension Campus Specialists

Crop & Soil Sciences
Dr. James Kells
Dr. Christy Sprague
Dr. Kurt Thelen
Dr. Darryl Warncke
Dr. Wesley Everman

Geography/Agric. Meteorology
Dr. Jeff Andresen

Plant Pathology
Diane Brown-Rytlewski

Entomology
Dr. Christina DiFonzo

Diagnostic Services
Steve Gower
Fred Warner

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Joy Neumann Landis, editor
Andrea Buchholz, assistant editor
Victoria Morris, communications associate

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*Crop Advisory Team Alerts*243 Natural Science Bldg.
Michigan State University
East Lansing, MI 48824 Phone: (517) 353-4703
E-mail: catalert@msu.edu

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