MICHIGAN STATE UNIVERSITY EXTENSION

AgNotes

NOVEMBER 2009

INGHAM AND LIVINGSTON COUNTY AGRICULTURE UPDATES...

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Steel, Smoke, and Soil

What could attract 140+ farmers and agribusiness professionals to a field of wheat stubble in mid-September? Farm equipment, of course! Earlier this summer the Capital Area Innovative Farmers suggested that Ingham County MSU Extension add a 'vertical tillage' demonstration to the MSU Corn Variety Trial Plot Tour at the Jorgensen Farm. A few phone calls showed that Jorgensens were willing, and the equipment vendors were very interested. Before it was all over, we had gone a bit outside of what most consider 'vertical tillage', but it was an excellent opportunity to see the equipment operating side-by-side. The tillage implements present included: Phillips Smart-Till, Salford RTS, Salford RTS Extreme, Great Plains Turbo Till, Case IH True-Tandem 330, DMI Strip-Till, Phoenix Till-Lite, M&W Dyna-Drive, Amazone Catros, Brillion Zone Commander, Brillion Land Commander III, and a Hinnicker 6000 Strip Till unit. An array of tractors from John Deere, Case IH, Fendt, Challenger, and New Holland were also on hand to provide the needed power.

So what is it people want from 'vertical tillage' that they seem unable to get with their existing tillage equipment?

- Size reduction of corn stalks
- Some residue incorporation, but not too much: enough residue on the surface to help retain moisture in the summer
- Does not cause shallow compaction/plow pan
- Reduced surface compaction
- Capacity to cover acres quickly

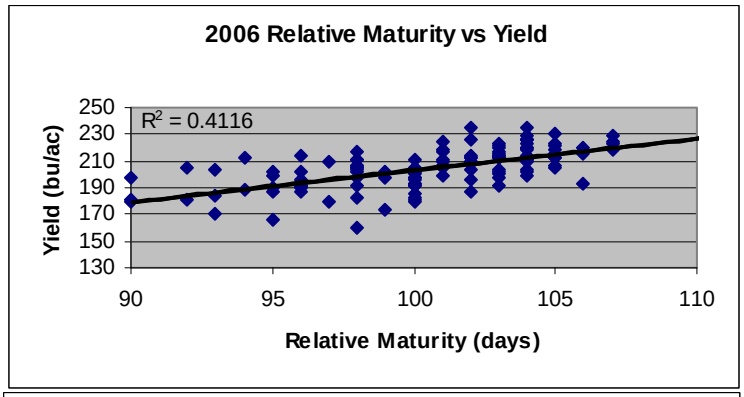
While we did not get to see these machines operate in *corn* residue, seeing them work in the wheat stubble gave the attendees a good idea of where they might fit (or not) in their own operation.

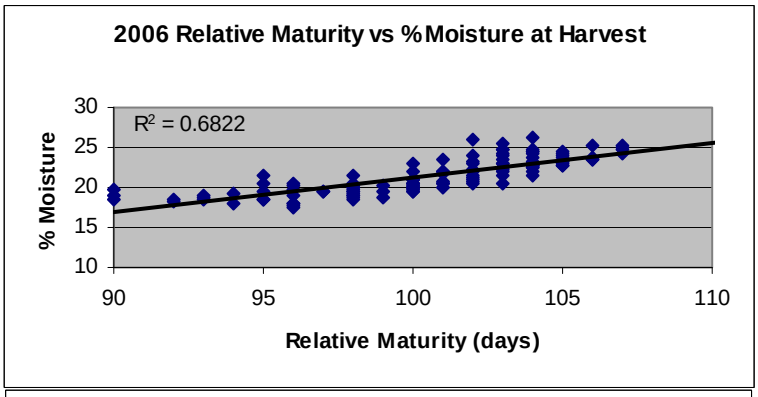
While 'vertical tillage' is not the solution to all of our problems, there are some interesting applications that we will investigate in future issues of AgNotes. The vendors that were present at the demonstration are listed below. Some of these companies have equipment available for rental; many are eager to do a demonstration on your farm. Thank you to those of you who contributed resources to make this a successful program!

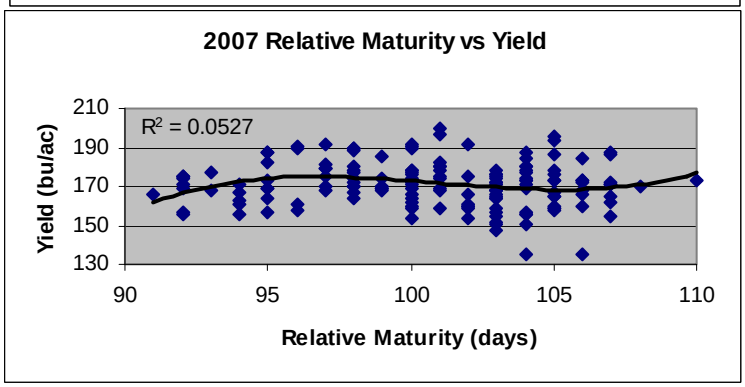
Machine	Company	Contact	Phone	E-Mail
Phillips Smart-Till	MJK Purveyors	Mike Kowalczyk	616-450-6168	kowalcyzyk@maxxconnect.net
Salford RTS	Salford	Mark VanVeen	519-619-6171	mark.vanveen@salfordmachine.com
Salford RTS Extreme	Salford	Mark VanVeen	519-619-6171	mark.vanveen@salfordmachine.com
Great Plains Turbo-Till	Lloyd Miller & Sons	Sales Staff	888-770-8535	millerscorunna@michonline.net
Case IH True-Tandem Turbo 330	Janson Equipment	Derik Rickard	517-543-0070	derik_rickerd@ameritech.net
DMI Strip-Till	Janson Equipment	Derik Rickard	517-543-0070	derik_rickerd@ameritech.net
M&W Dyna-Drive	Farm Depot	Mark Latham	989-673-6172	mark@farmdepot.biz
Catros Amazone	Farm Depot	Mark Latham	989-673-6172	mark@farmdepot.biz
Brillion Zone Commander	Williams Farm Machinery	Jim Cassel	517-543-7958	jcassel@williamsfarm.com
Hinnicker 6000 Strip-Till	Hiniker Company	Jack O'Dell	517-881-8647	jtodellkar@aol.com
Phoenix Till-Lite	ExCel Industries	Vern Fette	507-835-3744	vern.fette@excelphoenix.com

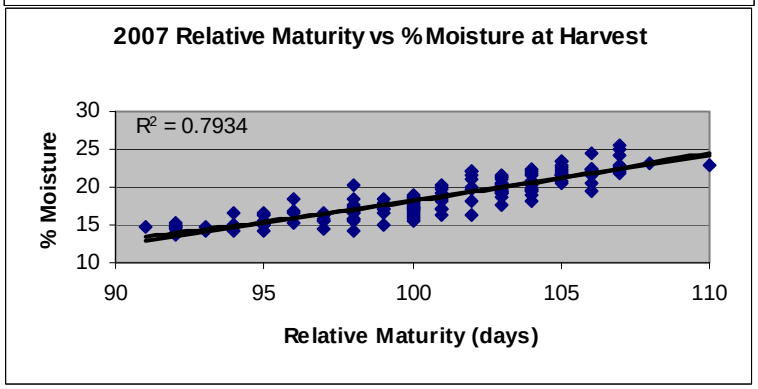
Relative Maturity of Corn

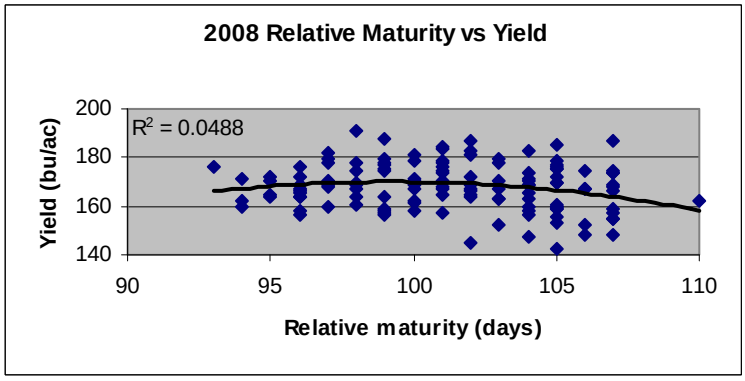
What a growing season! While 2009 has been disappointing in many ways, it is important not to over-emphasize one year and take home the wrong message. Due to the cooler than normal weather for much of the growing season, some corn was killed by frost prior to physiological maturity. The corn harvested from these fields may have one of several problems including low test-weight, high harvest moisture, damaged kernels, and fungal disease. This raises the question, "what range in relative maturity is optimal, and what is unnecessarily excessive or conservative?" After reading an article published by the University of Minnesota, I was inspired to 'mine' some data from the 2006-2008 MSU corn variety trials to get a better look at the relationship between RM and corn grain yield in Ingham County. Keep in mind

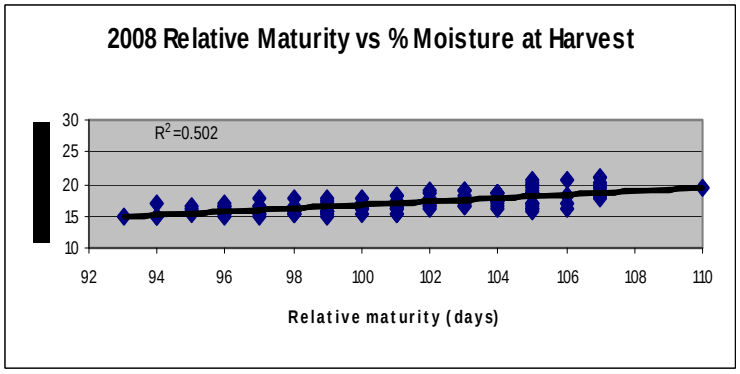












that this is general treatment of raw data from 2006-2008 and it is not intended to precisely describe longer-term trends. Expect a much more comprehensive report handling similar data to come out in February 2010. In the charts that show corn yield vs. RM, the 'R^2' decimal tells us how much of the yield we can attribute to RM *in Ingham County during* ***that*** *year*; the closer the R^2 is to 1.0, the more we can say that RM affects corn yield. In 2006, the relationship between yield and RM is fairly strong (R^2 = 0.41) but in 2007 and 2008 it is not (R^2 less than 0.06). Looking at these charts from the yield perspective, farmers in Ingham County should generally plant most of their corn acres with several corn varieties ranging from a 97 to 102 RM. A much smaller percentage of their acres should be composed of shorter or longer RM hybrids to further manage risk. From the charts on the right side of page 2, you will notice a much stronger relationship between RM and corn percent moisture at harvest. This is largely because seed companies *use* moisture-at-

Continued on page 3

(*continued from page 2*)
harvest data (such as we present) to assign a RM to a particular hybrid, so there ought to be excellent correlation! The trends observed in the charts on page two suggest that, in general, each one-day increase in RM can be expected to result in an increased grain moisture of about 0.5% at harvest, assuming all tested varieties are harvest occurs on the same day.

While longer RM varieties can result in higher yields in some years, a major reason for planting several varieties with a range of maturities is to spread out your risk. Select a corn variety with a RM that in most years will reach black layer more than a week before a killing frost. Farmers stand to lose too much (late harvest, high drying costs, low test weight) by failing to take this approach. If the weather changes and you just don't think that there is time for the variety you purchased to reach maturity a week before a killing frost, call your seed sales representative and arrange for a return or exchange. Unless they stipulated "no returns" when you purchased the seed, they should be willing to take it back, swap it for another variety, or even exchange it for soybean seed. Look at the product lines of other companies if your dealer is unable to provide you with proven hybrid with an appropriate RM and the traits you need.

Clearly, RM is only one of several factors that should be considered when selecting varieties for 2010. Yield is primary, but stability over time and in various conditions is also important. The 2009 MSU Corn Variety Trial results will be out soon and once again promise to be a very valuable tool.

References Used:

J. Coulter. Selecting Corn Hybrids for Grain Production. http://www.extension.umn.edu/distribution/cropsystems/M1276.html

R. Nielson. Field Drydown of Mature Corn Grain http://www.agry.purdue.edu/Ext/corn/news/timeless/graindrying.html

Winner of the MSU Wheat Variety Trial Yield Estimating Contest

On June 30, Ingham County MSU Extension hosted a tour of the MSU Wheat Variety Trial Plots on the Dietz Farm in Williamston. At the end of the tour and discussion, participants had the opportunity to take part in a yield estimating contest. D.F. Seeds donated $40 gift cards to Applebee's for the contestant who correctly guessed which variety would come out on top at harvest. As a tie-breaker, contestants were asked to estimate what the actual yield would be. Dan Washburn of Elsie was one of three who predicted that Ambassador (marketed by DF Seeds) would win in the white wheat category, coming within 2.1 bushels of the actual yield (89.1 bushels/acre). Unfortunately, no one predicted that Red Ruby (marketed by MCIA) would come out on top in the red wheat category. This demonstrates how hard it is to visually estimate relative/absolute wheat yield and underscores the importance of utilizing the MSU variety trials!

The trial had a LSD (least significant difference of 10.5); that means that unless two varieties differed by at least 10.5 bu/ac, the yields are not considered significantly different. Among the white wheat varieties, 10 of the 37 varieties entered were within 10.5 bushels of Ambassador; and among the red wheat varieties 25 of the 43 varieties entered were within 10.5 bu/ac of Red Ruby.

Thanks again to DF Seeds, Inc. for their generous participation in this program!

To see full reports for the MSU Variety Trials, please visit: http://www.css.msu.edu/varietytrials/

Mammoth clover growing in wheat stubble (Ingham County)

Corn Meal or Whiskey in the Bin

One of the worst thing that could happen this fall is that Michigan Farmers would think that the warnings about grain drying and storage in 2009 are just a lot of scary talk. The fact is that those who dry and store their grain on-farm face several phenomenon that they have not seen in previous years, each of which could cause tremendous economic loss.

- Harvesting at a moisture level above 28% can cause significant damage to the kernel. Damaged kernels are much more susceptible to fungal damage. Aside from discounts at the elevator, excessively damaged corn can be rejected altogether.
- Go out of your way to put the cleanest corn possible in the bin and the fines on the ground behind the combine. Fines will cause problems with drying, aeration, and storage.
- Discounts for heat-damaged corn start at 0.3% and it can be rejected if it is above 1%. Keeping the *grain* temperature between 120° and 140° F will ensure that this does not happen.
- Keep plenum temperatures between 180° and 200° F. Above this temperature, the moisture can leave the kernels at an extremely high rate, causing the kernels to "puff" (sort of like puffed wheat or rice). This obviously increases the size of the kernel and will reduce the test weight. Corn with a test weight below 47 pounds/bu is also subject to rejection.
- Watch out for 'moisture rebound.' This phenomenon happens more commonly in corn that was killed prior to physiological maturity. In this situation, moisture does not move to the outside of the seed as rapidly as it usually does and the moisture tester indicates that the grain is drier than it really is. A couple of days later when that moisture finally gets to the outside, the moisture tester will accurately reveal that the grain is not as dry as it seemed before. Especially if you are drying corn that was killed prior to maturity, consider drying your corn at least one point lower than you normally would and keep monitoring it.
- After drying, cool the corn slowly. Corn, just like a glass, will crack if the temperature changes rapidly. These cracks will cause the corn to fall apart much more easily when it is handled.

Many of these recommendations are based on a tremendous article from the Ontario Ministry of Agriculture : "Drying and Storing Corn in 2009" http://www.omafra.gov.on.ca/english/crops/field/news/croppest/2009/18cpo09a1.htm . If you plan on drying and storing grain on your farm this year, I strongly encourage you to read this article in its entirety.

Other resources with information on the subject of grain storage and drying:

An absolute clearinghouse of information on all types of harvest and grain quality issues: :
http://www.agry.purdue.edu/ext/corn/cafe/harvest/

Missouri Integrated Crop and Pest Mgmt Newsletter (Nov.) http://ppp.missouri.edu/newsletters/ipcm/archives/fullissue/v19n21.pdf

2009 Corn Quality Issues: Storage Management
http://www.extension.iastate.edu/CropNews/2009/1015hurburghelmore02.htm

Watch Out for Stalk Rot

At this point in the season, very few farmers are hoping or waiting for significant in-field drying of the corn crop, and you are all extremely motivated to get it harvested. That said, you should consider focusing on harvesting fields in the greatest danger of lodging. Some varieties are going to demonstrate greater resistance to lodging, whether it is caused by stalk rot or not, and the corn in some fields will be more prone to lodging problems than on other parts of your farm. If you are far from being done with your corn harvest, get out in your fields and do some "push tests" to see where the problems are currently the worst. Which fields are most at risk? To narrow it down, consider six common causes of stalk rots:

- Excessive or deficient moisture
- Nutrient deficiency
- Prolonged cloudy weather
- Damage from pests or hail
- Foliar disease that caused significant loss of effective leaf area
- Excessive plant (or weed) populations

For tips on harvesting lodged corn, visit:
http://blog.lib.umn.edu/efans/cropnews/2009/11/growers-urged-to-evaluate-lodg.html

References: *Corn Stalk Rots. P. Vincelli and D.E. Hershman*

http://www.ca.uky.edu/agc/pubs/ppa/ppa26/ppa26.htm

Another way to Die in 2009

You have all heard that farming is one of the most dangerous jobs in America, following jobs such as logging, piloting, fishing, metal working, and electric utility installation. The pace at harvest is often frenetic even without harvest complications; with the current delays, this pace has been made worse, and may tempt some to be less cautious than normal.

On some farms, above normal harvest moisture, damaged kernels, and extra fines generated by rapid cooling will cause difficulties with aeration, which can lead to crusting, heating, 'bridging,' and other hazards. These phenomena, when discovered, will lure farmers into the bins to try to fix the problem, sometimes without taking the proper precautions. Without proper safety measures in place, nobody is fast, strong, or smart enough to escape once entrapment has begun. No bin of grain is worth a human life.

The following publications outline common causes of entrapment, ways to avoid them, and how to attempt rescue once entrapment has occurred — complete with grim diagrams:

- Caught in the Grain! http://www.ag.ndsu.edu/pubs/ageng/safety/ae1102w.htm#bridged
- Grain Bin Entrapment: http://nasdonline.org/document/172/d001693/grain-bin-entrapment.html
- http://abe.sdstate.edu/hosta/index_files/Task%20Sheets/3.10%20Grain%20Bins.pdf

Let's Make a Deal!

Feeding Low Test-Weight Corn to Livestock

While I have not heard many reports of severely low test-weight corn being harvested yet, it is going to happen. Those fields that were killed much before half milk-line stand a fair chance of being low enough that it might be rejected at the elevator. That being the case, it is prudent for those who produced some low test-weight grain to look for a good 'plan B' and for some livestock producers to consider working with these farmers to determine a fair price for that grain. Low test-weight corn will generally be lower in protein than 'normal' corn, but may in fact be higher in energy (pound for pound). One of the fundamental ways to begin to determine a fair price is to have the corn tested for nutritional content. For those who raise livestock and produce grain but had good grain quality on your own farm, consider selling your normal test-weight corn and purchasing low test-weight grain from a producer who was caught by the frost. Done properly, this can be a win-win situation for the buyer and seller.

For those who suspect mold issues and entertain the idea of feeding it to livestock (especially non-ruminants), it should be tested for mycotoxins. A list of laboratories that test feed for nutritional content and/or mycotoxins can be found at http://www.michigan.gov/mda/0,1607,7-125-1569_16979_21266-8145--,00.html

For more information about feeding low test-weight corn to livestock, please visit:

Low test-weight corn for feedlot cattle:
http://agbiopubs.sdstate.edu/articles/ExEx2019.pdf

Feeding value of low test-weight corn for pigs
http://www.omafra.gov.on.ca/english/livestock/swine/facts/info_n_testweight.htm

Purdue Livestock Specialist Recommends Testing Before Feeding: http://news.uns.purdue.edu/x/2009b/091030RichertTesting.html

Fumonisin, Vomitoxin, and Other Mycotoxins in Corn Produced by Fusarium Fungi http://www.ca.uky.edu/agc/pubs/id/id121/id121.pdf

Evaluation of Low Test Weight Corn for Finishing Lambs
http://www.extension.iastate.edu/Pages/ansci/sheepreports/asl-1476.pdf

Parting Thoughts from Various Sources

- **Combine considerations for a wet harvest**: http://ipcm.wisc.edu/WCMNews/tabid/53/EntryId/837/Combine-Considerations-for-a-Wet-Corn-Harvest.aspx
- **Weigh Risk of Leaving Corn Stand Through Winter**: http://corn.agronomy.wisc.edu/Teams/TG001.pdf
- **Tips for reducing natural gas or propane usage when drying grain**: http://www.uwex.edu/ces/ag/issues/winterfeed2004/graindrying.html
- Deer IPM is in full swing. If you allow people to hunt on your land, consider requiring the hunters to harvest a doe or two before taking bucks; alternately, if they want to hunt your land in 2010, you could require that they harvest some does during the late antlerless season.
- It is a good idea to have some type of formal agreement in writing with those hunting on your farm. A template for one such agreement can be found on the Michigan Farm Bureau Web-Site: http://www.michfb.com/files/ecology/Hunting%20Lease%20Agreement.pdf

Unless otherwise noted, all articles in AgNotes are written by Dan Hudson, Extension Educator for MSU Extension in Ingham and Livingston County. To contact Dan, call 517-676-7207 or e-mail dhudson@ingham.org

Calendar of Events

December 9, 8:30 a.m. to 4 p.m.: **Comprehensive Core Training Workshop**. Get 8 RUP Credits in the time it would usually take to get 3! Smyth Hall, 819 W Park Street, St. Johns. Cost: $99.00/person. To register please call Connie at 517-676-7207 or e-mail cvernon@ingham.org

December 18: **IPM Update**, 9 a.m.-3:30 p.m., $50/person before Dec. 11, $60/person after, includes lunch, refreshments and pest control guides, MSU Livestock Pavilion, East Lansing. To register, call 517-543-2310 or e-mail silvag@msu.edu.

January 19: The Color of Money: *Reducing Livestock Feed Costs Using Innovative Grazing Systems.* If you are beef, dairy, sheep, or goat producer of any size, this program is for you. Details forthcoming.

February 15: **Ingham County Corn and Soybean Day**. Get the latest agronomic information from MSUE specialists and educators. Sponsored by the Michigan Corn Growers Association and the Michigan Soybean Promotion Committee. Location: DeKalb Research Barn on the Haynes Farm, 474. S. Onondaga Road, Mason. Cost: Free. To register, please call Connie at 517-676-7207 or e-mail cvernon@ingham.org.

March 4: Chicken Out with MSU Extension! Are you a current or aspiring keeper of a backyard flock? Join us as the MSU Poultry Specialist leads a workshop on best management practices for keeping your flock healthy and productive. Details forthcoming.

Farmers examine the Phoenix Till-Lite at the September 15 vertical tillage demonstration

Attendees listen to the sales representative describe the Salford RTS Extreme

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Ingham County MSUE staff can be reached at 517-676-7207.

Please feel free to call us with your questions, concerns, and comments.

Gary L. Heilig, Horticulture Educator

Dan Hudson, Agriculture and Natural Resources Educator

Connie Vernon, Agriculture/ Horticulture Program Area Secretary

B R I N G I N G K N O W L E D G E T O L I F E ! !

WEBSITES TO INVESTIGATE:

MSUE Bulletin office

www.msue.msu.edu (click on publications link)

RUP Credits: to link to the MDA website to see where in Michigan they are offering RUP credits log onto:

http://www.mda.state.mi.us/industry/schedule.html

MSU Field Crop Advisory Team Alerts:

http://www.ipm.msu.edu

2007 Corn, Soybean, Wheat Variety Trials

http://www.css.msu.edu/varietytrials

Forage Information System

http://web1.msue.msu.edu/fis/

Sustainable/Organic Agriculture Information

http://www.newfarm.org/

http://www.attra.org/

Nutrient Recommendations for Field Crops in Michigan

http://web2.msue.msu.edu/bulletins/Bulletin/PDF/E2904.pdf

Farm Financial Management in Michigan, including custom field rates, land rental agreements, risk management, and crop production budgets:

http://www.msu.edu/user/steind/f_financial.htm

Economics of commercial weed control programs for corn and soybeans in Michigan:

http://www.msuweeds.com/publications/