Wisconsin Crop Manager

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Upcoming 2009 Soil, Water, & Nutrient Management Meetings

The Department of Soil Science will offer Soil, Water, and Nutrient Management Meetings at eight locations in 2009. These meetings combine the former Soil & Water Management and Fertilizer Dealer Meetings into one 4-hour session (10 am to Noon/1 to 3 pm). Matt Ruark, Dick Wolkowski, Carrie Laboski, Fred Madison, Dennis Frame, Paul Kivlin, and Sue Porter will present current soil & water management and soil fertility information.

To read more, click here to view more.

CCA Pre-Test Training Session – December 15-16, 2009

Bryan Jensen, IPM Program

The CCA Pre-Test Training Session, sponsored by UW-Extension, Wisconsin Crop Production Association and the UW IPM Program will be offered at the Madison Crowne Plaza on December 15-16, 2009. This training session is designed to help participants understand the Wisconsin CCA performance objectives and to assist with preparation for the state CCA exam. It is NOT a crash course designed to cover specific information necessary to pass the exam.

Registration is on a first-come, first-served basis. The fee is $150/person which covers the cost of instruction, lunches, handouts and other costs associated with the course. Because handouts must be ordered and/or printed in advance, registration by December 1, 2009 will be appreciated. Registrations after the December 1 will be subject to materials on hand and we cannot guarantee all handouts will be available. To register, make checks payable to WPCA (sorry credit cards cannot be accepted). Include your name, company affiliation, address, daytime phone number and email address. Send registration information and check to Bryan Jensen, Dept. of Entomology, 1630 Linden Dr., Madison, WI 53706. For more information please contact Bryan Jensen at (608) 263-4073, email bmjense1@facstaff.wisc.edu To view a copy of the schedule and additional information please see this informational brochure.

Pest Management Update Meeting Reminder

Chris Boerboom, Extension Weed Scientist

Please remember to register for the Pest Management Update meetings coming in November. The full schedule, meeting locations, and directions were announced in the September issue of the newsletter, but here is a quick recap. **Please register 1 week before the meeting with the county agent listed below.**

Date	Location	Contact	Phone
Nov. 9	Belmont	Ted Bay	608-723-2125
Nov. 10	Marshfield	Matt Lippert	715-421-8440
Nov. 11	Chippewa Falls	Jerry Clark	715-726-7950
Nov. 12	Sparta	Bill Halfman	608-269-8722
Nov. 13	Green Bay	Mark Hagedorn	920-391-4612
Nov. 16	Arlington	Joe Bollman	608-742-9682
Nov. 17	Fond du Lac	Mike Rankin	920-929-3170
Nov. 18	Janesville	Jim Stute	608-757-5696

Please note a couple changes to the traditional schedule so you show up at the right location or on the right date. The Platteville meeting site has been moved to Belmont. Also, the traditional order of the Sparta and Marshfield meetings has been flipped in the week. The Marshfield meeting will be on Tuesday and the Sparta meeting will be on Thursday.

A recap of many topics to be covered is listed below. We hope to see you next month.

Weed Management: 1) herbicide updates; 2) field horsetail control in corn; 3) resistance – you be the judge; 4) summary of pre herbicide performance in soybeans; 5) Boerboom's Top 10; 6) fall perennial weed control with herbicides; 7) volunteer wheat effects on alfalfa establishment; 8) weed suppression in pastures; and 9) NR 40, what ag professionals need to know.

Disease Management: 1) white mold in 2009; 2) hail damage and fungicides for corn; 3) anthracnose of corn; and 4) wheat diseases in 2008/09 and management for 2009/10.

Insect Management: 1) managing soybean aphid and spider mites in late season (R4-R5) soybean; 2) soybean host plant resistance for soybean aphid; 3) corn insect pests: WI distribution and control updates (corn rootworm and corn ear pest complex); and 4) corn insect Bt traits - new registration updates for 2010.

Nutrient Management and the NRCS Conservation Stewardship Program

Matt Ruark, Department of Soil Science

The sign-up for the NRCS Conservation Stewardship Program (CSP) will continue through September 30th, 2009. Applications received after September 30th will be considered for funding in 2010. Through this volunteer program, farmers must agree to maintain existing conservation practices and to do more conservation practices during the five years of the contract. The contract payment will be determined after an evaluation of all current practices, as well as enhancements. The national average CSP payment will be $18 per acre. Certain improvements to nutrient management practices related to nitrogen and phosphorus applications are valued under this system. Valued practices include:

Use of plant tissue tests or the presidedress soil nitrate test (PSNT) for determination of N applications

Improving the timing of N fertilizer application, including split applications

- Use of controlled/slow-release N fertilizer
- Subsurface placement of P fertilizer
- Use of cover crops (both grasses and legumes)
- Use of precision application technology

More information on the benefits of these management practices can be found in Nutrient Application Guidelines for Field, Vegetable and Fruit Crops in Wisconsin (A2809), on our Soils Extension website (www.soils.wisc.edu/extension), or by contacting Matt Ruark (mdruark@wisc.edu, 608-263-2889). Detailed information on the NRCS program can be obtained by contacting your local NRCS office or at the following websites:

Conservation Stewardship Program

(http://www.wi.nrcs.usda.gov/programs/csp/cstp.html)

2009 Enhancement Activity Job Sheets

(http://www.nrcs.usda.gov/programs/new_csp/2009_jobsheets.html)

39th North Central Extension-Industry Soil Fertility Conference November 18 - 19

Carrie Laboski, UW Extension Soil Scientist

The North Central Extension-Industry Soil Fertility Conference has a long history of providing educational updates on hot topics and emerging soil fertility research. This year's program will continue this tradition. A few of the topics on the agenda include: Long Term Phosphorus Studies and How They Effect Recommendation Philosophies; Micronutrients; Fertilizer Manufacturing; and Dealing with Sulfur Deficiencies in Crop Production: The Iowa Experience. The full agenda along with registration information can be found at: http://www.ipni.net/nc2009 CCA credits will be available.

Location:

Holiday Inn Airport
6111 Fleur Drive
Des Moines, Iowa 50321
Phone: (515) 287-2400

Monitoring your yield monitor

Matthew Digman, Assistant Professor, Biological Systems Engineering

Yield monitors have become more common on combines in the last decade. The primary goal of these devices is to help the producer monitor variability occurring in his or her fields. Utilizing GPS, this data can be saved spatially and downloaded to the producer's computer to build an almanac that may be used to better understand how field inputs affect yield variability over a variety of growing years and, consequently, conditions (e.g. wet years, dry years). Producers have also used this technology to conduct on-farm trials assessing economic return of various hybrids or management inputs.

The combine automates yield monitoring by gathering data from various sensors, including speed, position, header height and width, mass-flow and moisture. Each of these sensors contributes an essential piece of data necessary to the production of an accurate yield map.

The first piece of information needed is the area harvested. Various machines solve this problem differently, but generally the yield monitor knows that the harvest has commenced by first verifying the separator is on and then if the header height is in the harvest position. This brings us to the first important adjustment. Different operators and varying harvest conditions require positioning the header higher or lower. The operator must inform the yield monitoring system when the header is at the harvesting height so it can determine if the machine is harvesting or making another maneuver (e.g. headland turn). The header position assigned to harvesting works in conjunction with the activated separator, like an on/off switch for the yield monitor. The value is usually set through the monitor itself and

can be represented as a percent of height or angle measured between the header attachment point and the ground.

Now that the yield monitor knows that the operator is serious about harvesting (separator on, header down) the monitor must know the width being gathered into the combine. Surprisingly, most machines have not automated this process. Therefore, the operator must enter the number of rows being harvested or, in the case of a cutting platform, width of the header used (e.g. feet).

Harvest width combined with forward travel speed allows the combine to calculate area harvested per unit time, usually represented as acres per hour. For example, a 6-row (15ft) corn head, fully utilized, traveling at 5 miles/hour would result in an area productivity of about 9 acres/hour (5 MPH multiplied by 15ft and divided by 8.25 to convert the units). For those using GPS there is no need for speed calibration; however, those using a speed pickup or doppler-shift system need to calibrate their speed sensor. Once again, the procedure varies by machine, but in general it requires traveling a known, measured distance under field conditions (proper header attached, half-tank of grain). This distance is used in conjunction with the sensor's output to correct its calibration.

With area covered precisely known, we just need to measure the amount of grain harvested for that area. This could be done by simply weighing the grain, but engineers have had difficulty coming up with cost-effective, on-board weighing systems. So this task is accomplished indirectly with a mass-flow sensor. Various mass-flow sensors have been tried throughout the past, but today two types are being utilized. The first type of sensor measures the height of the grain as each paddle of the clean grain elevator pass by. Using this height, the volume of grain is estimated and, in-conjunction with a density (mass of grain per volume) assumption, the weight of the grain is estimated. The density is calculated by adding the volumes up in the last calibration load you ran. So the weight you entered from the scale ticket divided by the cumulative volume from each paddle gives the sensor a density reading of weight per volume. With this calibration, as each paddle passes the sensor, the volume is measured and the weight is estimated using your last calibration data.

This can be accurate if the relationship between weight and volume are constant, but unfortunately, as in most biological products, nothing stays the same for too long. Changes in corn variety, moisture content and individual kernel density can lead to measurement error. It is recommended that a calibration load be entered every 2-3 weeks, or more often, if there are noticeable changes in crop condition.

Another, more common type of mass-flow sensor uses an impact-plate to measure the force of the grain as it is ejected from the clean grain elevator into the bubble-up auger. The idea is to add up the force over time to determine the accumulated weight. This, too, is an indirect measurement of weight requiring calibration to ensure proper function. Before considering calibration, it is prudent to inspect not only the sensor for wear but also the clean grain elevator paddles. Bent or broken paddles could result in grain falling before being thrown against the impact plate. Also, worn paddles may not cause the grain to follow the top of the conveyer to the impact plate, resulting in low readings. Some machines allow for an adjustment of paddle height at the top of the clean grain elevator to give the operator an opportunity to fine-tune how the grain impacts the sensor.

The impact-plate sensors usually use a non-linear relationship to relate sensor output to grain weight. What this means is that the sensor output isn't directly proportional to grain weight. For example if the two were linearly related, then an output of 1 volt (V) would be 5 lbs of grain; 2V, 10 lbs; 3V, 15 lbs; etc. However, due to friction and grain falling off the paddles at high flow-rates, a non-linear calibration is necessary. So, in our previous example, 1V would be 3.5 lbs; 2V, 10lbs and 3V could be 25 lbs. What this means for the operator is that multiple calibration loads are necessary to ensure yields collected at very high and very low mass-flow rates are accurate.

Calibration load recommendations vary depending on manufacturer. Some may have the operator find a consistently yielding, level area of the field, harvesting at an average rate while others have the operator harvest at varying rates throughout the calibration period. Those using non-linear calibrations may require the operator to harvest more than one calibration load, each time varying the harvest rate. Most operators' manuals provide step-by-step instructions. It is important to follow the instructions specified by your operator's manual. This process may seem involved, but most machines allow the operator to continue harvesting until the calibration load weigh ticket returns so harvesting is not impeded by a calibration update.

If you already weigh all of the loads from the field, you still need to calibrate the mass-flow sensor as the yield map won't accurately account for the highs and lows, even after being corrected with actual loads. Again, this is a result of the sensor's non-linearity.

The final piece of the yield map data is moisture. Grain yields must be corrected for moisture, otherwise wetter, heavier grain will skew the yields higher while drier, lighter grain will appear to decrease yield. The moisture sensor's calibration also needs periodic adjustment as conditions change. This process usually includes taking a few representative samples from the grain tank to the elevator for analysis; the values from the elevator are then used to update the combine's calibration.

Although time investment may seem significant, calibrating your monitor is necessary to ensure accurate yield maps and subsequent management decisions. For more grain production related information please visit the University of Wisconsin – Extension Team Grain website at:
http://www.uwex.edu/ces/ag/teams/grains/

The Fall is a Good Time to Pull Soil Samples for SCN

Shawn Conley, WI State Soybean and Wheat Extension Specialist

The UW Agronomy Department, in cooperation with the Wisconsin Soybean Marketing Board, is again offering free SCN testing for Wisconsin growers. This program is intended for growers to sample up to three of their fields in order to identify if SCN is present and at what levels. Growers will be

responsible for collecting soil from fields suspected to have SCN and then sending the sample to the SCN testing laboratory. They will receive a lab report back with the SCN egg count and a brochure to help plan future rotations and other cultural practices to lower the level of infestation.

We have a limited number of these free kits available and will furnish them on a first come - first served basis. Each kit has a bag and a prepaid mailer for one soil sample which should represent about 10-15 acres. Both the postage and lab fees are prepaid. Before or right after harvest are great times to collect soil samples for routine soil fertility analysis and for SCN monitoring.

Soil sample test kits are available now and can be requested from Colleen Smith at clsmith8@wisc.edu or at 608-262-7702.