Wisconsin Crop Manager

Volume 19 Number 28 --- University of Wisconsin Crop Manager --- October 18, 2012

Training Webinar for CCA Exam

Bryan Jensen, IPM Program

The University of Wisconsin Cooperative Extension Service and the UW Integrated Pest Management Program will be offering a series of online webinar training session that are designed to help people prepare for the state CCA exam. This webinar series is broadcast live via internet connection. Participants will be able to view the PowerPoint presentation and have the capability to ask questions. Instruction will take place at 9-11 am on Monday, Wednesday and Fridays, starting Monday, November 26 and concluding Friday, December 14. Please see the webinar schedule for a detailed list of dates, speakers and topics.

The vast majority of workplace computers (newer computer and a fast internet connection) should be capable of handling webinar technology. A URL will be provided in advance to test hardware, sound and video capabilities. Online resources will also be provided to learn various webinar functions. Registration for the webinar series and electronic references is $90/person. Credit card payments can be made online at https://www.patstore.wisc.edu/ipm/register.asp Checks are also accepted. Please send a check, payable to University of Wisconsin-Madison, to Bryan Jensen, Dept. of Entomology, 1630 Linden Dr., Madison, WI 53706. If paying by check, please include name of participant, address, telephone number and email address (required).

For more questions on this training program call or email Bryan Jensen at 608-263-4073, bmjense1@facstaff.wisc.edu For more information on the CCA program, international and state performance objectives and exam registration please go to the CCA website at https://www.certifiedcropadviser.org/

2013 IPM Field Scout Training Class

Bryan Jensen, IPM Program

The Madison Field Scout Training Classes will be held on the UW Madison Campus from January 14-18, 2013 (Friday, January 18 is an exam date and non-students aren't required to attend that day). The course is designed to provide the skills necessary for proper pest identification, crop scouting techniques as well as provide useful baseline information for people preparing for the Wisconsin CCA exam. In addition, information such as crop growth and development, pest life cycle, pest damage symptoms and economic thresholds will be covered. Pest control recommendations, although discussed, will not be highlighted during this course. Crops covered will include, corn, alfalfa, soybean and wheat. Click here for the course syllabus.

Non-student registration fee is $225/person. To register for the IPM Scout School, make checks payable to University of Wisconsin-Madison and send to CALS Conference Services, 640 Babcock Dr., Madison, WI 53706. For registration questions, call 608-263-1672. Online registration can be made at:
https://events.uwex.uwc.edu/cos/getdemo.ei?id=28004&s=_5NS0UFCKD

For more information on this course please contact Bryan Jensen at:

Dept. of Entomology
1630 Linden Dr.
Madison, WI 53706
(608) 263-4073
bmjense1@facstaff.wisc.edu

Pest Management Update Meeting Reminder

Eileen Cullen, Extension Entomologist

We hope that you will be able to attend the UW-Extension Pest Management Update meetings coming up early November 2012. The full schedule with dates, meeting locations, topics and registration contact information were announced in the September 27th issue of the Wisconsin Crop Manager, but here is a quick recap. Please register with the host agent at least 1 week prior to the meeting at the location you wish to attend.

Note that the location sequence changes a bit from year to year based on logistics. Be sure to look at the 2012 schedule included with this article when selecting your preferred date and location for 2012. Please attend the meeting location at which you registered. Each meeting in the series is a separate county-based event and host agents cannot interchange registrant fees or meal counts.

Four hours of CCA CEU pest management credits are requested and available at each location.

The speakers will be extension specialists Mark Renz, weed scientist, perennial cropping systems; Vince Davis, weed scientist, annual cropping systems; Eileen Cullen, field crop entomologist, and this year we are pleased to welcome Damon Smith, field crop plant pathologist.

2012 Pest Management Update Topics will cover:

Weed Management: *Annual Crops*: 1) New herbicide updates for 2013 2) Update on Herbicide Resistance in the State 3) carry-over concerns for 2013 and the utility of bioassays. *Perennial Crops*: 1) Benefits of Roundup Ready alfalfa establishment systems on weed control yield and stand establishment, 2) Do some corn herbicides prevent establishment of grass with alfalfa the following year?, 3) Pasture weed management after a drought what should we expect?, 4) Impact of Canada thistle on pasture utilization, 5) Poisonous plants, what to remember.

Insect Management: 1) Western corn rootworm resistance to Bt CRW corn – where is it? what trait(s) are we concerned about? why has resistance occurred? 2) Best management practices for Bt CRW traits going into 2013, 3) Recap on twospotted spider mite control during drought conditions, 4) Managing the expected and unexpected insect pests in alfalfa – potato leafhopper to variegated cutworm, 4) label updates for insecticides and Bt corn traits

Disease Management: 1) Introduction and background of Damon Smith, new field crops extension plant pathologist, 2) Announcement of the 2012 PMU survey, 3) Soybean vein necrosis-associated virus: A new and emerging virus of soybean in the Upper Midwest, 4) The 2012 drought: Reminders about mycotoxins in corn, 5) The status of wheat stem rust: Where is Ug99?

The schedule is attached at the end of this issue of the PDF print version of The Wisconsin Crop Manager

New Phytophthora spp. causing root rot on soybean in Wisconsin

Damon L. Smith (Plant Pathology, UW-Madison/Extension), Anette Phibbs (State Plant Pathologist and Nematologist, Department of Agriculture, Trade, and Consumer Protection)

The 2012 field season has been one for the record books. There have been many challenges this season from drought, to various insect issues. There is also a pathogen of interest that was detected for the first time in Wisconsin in 2012. Plant pathologists with the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) detected the pathogen Phytophthora sansomeana on soybean. Most growers and consultants are familiar with Phytophthora rot on soybean; however, the primary causal agent in Wisconsin is P. sojae. The 2012 season is the first time that P. sansomeana was detected on soybean, resulting in root rot in Wisconsin.

Soybean roots infected with Phytophthora sansomeana and Pythium sp. displaying root rot lesions. Photo Credit: Anette Phibbs, DATCP.

How were fields sampled?
DATCP plant pathologists sampled 49 soybean fields from May 29 to July 2, 2012. Soybeans were mostly in the vegetative stages V1 to V4, while a few were in R1 by July 2. Soybean fields were chosen randomly for sampling. Twenty soybean plants were dug up from each field, from areas with suspected symptoms of root rot. The plants were brought back to the Plant Industry Laboratory at DATCP and roots were washed and tested for the presence of Phytophthora and Pythium.

What was found?
Out of 49 total samples, eight (16%) tested positive for Phytophthora sojae the primary causal agent of root rot in Wisconsin. All samples tested (100%) were positive for Pythium in 2012. In three of the 49 samples tested (6%), Phytophthora sansomeana was detected (see map). The new Phytophthora sp. was detected using DNA-based techniques and was also isolated and grown in culture to review growth characteristics and morphology. To the best of our knowledge, this is the first detection of Phytophthora sansomeana on soybeans in Wisconsin.

What is the Significance?
Phytophthora sansomeana has been reported on corn in Ohio, soybeans in Indiana, Douglas fir seedlings in Oregon, and

weeds such as white clover, wild carrot, and white cockle in alfalfa fields in New York. In 2011 DATCP plant pathologists isolated this new Phytophthora and other closely related species from Fraser fir grown in Wisconsin Christmas tree plantations. Little is known about the efficacy of known resistance genes to P. sojae and if they are at all effective against P. sansomeana.

Management Recommendations
More research needs to be done to assess the impact of P. sansomeana on soybeans, corn and other hosts. The host range is significant to note in the context of crop rotation for disease management. However, crop rotation is considered of limited efficacy for Phytophthora rot in general, because inoculum of the pathogen can survive for many years in soil. As with any Phytophthora management program integrated disease management (IDM) should be adopted. In areas prone to Phytophthora rot, use soybean cultivars with good resistance to the known P. sojae races in the field. Improving drainage is very effective in many soils to manage Phytophthora rot. Fungicide seed treatments can also reduce the incidence of Phytophthora rot on soybean.

For More Information
Contact your local UW Extension agent or the authors with questions. For more detailed
information about Phytophthora rot visit the following website:

American Phytopathological Society, Education Center – Phytophthora root and stem rot
of soybean
(http://www.apsnet.org/edcenter/intropp/lessons/fungi/Oomycetes/Page /PhytophthoraSojae.aspx)

Click Here For The Downloadable PDF

Late Summer Cutting Management of Alfalfa

Dan Undersander, Extension Forage Agronomist

Difficult alfalfa harvesting conditions sometimes result in farmers being off schedule for late summer harvesting alfalfa. This raises the question of best cutting management of alfalfa harvest as the end of summer approaches. If we want good winter survival and rapid greenup for good yield next year, alfalfa must either:

1. be cut early enough in the fall to regrow and replenish root carbohydrates and proteins or
2. be cut so late that the alfalfa does not regrow or use any root carbohydrates.

This has resulted in the recommendation of a 'no-cut' window from Sept 1 to killing frost for Wisconsin. However, research in Quebec has helped define this window by indicating that alfalfa needs 500 growing degree days (GDD, base 41oF accumulated until a killing frost of 25oF) after the last summer cutting to regrow sufficiently for good winter survival and yield the next year. Thus the date is not important but temperature following cutting and alfalfa regrowth. This means we can cut as late as 500 GDD will accumulate without hurting the winter survival.

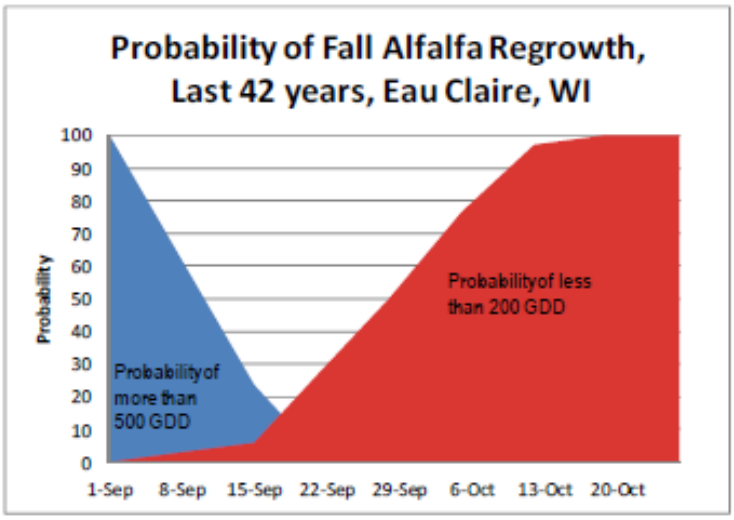
On the other extreme, we can also cut so late that little regrowth occurs. Cutting when 200 GDD or less will occur indicates that there will be insufficient regrowth to use significant amounts of root carbohydrates. These plants would also have good winter survival. It is important to remember that we do not need to wait for a killing frost to take the last cutting. We must only wait until it is so cool that little or no regrowth will occur. Thus harvesting in the late fall, when less than 200 GDD will accumulate, minimizes winter injury but, we should remember leaving the alfalfa residue improves overwintering of alfalfa since the reside provides some insulation of the alfalfa crown from cold air temperatures and helps hold snow with further insulates the crown.

In summary, we want either to take the last alfalfa harvest early enough that regrowth and root replenishment occurs or so late that little to no growth occurs. Calculating both probabilities tells us the risk of winter injury or kill due to harvesting at different dates during September and October. This data was calculated for in Wisconsin sites where we had 42 years of weather history. In each graph, the blue is the probability of accumulating 500 GDD after each week. The maroon area is the probability of accumulating less than 200 GDD. So the top line is the probability of accumulating either 500 GDD or less than 200 GDD after the indicated date and shows the probability no injury or kill to alfalfa stands harvested on that date. We should assume that the graphs are for very winterhardy varieties (winter survival score of 2 or less) and that less winterhardy varieties would be at more risk. Optimum soil test levels of soil pH (6.5 or higher) and potassium can also enhance winter survival.

We can see that, at both Lancaster and Beloit 500 GDD or more always accumulated after September 01. And while the probability remained 100% for 500 GDD or more at Beloit, it fell to 74% at Lancaster by Sept 8.The middle of September through the middle of October was the riskiest time to cut alfalfa in southern Wisconsin over the last 42 years.

At Eau Claire, Marshfield and Plymouth 100, 97 and 93 % of the time 500 GDD was accumulated after Sept 1, respectively. Probability of 500 GDD accumulation before a 25oF frost fell to about 60 to 70% one week later. Thus, not harvesting after Sept 1 is the safe alternative but often times being a week late was not detrimental. The last half of September was the riskiest with low probability of either more than 500 GDD or less than 200 GDD accumulation. Waiting till mid Oct was often safe whether or not a frost has occurred.

Alfalfa forage quality changes little during September, so harvesting versus delaying harvest should be based on likelihood of winter injury or survival if the stand is to be kept. The effect of timing late summer cuttings on winter survival and next year yield depends on the weather following cutting and the graphs give the risk associated
with cutting times over the last 42 years.


Probability of Fall Alfalfa Regrowth, Last 42 years, Eau Claire, WI
Probability
100
90
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70
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30
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10
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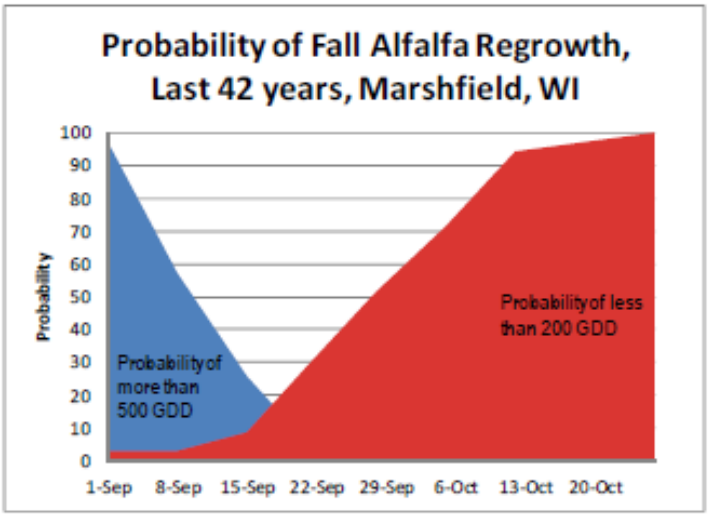
Probability of more than 500 GDD
Probability of less than 200 GDD
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct


Probability of Fall Alfalfa Regrowth, Last 42 years, Marshfield, WI
Probability
100
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Probability of more than 500 GDD
Probability of less than 200 GDD
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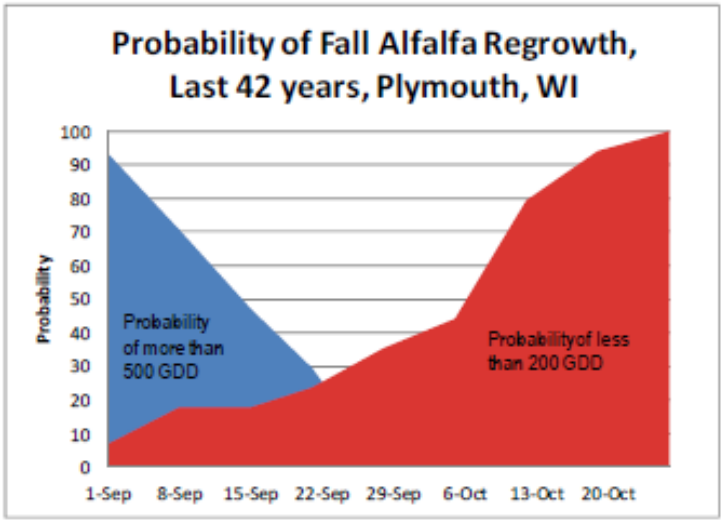
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct


Probability of Fall Alfalfa Regrowth, Last 42 years, Plymouth, WI
Probability
100
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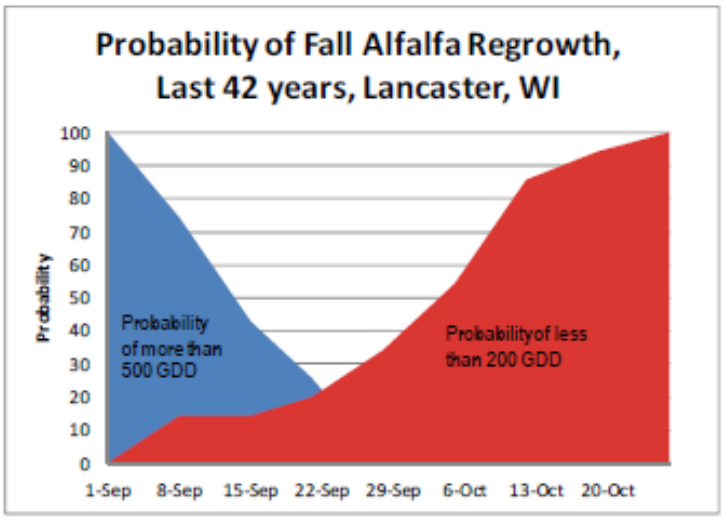
Probability of more than 500 GDD
Probability of less than 200 GDD
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct


Probability of Fall Alfalfa Regrowth, Last 42 years, Lancaster, WI
Probability
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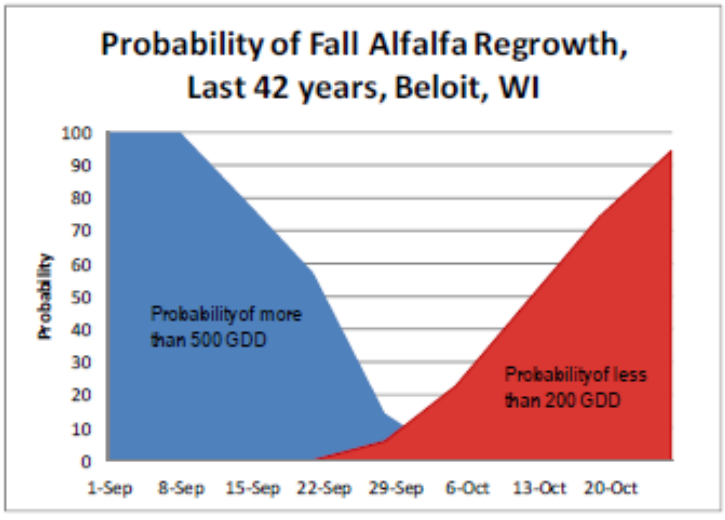
Probability of more than 500 GDD
Probability of less than 200 GDD
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct


Probability of Fall Alfalfa Regrowth, Last 42 years, Beloit, WI
Probability
100
90
80
70
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40
30
20
10
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Probability of more than 500 GDD
Probability of less than 200 GDD
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct

Demonstration/Strip Trials – What should you learn from them?

Joe Lauer, Corn Agronomist

The drought experienced this year has been unique. Drought occurs somewhere in Wisconsin nearly every production season. What has been unique this year is how widespread the drought is and the variability seen even between fields within a farm. In one field, corn might be barren and across the road good yields are measured. In many ways I was surprised to see corn hang-on as long as it did given the length of time no rain was received. In some of the fields yield-checked, we are finding ears with 16-18 kernel rows and 30-40 kernels per row.

Evaluating last year's 'experiments' and using the lessons learned will help with next year's crop. Some new practices work and fit into your management style, others don't.

Every fall many farmers visit and evaluate hybrid demonstration plots planted by seed companies and county Extension personnel, among others. When checking out these plots, it's important to keep in mind their relative value and limitations. Demonstration plots may be useful in providing information on certain hybrid traits, especially those that are usually not reported in state corn performance summaries.

Use field days to make careful observations and ask questions, but reserve any decisions until you have seen the "numbers." Appearances can be deceiving.

In general, there are **two major categories of on-farm research trials**. The first is replicated trials that try to account for field variability with repeated randomized comparisons. Examples include trials conducted by universities and by public and private plant breeders. The other type is non-replicated demonstrations such as yield contests, on-farm yield claims, demonstration/strip trials and farmer observation and experience.

Field variability alone can easily account for differences of 10 to 50 bushels per acre. Don't put much stock in results from ONE LOCATION AND ONE YEAR, even if the trial is well run and reliable. This is especially important in years with tremendous variability in growing conditions. Years differ and the results from other locations may more closely match your conditions next year. Use data and observations from university trials, local demonstration plots, and then your own on-farm trials to look for consistent trends.

A few suggestions on how to evaluate research test plots:

1. Walk into plots and check plant populations. Hybrids with large ears or two ears per plant may have thin stands.
2. Scout for pest problems. Hybrid differences for pest resistance and tolerance should be monitored and noted all season, but will be most apparent in the fall. Counting dropped ears is a good way to measure hybrid ear retention and tolerance to European corn borers.
3. Check for goose-necked stalks. This is often root pruning caused by corn rootworms. Hybrids differ in their ability to regrow pruned roots.
4. Find out if the seed treatments (seed applied fungicides and insecticides) applied varied among hybrids planted, e.g. were the hybrids treated with the same seed applied insecticide at the same rate? Differences in treatments may affect final stand and injury caused by insects and diseases.
5. Differences in standability will not show up until later in the season and/or until after a wind storm. Pinch or split the lower stalk to see whether the stalk pith is beginning to rot.
6. Break ears in two to check relative kernel development of different hybrids. Hybrids that look most healthy and green may be more immature than others. Don't confuse good late season plant health ("stay green") with late maturity.
7. Visual observation of ear-tip fill, ear length, number of kernel rows, and kernel depth, etc. don't tell you much about actual yield potential. Hybrid differences are common for tip kernel abortion ("tip dieback" or "tip-back") and "zipper ears" (missing kernel rows). Even if corn ear tips are not filled completely, due to poor pollination or kernel abortion, yield potential may not be affected significantly, if at all, because the numbers of kernels per row may still be above normal.
8. Be careful with test plots consisting predominately of one company's hybrids. Odds are stacked in their favor!
9. Other observations that should be made:
    - Dry down rate
    - Test weight
    - Disease damage
    - Grain quality
    - Ease of combine-shelling or picking

To Rotate, or Not to Rotate – What are you going to do in 2013?

Joe Lauer, Corn Agronomist

Crop rotation is a universal management practice that has been recognized and exploited for centuries and is a proven process that increases crop yields. In the Midwestern U.S., a biennial rotation of corn (*Zea mays* L.) and soybean [*Glycine max* (L.) Merr.] produces significant increases in the yields of both crops.

There are clear indications that the current corn-soybean rotation is unstable, easily disrupted by weather, disease, and insects, and rely heavily on foreign trade and biofuel production. Midwest cropping systems although productive, are highly specialized, standardized and simplified to meet increasing demands (Brummer, 1998; Kirschenmann, 2002).

Many of these cropping systems are approaching monoculture systems that need to incorporate technological advances, high fossil fuel based inputs, and genetic engineering to remain sustainable. Cropping systems specializing in one or two crops with little attention to crop diversity could lead to biological and physical soil degradation and ultimately soil chemical degradation (Kirschenmann, 2002). Nature's plant and animal diversity is currently replaced with a small number of cultivated plants and domestic animals (Altieri, 1999).

The mechanism for the rotation effect is unknown. One hypothesis is that one factor causes the effect. Another hypothesis is that multiple factors cause the effect and risk of expression depends upon the environment. Research evidence began mounting in the 1970's, which indicated that in spite of all the management inputs a farmer might impose, there was still a yield advantage to be obtained from rotations. These studies showed that corn yields are usually higher when the crop is rotated with some other crop rather than grown continuously. Yield advantages to corn from rotating with some other crop are at least 10%. In addition, soybean yields also improved by 10% when the crop is rotated out of a continuous pattern.

More research that is recent has shown this increase to be even greater than expected with responses up to 19% (Figure 1). The rotation effect lasts two years increasing corn grain yield 10 to 19% for 1C and 0 to 7% for 2C.

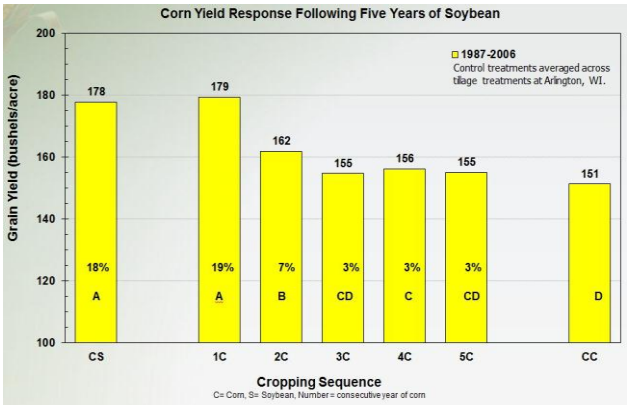

Figure 1. Corn yield response to rotation following five years of soybean during 1987 to 2006 at Arlington, WI. Letters indicate statistical differences at $P < 0.05$. Percentage values indicate relative differences compared to continuous corn.

Adding a third crop like wheat (Triticum aestivum L.) does not increase corn grain yield, but does improve soybean grain yield (Figure 2).

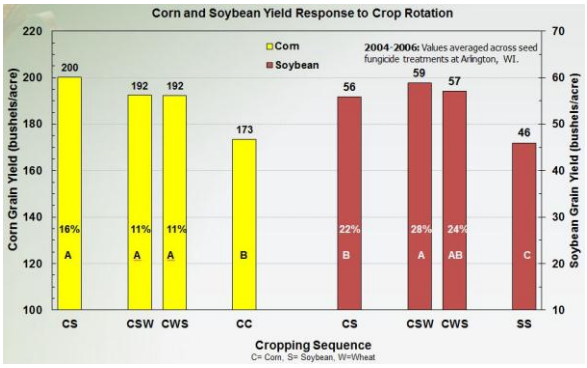

Figure 2. Corn and soybean yield response in a corn-soybean-wheat rotation during 2004 to 2006 at Arlington, WI. Letters indicate statistical differences at $P < 0.05$. Percentage values indicate relative differences compared to continuous corn or soybean.

If there is only a one-year break in the rotation then the second corn phase is equivalent to continuous corn (Figure 3).

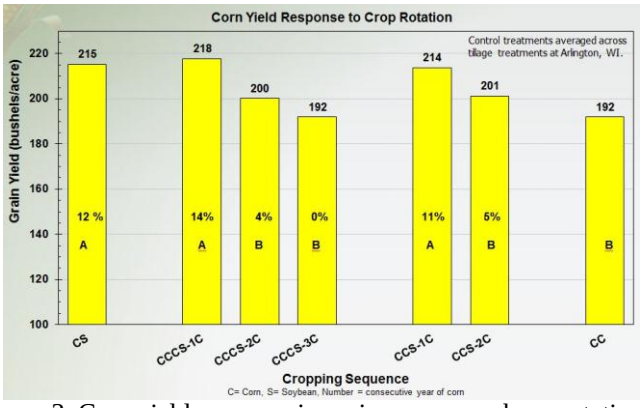

Figure 3. Corn yield response in various corn-soybean rotations during 1998 to 2000 at Arlington, WI. Letters indicate statistical differences at $P < 0.05$. Percentage values indicate relative differences compared to continuous corn.

At least two break years are needed to measure a response in the second corn phase compared to continuous corn (Figure 4).

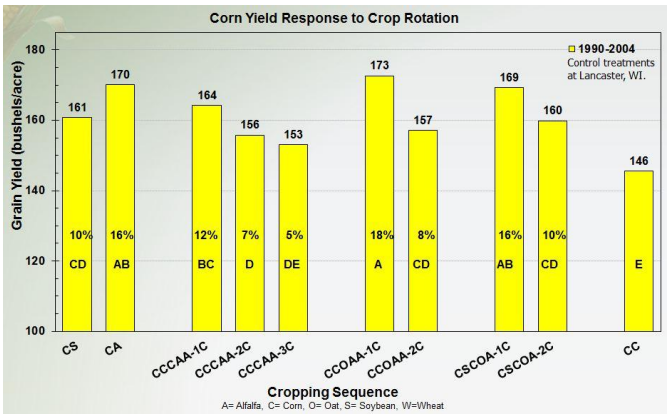

Figure 4. Corn yield response in various rotations during 1990 to 2004 at Lancaster, WI. Letters indicate statistical differences at $P < 0.05$. Percentage values indicate relative differences compared to continuous corn.

Although scientists cannot yet satisfactorily explain the rotation effect, farmers can exploit it every year. In 2013, more acres will likely be planted to a third year of corn. These acres will be at continuous corn yield levels regardless of the number of break years. It will be important for growers to consider getting back to rotating crops. The age-old practice of rotating crops, which for a while was considered unnecessary, has returned to today's agriculture with proven benefits.

Literature Cited

Altieri, M.A. 1999. The ecological role of biodiversity in agroecosystems. Agric. Ecosyst. Envron. 74:19-31.

Brummer, E.C. 1998. Diversity, Stability, and Sustainable American Agriculture. Agron. J. 90:1-2.

Kirschenmann, F. 2002. Why American agriculture is not sustainable. Renewable Resour. 20:6-11.

Further Reading

Cropping systems and rotations.
See http://corn.agronomy.wisc.edu/Management/L001.aspx

Vegetable Crop Update 10/18/12

The 26th issue of the Vegetable Crop Update is now available. This issue contains the late blight 2012 summary as well as information on the potato crop. Click here to view this update.

A New Virus of Soybean Confirmed in Wisconsin

Damon L. Smith (Plant Pathology, UW-Madison/Extension), Kyle Willis (USDA-ARS Vegetable Crops Research Unit and Department of Plant Pathology, UW-Madison)

This week our laboratory confirmed the presence of *Soybean vein necrosis-associated virus* (SVNaV) in soybeans sampled in Wisconsin. Samples were taken on severaldates during September and processed in our laboratory. Symptoms of the disease caused by the virus include yellowing (chlorosis) of the leaf veins, yellowing of the leaves, and browning (necrosis) of the leaf veins and leaves. The first report of the virus in the USA was from symptomatic soybean plants in Tennessee in 2008. Since this discovery in 2008, SVNaV has been confirmed in other states including Kentucky, Arkansas, Missouri, and most recently Wisconsin.

To Read More, Click Here For The Downloadable PDF

2012 Wisconsin Pest Management Update Meetings

The schedule for the Wisconsin Pest Management Update meeting series is listed below. Presentations will include pest management information for Wisconsin field and forage crops. Speakers will include Mark Renz and Vince Davis, weed scientists, Eileen Cullen, entomologist, and Damon Smith, plant pathologist.

All meetings will start with check-in registration and coffee at 9:30 a.m. Presentations start promptly at 10 a.m. and will conclude by 3:00 p.m. Four hours of Certified Crop Advisor CEU credits in pest management are requested for each session. The $35 registration fee per participant includes a noon meal and information packet.

Make your reservation with host agent one week prior to the scheduled meeting date.

DATE	LOCATION	HOST AGENT
Monday November 5	**Marshfield** Marshfield Agricultural Research Station 2611 Yellowstone Drive Marshfield, WI 54449	**Richard Halopka** Clark County Extension Courthouse Room 104 517 Court Street Neillsville, WI 54456 (715) 743-5121
Tuesday November 6	**Chippewa Falls** Lake Hallie Eagles Club 2588 Hallie Road Chippewa Falls, WI 54729	**Jerry Clark** Chippewa County Extension 711 N. Bridge Street Chippewa Falls, WI 54729 (715) 726-7950
Wednesday November 7	**Belmont** Belmont Inn & Suites (formerly Baymont Inn) 103 West Mound View Avenue Belmont, WI 53510	**Ted Bay** Grant County Extension P.O. Box 31 Lancaster, WI 53813 (608) 723-2125
Thursday November 8	**Arlington** Arlington Agricultural Research Station Public Events Building N695 Hopkins Road Arlington, WI 53911	**George Koepp** Columbia County Extension 120 W. Conant St., Ste. 201 Portage, WI 53901 (608) 742-9682
Monday November 12	**Fond du Lac** University of Wisconsin – Fond du Lac Rm 113 University Center 400 University Drive Fond du Lac, WI 54935	**Mike Rankin** Fond du Lac County Extension 227 Admin/Extension Bldg. 400 University Dr. Fond du Lac, WI 54935 (920) 929-3170
Tuesday November 13	**Green Bay** Rock Garden (Comfort Suites Hotel) 1951 Bond Street Green Bay, WI 54303	**Mark Hagedorn** Ag & Extension Service Center 1150 Bellevue St Green Bay, WI 54302 (920) 391-4612
Wednesday November 14	**Sparta** Jake's Northwoods 1132 Angelo Road Sparta, WI 54656	**Bill Halfman** Monroe County Extension 14345 County Hwy B Sparta, WI 54656 (608) 269-8722
Thursday November 15	**Janesville** America's Best Value Inn (formerly Best Western) 3900 Milton Avenue Janesville, WI 53546	**Jim Stute** Rock County Extension 51 S. Main Street Janesville, WI 53545 (608) 757-5696