



Extension Ag Update

providing education and research support to the agricultural industry
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Soybean Phytophthora Root Rot Survey

Dale Baird, Extension Educator – Crop Systems, Rockford Extension Center, 815-397-7714, bairdd@uiuc.edu

Soybean Phytophthora Root Rot (PRR) disease has become more common throughout the Midwest during the past five years. PRR is caused by a soilborne pathogen that has been kept in check in the past with PRR resistant or tolerant varieties. PRR resistant soybean varieties contain resistant genes or *Rps* genes that trigger the production of an antifungal compound in soybeans. Forty-five different races or strains of PRR have been identified but not all races have been confirmed in Illinois. The *Rps1-k* gene controls several common PRR races and is the most widely used *Rps* resistance gene in commercial varieties. However the *Rps1-k* gene is not effective against several of the “new” PRR races confirmed in the Midwest during the 1990s.

Dr. Dean Malvick, University of Illinois extension plant pathologist has initiated a PRR Survey. The survey objective is to isolate and identify possibly new PRR races in Illinois. If you suspect you have PRR in 2002 or have a field that has a history of PRR infection contact your local Extension office. A Crops or IPM Educator will collect soil and plant samples and forward them to Dr. Malvick for potential race isolation.

Seedling stage PRR is characterized by a bruised, soft, brown root rot before emergence or shortly after emergence. PRR at the seedling stage can easily be confused with Pythium or Rhizoctonia. Rhizoctonia can be confirmed by observing a reddish lesion on the root. Later season PRR is characterized by yellow, wilting and dying soybean plants. On closer inspection usually a distinct dark brown discoloration can be observed on the plant stem that extends upward from the soil line.

New Organic Labels

Ellen Phillips, Extension Educator – Crop Systems, Countryside Extension Center, 708-352-0109, ephillips@uiuc.edu

In order to label their agricultural products as organic for sale in the United States, organic production and handling operations must be certified to the national standards by USDA-accredited certifying agents by Oct. 21, 2002. Farms and handling operations selling less than \$5,000 of organic agricultural products annually are exempt from certification. However, they need to follow the national standards in order to label their products as organic, or be subject to a fine of up to \$10,000.

The national organic standards outlines four different options for labeling products based on the percentage of organic ingredients in a product.



- **100 percent organic**

These products are 100 percent organic ingredients and may use the USDA organic seal.

- **Organic**

Products must contain at least 95 percent organic ingredients by weight, excluding water and salt. These products may use the USDA organic seal.

- **Made with organic**

Products must contain between 70 to 95 percent organic ingredients.

- **Normal label**

Products that contain less than 70 percent organic ingredients can only list the organic items in the ingredient panel.

All products may list the actual percent of organic contents in the informational panel. There are specific rules for the actual dimensions allowed for the display of content information. The USDA organic seal can only be used on 100 percent organic and organic products, but this is voluntary and not required. The USDA has the responsibility for enforcing these new rules. The USDA is also responsible for overseeing and enforcing the entry of organic food products into the United States. All organic food products brought into and sold in the United States must also meet the new organic standards. Look for these new labels in the coming months.

▶ Internet Resources:



▶ 2002 Farm Bill

<http://www.usda.gov/farmbill/>

This USDA website has current information on the 2002 Farm Bill. The Web site is aimed at helping farmers, ranchers and the general public learn the latest information about the new farm bill. It will include farm bill program details, questions and answers, program applications and sign-up forms, as well as other important materials from USDA agencies on farm bill implementation. The site will also contain advanced electronic applications to help program applicants receive program benefits faster and more efficiently.

Side-By-Side Comparison of the New Farm Bill with 1996-2001 Farm Legislation

www.ers.usda.gov/Features/FarmBill/

This Economic Research Service website summarize present and past legislation. This comparison offers a time-saving reference to Farm Bill provisions.

Scouting for corn nematodes

<http://www.extension.iastate.edu/Publications/IPM53S.pdf>

Soybean aphid: Current research and information

<http://www.nsruiuc.edu/news/html/973531983.html>

Soybean Aphid Factsheet – Univ. of Wisconsin

http://ipcm.wisc.edu/news/pest/soybean_aphid_2002.pdf

Crop Management Journal

www.cropmanagement.org

The on-line journal is designed to facilitate quick communication among creators and users of applied crop management information.

Rural Cooperatives Magazine

<http://www.rurdev.usda.gov/rbs/pub/>

Research

Straw-Fiber Packaging Within Grasp Soon

ARS News Service. Agricultural Research Service, USDA, Marcia Wood, (301) 504-1662, MarciaWood@ars.usda.gov

Today's leftover rice and wheat straw might tomorrow be used in making environmentally friendly packaging materials or other biobased products. The molded polystyrene forms that hold computers or electronic components snugly in their shipping cartons, for example, could be replaced with biodegradable inserts made—in part—from straw fiber. That's according to Agricultural Research Service chemist William J. Orts. He is leader of the Bioproduct Chemistry and Engineering Unit at the ARS Western Regional Research Center in Albany, Calif.

Orts directs studies that are revealing how cellulose-rich fibers from straw hold up during pulping. The pulping process results in a slurry of straw, water and additives, such as clays and starches, that are dried and molded into rigid shapes. Straw fibers must perform predictably so that the finished pulp product is uniform, according to Orts. Otherwise, manufacturers might opt to stay with familiar raw materials instead of choosing straw.

Orts is collaborating in the studies with Regale Corporation, a California-based designer and manufacturer of customized packaging made from recycled materials. In new tests at the Western Regional Research Center, Orts and co-researchers are putting rice and wheat straw through a modified hot-water and a conventional chemical-based pulping process. The researchers hope to discover variations that could lower costs. That could boost the appeal

of rice or wheat straw as an economical manufacturing option.

Packaging materials and other biobased products from straw could give growers a new, profitable market for straw that today is plowed under or perhaps sold for animal feed or bedding. The amount of straw produced each year is enormous. In California alone, the annual rice crop generates more than 300,000 tons of straw. And the state's wheat crop yields an estimated 400,000 tons of straw.

New Process for Tenderizing Meat

Scientist: James Claus (608) 262-0875, jrclaus@facstaff.wisc.edu

Source: George Gallepp (608) 262-3636, Agricultural and Consumer Press Service College of Agricultural and Life Sciences, 440 Henry Mall, Research Division, Madison WI 53706, (608) 262-1461, University of Wisconsin-Madison

A new process that instantly tenderizes boneless meat could help packing houses produce consistently tender, moist cuts of beef, according to a University of Wisconsin-Madison meat scientist. "We can take cuts such as top rounds, eye of rounds, or rib and loin steaks and improve their tenderness by 25 percent to 30 percent in the blink of an eye," says James Claus of the Department of Animal Sciences. "This could have an enormous impact on the meat industry's ability to produce more tender products.

"Cuts that are already tender, such as filet mignon, don't need to be more tender," Claus says. "The new process increases the tenderness of cuts from the least tender animals the most. The greatest improvement is in meat cuts that are leaner and less marbled, which are typically from the lower USDA beef quality grades. The result is that meat treated this way

will be more consistently tender.” Tests show that the method also works well on pork and chicken breasts. Claus found a 28 percent improvement in the tenderness of pork loins, for example. To tenderize beef, the industry currently may age meat for one to two weeks, use blades or needles that slice into or puncture meat cuts, or add plant enzymes to the meat. Claus’s tests at the UW-Madison’s Meat and Muscle Biology Laboratory showed dramatic increases in tenderness of unaged meat.

The new method performs as well as or better than blade tenderization, he says, and it doesn’t break the surface of meat. (Processes that break the meat surface increase the risk of bacterial contamination.) Another advantage of the process is that nothing is added, such as plant enzymes, which may give meat an undesirable flavor or texture. The new process uses electrically generated hydrodynamic shock waves. Like a sonic boom traveling through the atmosphere, the shock wave speeds through the meat breaking apart some of the tiny fibers in the muscle cells. In addition to improving tenderness, this process also improves the ability of meat to absorb and retain moisture, according to Claus. He says the method does not change the meat’s flavor or color. Hydrodyne Incorporated of San Juan, Puerto Rico holds patents for tenderizing meat with electrically created hydrodynamic shock waves. The company provided the machine Claus evaluated. His experiments at the College of Agricultural and Life Sciences were supported in part by grants from the Wisconsin Beef Council.

The concept of tenderizing with shock waves is not new. An earlier Hydrodyne method attempted to tenderize meat using explosives to generate the shock waves. The new electrical-based system produces higher shock wave pressures and allows an operator to treat meat

more than once if needed for greater tenderness. The unit Claus used takes as much space as a small pickup truck and does not require any unusual electrical current. Claus says the meat industry may find the process especially useful in tenderizing what are known as sub-primals and individual muscles used to produce case-ready steaks. Claus also used the machine to tenderize beef and pork cuts before injecting marinade. The treated cuts retained 5 percent more marinade, which improved their juiciness.

The process also could be used in preparing broilers for market. “It would allow that industry to remove breast meat from bone immediately rather than storing the birds in ice first. We found that breasts removed immediately and subsequently treated post-rigor with this shock-wave method were as tender as breasts harvested using the current method,” Claus says.

Resources to Consider

The Illinois Manure Management Plan Workbook

*Scientist: Randy Fonner, Extension Specialist, (217) 333-2611, refonner@uiuc.edu
Source: Leanne Lucas, (217) 244-9085, llucas@uiuc.edu*

University of Illinois Extension specialists have developed a new workbook that will guide livestock producers through the mire of manure management. The Illinois Manure Management Plan Workbook is a user-friendly resource that takes producers step-by-step through the development of a manure management plan. Developed by U of I Extension specialist Randy Fonner and Ted Funk, agricultural engineer, the resource assists livestock producers in complying with Illinois regulations.

In 1996, Illinois passed the Livestock Management Facilities Act, which requires livestock

producers with over 300 animal units to receive training in manure management handling. Producers with over 1,000 animal units must have a written manure management plan available for inspection and submit a form certifying the existence and location of their plan. Producers with over 5,000 animal units must have their management plan approved by the state.

To begin the planning process, step one in the workbook lists all of the information that producers need to complete a plan. Fonner stressed the importance of this step. “Pull your information together, all of it, before you sit down and do your plan,” he said. “If you’re missing pieces, every time you get up to look for something, you risk getting sidetracked and never getting back to it.”

Subsequent steps detail a specific section of the regulations and include a sample form to help complete that step. The workbook also provides instructions on filling out each of the forms, tips to help producers organize their information in a separate three-ring binder and suggestions on when and how to update their plan. An extensive appendix offers additional information relevant to livestock management.

Once a producer has gathered all the information required in step one, Fonner believes anyone can walk themselves through the process in four to six hours. “Just remember,” he emphasized, “everything must be in writing. You must show your calculations and you have to justify your numbers. If you say your yield is 300 bushels of corn per acre, then you better be able to prove it.”

After producers have completed their plans, most of the data entry is behind them. “Then the hardest part may be keeping track of what you’re doing during the year and having those

notes available when you go to do your update,” Fonner said. Keeping your plan updated is also crucial, he stressed. For example, producers are required in their plan to show a four-year crop rotation. But what if they change their minds? “Account for that in your update,” Fonner said. “Nobody’s going to hold your toes to the fire, just because you say you’re going to plant corn there in 2005. That’s a long way away. Who knows what will change? Just account for those changes.”

The workbook has been designed to be used with or without a computer. According to Fonner, “There are probably six-to-eight software packages out there that will help crunch numbers and print reports, but none of them will do the whole plan.” However, the package producers receive will include a CD that has a copy of the manual and copies of the Excel spreadsheets used in the manual. More information can be found at www.livestocktraining.com.

For producers who want more hands-on training, workshops are held around the state 10 to 12 times a year. Because the program is intense, only four or five producers attend each workshop. Attendees are given two- to three-weeks’ notice to compile their records. Then, together with Extension instructors, they work through the day to put together their management plan. “Producers don’t get into the business of raising livestock because they like to shuffle papers,” said Fonner. “A manure management plan is just one more thing they’re required to do. We put this book together to help them do their job. It’s complete. It ties it all together.”

The Illinois Manure Management Workbook is available for \$45 plus postage and can be ordered through the U of I College of Agricultural, Consumer and Environmental Sciences marketing and distribution office at 1-800-345-6087.

New Yield Estimates Available for Illinois Soils

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Updated crop yield estimates for every soil type in Illinois, now available through the University of Illinois, will help meet needs of farmers, land appraisers and government agencies, according to Ken Olson, professor of pedology.

Two publications released by the College of Agricultural, Consumer and Environmental Sciences provide soil productivity ratings for over 700 Illinois soil types. Average Crop, Pasture, and Forestry Productivity Ratings for Illinois Soils or Bulletin 810 provides the 10-year average crop yields under the average management used by all Illinois farmers in the 1990s. Optimum Crop Yields for Illinois Soils or Bulletin 811 shows the 10-year average crop yields under an optimum level of management used by the top 16 percent of Illinois farmers for all soil types.

“The average (productivity rating) tends to be used by farm managers and for land tax assessment purposes,” Olson said. “The optimum (productivity rating) tends to be used for land appraisal, sales, and some government agencies.” Determining how much property tax a farmer will pay is one use of the average productivity ratings. The average management standard represents the crop yields that are obtained or exceeded by 50% of the Illinois farmers, he said.

“In Illinois, agricultural land assessment is based on the average condition including the crop rotations used in the region and does not force users to the optimum management level

or require more row crops in the rotation” Olson said. “Land users who manage their farms at an optimum level have greater input costs which offset part of the profits from higher crop yields. In an attempt to be uniform and fair to all land owners, they all pay land taxes based on the average level of management.” The information can also be used for land use planning, sustainable farm management and accurate land appraisal. Past, present and future yields may be applied to land valuation, crop insurance, nutrient management plans and other farm business, he said.

Yield data was gathered from the previously established yield estimates for each soil based on 1970s data and updated using 20-year crop yield trends, Illinois Agricultural Statistics Staff records, summary of Illinois Farm Business Farm Management records, research plots, variety trials, check plots on farmer’s fields and crop yield monitors coupled with global positioning systems, Olson said.

County soil survey reports and maps, prepared as part of the ongoing, 100 year old Illinois Cooperative Soil Survey Program, are used to match soil types located on a farm or parcel with yield data. Much of this soil survey data was collected during the last 25 years and exists for every county in the state, he said. “We’re assuming that the soil doesn’t change dramatically in a 25 year period, but yields, if they were assigned 25 years ago, would be different than they are now,” Olson said. “So that’s why we’re using the up-to-date yields for the same soil.”

Crop and forage rotation was also a factor in determining the soil productivity ratings. Federal farm bills and the state “T by 2000” program with conservation provisions have caused Illinois farmers to alter practices and crop rotations to reduce soil loss from erosion.

The productivity ratings offered in the publications are a good indicator of the suitability of soils for crop production, Olson said. The ratings can be used to determine the best use and management of soils. The average soil productivity ratings in Bulletin 810 range on a numeric scale from 43 to 130. The highest rated soil, Muscatine silt loam, was assigned a rating of 130. The 10-year average crop yield estimates for all other soils in the state are compared with the 10-year average crop yields of Muscatine silt loam to determine productivity indices for the other soils. For example, Drummer, the new official Illinois State soil, has an average productivity rating of 127.

Also, the publications show a simple method for adjusting yields and productivity for slope and erosion, he said. "The objective is to have all the soils expressed on the same standard and we recognize that management level affects yield unless there is an unusual year with a drought or flooding," Olson said.

The Average Crop, Pasture, and Forestry Productivity Ratings for Illinois Soils bulletin also includes information on pasture and the effects of soil on tree growth for seven tree species. "It's a multi-use data set." Olson said. "It's not specific for one purpose - conservation, nutrient management, crop production or appraisal. It's got a variety of uses."

Copies of Bulletin 810 and Bulletin 811 can be obtained for \$3.00 and \$2.50, respectively, by calling toll free 800-345-6087. Up-to-date versions are available for no charge in PDF format online at <http://research.nres.uiuc.edu/soilproductivity/>.

New U of I Extension E-mail Addresses

Extension staff are transitioning to new e-mail addresses. In most cases addresses will be members first initial and last name followed by "@uiuc.edu". For example nstaff@uiuc.edu. County Unit office e-mail addresses will remain the same as they have been in the past. Please update your e-mail address book.

National Pesticide Information Center (NPIC)

www.npic.orst.edu

NPIC provides comprehensive information to the public on specific pesticide chemicals, including toxicological and medical information. The Center is funded by the EPA and housed at Oregon State University.

Contact the center at 800-858-7379 from 7:30 a.m.–5:30 p.m. (MST)

Understanding Soil Phosphorus: An Overview of Phosphorus, Water Quality, and Agricultural Management Practices

Scott Sturgul, Nutrient Management Specialist, NPM Program and Dr. Larry Bundy, Professor Soil Science Department of Soil Science

http://ipcm.wisc.edu/pubs/nutrient/Soil_Phosphorus2002.htm

This color publication discusses issues associated with phosphorus and its potential for impact on the environment. Specific topics include the phosphorus cycle, nomenclature, sources, transport, and a summary of agricultural management practices for minimizing the impact of phosphorus on water quality. p. 32

Copies can be ordered from the NPM Program at 608-265-2660 or npm@hort.wisc.edu.

Urban and Agricultural Communities: Opportunities for Common Ground

www.cast-science.org

In addition to food, fiber, ornamental plants and forestry production, this report defines agriculture as including major components that range from food safety technologies to natural resource programs and to the people and organizations involved in agricultural policy, public education, and related agricultural

service industries. The report provides an extensive discussion of the ways that agriculture already contributes to urban communities, such as storm water management, air quality, and economic benefits as well as community and human health and recreational opportunities. It also proposes initiatives that the agricultural system, higher education programs and governments must undertake jointly to remain relevant to society. Research, extension and educational opportunities are addressed for each initiative described in the report. The report suggests five important initiatives within which agriculture can play a significant role.

For a copy go to the CAST website or contact the Council for Agricultural Science and Technology, 4420 West Lincoln Way, Ames, IA 50014-4512, Phone: 515-292-2125, Ext. 31

The Next Green Revolution: Essential Steps to a Healthy, Sustainable Agriculture

James E. Horne, Ph.D. and Maura McDermott, 2002
Horne is president of the nonprofit Kerr Center for Sustainable Agriculture in Poteau, and McDermott is communications director of that same institution. Topics include: major problems of contemporary industrial agriculture, historical roots of sustainable agriculture, definitions of sustainable agriculture, the politics of sustainable agriculture, ways to demonstrate sustainable agriculture practices, changes needed to encourage a sustainable agriculture, and the eight steps to a sustainable agriculture which address soil health and erosion, water quality and use, organic waste management, crop and livestock adaptation, biological diversity, environmentally-benign pest management, energy use, and farm diversification and profitability.

To order contact the Kerr Center at 918-647-9123 or from Haworth Press, 1-800-HAWORTH

A Practical Guide to Prairie Reconstruction

Carl Kurtz

This book provides a concise overview of the planning, establishment and maintenance of a reconstructed prairie. The book includes more than 20 beautiful color photographs and an extensive list of suppliers and references.

For a copy contact: University of Iowa Press, 100 Kuhl House, Iowa City, IA, 52242-1000. Phone: 319-335-2000 or 773-568-1550, Fax: 319-335-2055. On the web at: <http://www.uiowa.edu/~uipress/>, E-mail: uipress@uiowa.edu

The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems

Dana Jackson, Land Stewardship Project Associate Director and Dr. Laura Jackson, University of Northern Iowa – Biology

This book promotes the idea that restoration of a relationship between farming and the natural world enhances the sustainability of both.

Contributors bring together insights and practices from the fields of conservation biology, sustainable agriculture and ecological restoration to link food and farming to biological diversity, and celebrate a unique alternative to conventional agriculture. Rejecting the idea that “ecological sacrifice zones” are anecessary part of feeding a hungry world, the book offers compelling examples of an alternative agriculture that can produce not only healthful food, but also fully functioning ecosystems and abundant populations of native species.

To order this 250-page book, log onto the Island Press Web site at www.islandpress.org and click on the “Spring ’02 Catalog.” You can also order from the publisher by calling toll free 1-800-828-1302.

Rural Route 2 at 1-800-468-1834

<http://www.extension.uiuc.edu/ruralroute/>

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About the Ag Update Newsletter

The Ag Update Newsletter is a bi-monthly newsletter providing education and research support to the agricultural industry. Current and past issues may be found at the following website <http://www.urbanext.uiuc.edu/agupdate/index.html>

Contact your county Extension office and request to be put on their agricultural mailing list to receive the local agricultural newsletter and notices about upcoming agricultural events near you. To find your counties location, phone and website go to: <http://web.aces.uiuc.edu/ve/>

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