

Extension Ag Update



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Pesticide Trends in Corn Belt Streams and Rivers

*Ellen Phillips, Extension Educator, Countryside Extension Center, 708-352-0109,
ephillips@illinois.edu*

The US Geological Survey recently released the results from the NAWQA Pesticide National Synthesis Project, which began in 1992. It is a national-scale assessment of the occurrence and behavior of pesticides in streams and ground water of the United States. The potential for eleven pesticides to adversely affect drinking-water supplies and up to 31 stream aquatic ecosystems were assessed for two time periods: 1996–2002 and 2000–2006. Pesticides included in the analyses were atrazine, acetochlor, metolachlor, alachlor, cyanazine, EPTC, simazine, metribuzin, prometon, chlorpyrifos, and diazinon.

The results showed that streams in both agricultural as well as many urban watersheds almost always have 3 or more pesticides present throughout 85-90 percent of the year. During about a fourth of the year, the streams can have nine or more pesticides in the aquatic ecosystem at one time. This combined pesticide toxicity is a concern since there is limited research on the effects of the combined effects of pesticides verses having just one pesticide present.

Samples of groundwater also showed mixtures of pesticides, although there is less contamination than in streams. About half of the shallow wells in agricultural areas and about one third of shallow wells in urban areas, contained 2 or more pesticides.

The study found showed that the level of some pesticides in streams decreased over the last decade. What can we do to minimize pesticide contamination of our environment? Many of the same methods used to prevent soil erosion and runoff also help to lower pesticide runoff. Filter strips have proven to be quite effective at reducing pesticide runoff. To minimize groundwater contamination, it is important to avoid soil contamination during mixing and loading of equipment. Avoid mixing pesticides close to wells. Installing a rinse pad or utilizing a nurse tank of water to move the mixing site to different locations are both effective ways to minimize soil contamination. Lastly, utilizing a hose air gap or a check valve to prevent back siphoning into the water source is a simple way to protect well water. For more information about the study results go to website: <http://water.usgs.gov/nawqa/pnsp>.

RESEARCH RESULTS

Nine Weeds Confirmed Glyphosate-Resistant

Source: Weed Science Society of America

Weed Science Society of America recently reported that nine weed species in the United States now have confirmed resistance to glyphosate. Among these weeds are strains of common ragweed (*Ambrosia artemisiifolia*), common waterhemp (*Amaranthus rudis*), giant ragweed (*Ambrosia trifida*), hairy fleabane (*Conyza bonariensis*), horseweed (*Conyza canadensis*), Italian ryegrass (*Lolium multiflorum*), johnsongrass (*Sorghum halepense*), Palmer amaranth (*Amaranthus palmeri*) and rigid ryegrass (*Lolium rigidum*).

In Illinois, there are 11 different weed species/ bio-types resistant to one or more families of herbicides. A factsheet, "Recommendations for Management of Glyphosate-Resistant Waterhemp in Illinois Soybean" is available at:
<http://weeds.cropsci.illinois.edu/extension/factsheets/whempsoy.pdf>

Scientists Find Ozone Levels Already Affecting Soybean Yields

Source: Stephanie Yao, USDA ARS News Service, 301-504-1619, stephanie.yao@ars.usda.gov

Current atmospheric ozone levels are already suppressing soybean yields, according to Agricultural Research Service (ARS) scientists and university cooperators studying the effect of global climate change on crops. ARS plant physiologists Don Ort and Carl Bernacchi, molecular biologist Lisa Ainsworth and geneticist Randall Nelson have been working with University of Illinois scientists on a project called "SoyFACE"--short for Soybean Free Air Concentration Enrichment--to measure how the projected increases in carbon dioxide (CO₂) and ozone will affect soybean production. This research supports the U.S. Department of Agriculture priority of responding to climate change.

In their studies, the scientists found that soybean yields increase by about 12 percent at the elevated CO₂ levels predicted for the year 2050 (550 parts per million)--only half of what previous studies estimated. They also found that increased ozone is quite harmful to soybean yields, reducing them by about 20 percent. In addition, current levels of ozone are already suppressing soybean yields by up to 15 percent, according to Ort, who is also research leader of the ARS Photosynthesis Research Unit in Urbana, Ill.

These results led the scientists to examine the combined effects of CO₂ and ozone changes on soybeans. They found that elevated CO₂ partially offsets the ozone damage, confirming general results obtained with open-top chamber studies conducted at other ARS laboratories.

The ability of SoyFACE technology to test effects of CO₂ and ozone in the open air, without the environmental modifications caused by the chambers themselves, means greater confidence in understanding how plants respond in the real world, including the actual estimates of impact on crop yields, according to Ort.

RESOURCES TO CONSIDER

Publications Plus –*University of Illinois Agricultural and Horticultural Publications*
Call 1-800-345-6087 or order on the web www.PublicationsPlus.uiuc.edu
It's a one-stop shop for a current catalog of research-based information (Mastercard and VISA accepted)

Field Crop Scouting Manual (6th ed.), X880e

The 2010 edition of The *Field Crop Scouting Manual* is designed to help agricultural professionals identify and evaluate common problems in the field. The manual describes scouting, crop monitoring, and sampling techniques that will help you identify and monitor pests that are a threat to field crops in the Midwest. It provides a context for using that information as a fundamental part of an Integrated Pest Management production program. It is also available as a CD-ROM. Order from Publications Plus.

Host plant resistance to the soybean aphid

<http://www.ent.iastate.edu/soybeanaphid/files/2009SBAHPRfactsheet.pdf>

The availability of aphid-resistant soybeans is increasing, and so is the amount of information available to growers interested in this new tool for preventing yield loss from the soybean aphid. Drs. Hodgson and O'Neal describe the source of soybean aphid resistance and results from two years of field testing.

New Soybean Publications

- Variety Information Program for Soybeans (VIPS) – 2009 data
- Help Stop Glyphosate Resistance brochure
- Foliar Fungicides for Soybean: Playing the Odds

To order, contact the National Soybean Research Laboratory, (217) 244-1706,
nsrl@uiuc.edu, <http://www.nsrl.uiuc.edu/>

INTERNET RESOURCES

Winter Storm Resource Center

<http://urbanext.illinois.edu/winter>

This website includes links to Illinois highway conditions, Amtrak schedules, Chicago Transit Authority routes, various airports, tips for driving in the snow, how to start a dead battery, getting your car ready for winter, and other help information.

Emerging Issues in White-tailed Deer Management and Conservation

<http://www.extension.purdue.edu/extmedia/FNR/FNR-416-W.pdf>

White-tailed Deer have the ability to change the structure and composition of forests throughout their range. This coupled with their proliferation have led some to term the whitetail an ecological keystone species. However, they are a keystone species in many other ways, including economics, social values and traditions, aesthetics, disease, and more. This is a 32-page conference proceedings from a meeting held in February 2009.

Farm Energy: How Much Energy Is Being Used on Your Farm?

<http://www.extension.iastate.edu/Publications/PM2089A.pdf>

Offers initial steps that help farmers analyze their farm energy use.

Small-Scale Wind Energy on the Farm

<http://attra.ncat.org/attra-pub/summaries/smallscalewindenergy.html>

A summary of wind energy options for small farms.

Managing Financial Tough Times for Livestock Producers

<http://www.extension.iastate.edu/livestock/managingFinancialLivestock.htm>

Created by Iowa State University to help livestock producers make tough decisions in tough times.

Renewable Energy Opportunities on the Farm

<http://attra.ncat.org/attra-pub/PDF/energyopp.pdf>

A review of different energy resources for farms.

Milking More than Profit: Life Satisfaction on Wisconsin Dairy Farms

<http://www.cias.wisc.edu/wp-content/uploads/2008/07/qol707final.pdf>

A look at more than the bottom line on a dairy farm.

Farm Income Data

<http://www.ers.usda.gov/Briefing/FarmIncome/>

This includes a forecast of the farm sector balance sheet for 2009 along with the annual estimates prepared for 2008 and earlier years. The 2008 estimate incorporates estimates of land values released by NASS on August 4, 2009.

Farm Household Economics and Well-being

<http://www.ers.usda.gov/Briefing/WellBeing/>

The Farm Household Economics and Well-Being briefing room focuses on indicators of the economic well-being of the households of the principal operators of family farms. It includes USDA's latest forecast for 2009. Indicators of well-being include household income and wealth (from both farm and off-farm sources), and indicators of health insurance coverage. The briefing room compares the financial well-being of farm households relative to all U.S. households, identifies the contributions of off-farm employment, non-farm self-employment, transfer payments, and financial market investments in household income, and discusses how taxes influence both income and wealth.

The World Bank: Climate Change

<http://beta.worldbank.org/climatechange/>

This website provides an overview of the World Bank's current projects, data sets, research papers, and books in a variety of multimedia formats. Information about innovative carbon trading programs, engineering projects, and international agreements designed to mitigate the effects of climate change.

EDUCATIONAL OPPORTUNITIES

University of Illinois Agriculture Events

New programs are being confirmed every day. Keep in touch with your Extension Office for programs addressing the topics that interest you and are offered in your County. To find your counties website go to: <http://web.extension.uiuc.edu/state/findoffice.html>

Statewide University of Illinois Extension Calendar Website

<http://web.extension.uiuc.edu/state/calendar.cfm>

To search for programs throughout the state, check out Extension's searchable calendar. Search by location, topic or date to find a program of you interest.

AG FACTS

Legumes as a nitrogen source – How much do they provide?

Accounting for the available nitrogen credit, you can significantly reduce your cost of production.

- Alfalfa stand (70-100% alfalfa, 4 plants per sq. ft.) = 100 to 190 lbs. of nitrogen per acre
- Alfalfa stand (30-70% alfalfa, 1.5 to 4 plants per sq. ft.) = 70 to 160 lbs. of nitrogen per acre.
- Red clover or birdsfoot trefoil = 80 to 130 lbs. of nitrogen per acre
- Soybean = 1 lb of nitrogen per bushel produced, a maximum credit of 40 lbs. per acre.

Source: ipcm.wisc.edu

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/>

For further information about this newsletter, please contact:

Ellen Phillips
Extension Educator – Crop Systems
Countryside Extension Center
University of Illinois Extension
6438 Joliet Rd.
Countryside, IL 60525
(708) 352-0109
ephillps@uiuc.edu