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COURT NEWS

County widow sues insecticide maker

By **Judy Harrison**
BDN Staff

BANGOR, Maine — An Aroostook County widow has sued a fertilizer company, claiming that it contributed to her husband's death at the age of 53 in September 2007.

Violet Montgomery of Woodland contends that the insecticides in Ortho Home Defense, manufactured by the Scotts Co. of Marysville, Ohio, caused health problems and aggravated existing conditions, which ultimately caused the death of Edward Montgomery. The widow also claims that the product, which her husband bought and used to eradicate an infestation of insects at their home, also caused her health problems.

Neither the cause of death nor the specific health problems suffered by either Montgomery are outlined in the complaint.

Ortho Home Defense is a line of products that kill many varieties of insects, including ants, spiders, ticks, wasps and termites, according to the company's Web site, www.orthohomedefense.com.

Montgomery's complaint does not specify the kind of insects the couple wanted to control.

Scotts, in its answer to the lawsuit, has denied that its product is unsafe and argued that the Montgomerys' misuse of the insecticide may have contributed to their health problems.

The lawsuit, originally filed in August in Aroostook County Superior Court, was moved to U.S. District Court in Bangor this week at the request of attorneys for the Scotts Co.

A trial date has not been set.

Peter Kelley, the Caribou attorney for Violet Montgomery, declined Thursday to give details about the circumstances surrounding Edward Montgomery's death other than those outlined in the complaint.

Efforts to reach Mark Kenney, the Portland attorney for Scotts, were unsuccessful Thursday.

According to the complaint, in the early summer of 2006 Edward Montgomery purchased Ortho Home Defense at the Wal-Mart in Presque Isle.

He and his wife "were exposed when they made several applications of the insecticide in and about their house during the summer of 2006, from which they both developed health problems and aggravated pre-existing conditions and-or contributed to the death of Edward Montgomery on Sept. 2, 2007, and caused serious health problems to Violet Montgomery," it states.

The widow is seeking unspecified compensatory and punitive damages.

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Portland Press Herald Maine Sunday Telegram

A heap of disagreement

You might think when to rake and other such debates are mulch ado about nothing – perhaps only tines will tell ...

By RAY ROUTHIER, *Staff Writer*

October 11, 2009



Fall leaves are beautiful, but what comes down, must be picked up.

Raking leaves can be a wonderful family activity, allowing everyone to frolic in the crisp fall air while learning about nature and working together to ... blah, blah, blah.

We've heard it all before. Might even be true.

But when you take a harder look at leaf raking, the cold truth is that this iconic fall activity has the potential to bring up one dilemma after another.

Leaf raking, at its core, is about resolving a series of autumnal debates that can leave your hands calloused and your mind numb: Raking early and often versus raking late; raking versus mowing; bagging versus

hauling; wheelbarrows versus tarps; metal rakes versus plastic; plastic rakes versus bamboo.

"I am a big fan of bamboo over plastic. The plastic ones are too stiff and the tines don't stay in contact with the ground long enough to move very many leaves," said Peter Moulton, 53, of South China, who obviously has thought long and hard about this particular debate. "My bamboo rake has plenty of spring to it. I compare raking with a plastic rake to painting with a board instead of a paintbrush."

With autumn color getting to be peak in some parts of the state, leaves are starting to pile up on our lawns. And you need to do something with them, right? If you leave a wet mat of leaves on your lawn all winter, they will be there, soggy as ever, in the spring.

And if you plan to use your yard at all, you don't want that.

Some folks will be out raking every weekend throughout the fall. Some won't grab a rake until Thanksgiving. Some won't grab a rake at all, choosing a blower or mulching mower instead.

To help you decide which side you come down on in these great raking debates, let's take a look at several of the hard choices raking prompts each fall, including some of the facts you may not have considered.

EARLY AND OFTEN VERSUS LATE

The early and often theory is practiced by folks who are very persnickety about their lawn and want it looking neat and clean all the time.

"The neighbors who keep theirs raked every week are probably the ones who are encouraging you to go rake yours," said Terry Skillin, who sells all sorts of leaf-collection gadgets at his Skillin's Greenhouses in Falmouth, Cumberland and Brunswick. "But how often you rake really depends on what you want to do."

But there is some science to back up the early and often camp.

"If you have a nice lawn and let leaves sit on the grass for any period of time, you could damage that area," said Gary Fish, coordinator for the Maine Yardscaping Partnership, which promotes sustainable landscaping practices. "Fall is one of the best times for improving your lawn's root system, to fertilize and let the sunshine get to that grass."

If you're not looking for a picture-perfect lawn, then letting the leaves pile up for a few weeks is probably not a huge deal, said Fish.

But then there's the old-fashioned New England ethic of being as efficient as possible. And that's where the raking after the last leaf drops comes in.

"I try to wait, because I can't stand doing things twice," said Arlene Kerr of West Paris.

RAKING VERSUS MOWING

Kerr likes to rake instead of mowing or blowing leaves, because she feels she's getting up dead grass at the same time, and helping her lawn.

Fish likes to mow with a mulching mower. There's less chance of blisters and tired arm muscles. And Fish feels he's helping his lawn too, because mulched leaves provides nutrients for the grass to feed on.

Fish puts mulching blades on his two mowers – a single-blade push mower and a triple-blade rider. He basically tries to mow as soon as he gets a covering of leaves. If the covering of leaves gets too thick, the mulch might turn out to be big gloppy piles instead of a fine mulch that can blend in with the grass.

The only problem with mulching, says Fish, is that if the fall weather is unusually dry, the leaves might not decompose in your lawn as quickly.

But if you mow instead of rake, you lose some of the charm and nostalgia attached with leaf raking this time of year.

"There's a whole ritual attached with falling leaves," said Kerr. "You have a pork roast or vegetable stew cooking, so that when you come in for a cup of coffee, you smell all that."

BAGGING VERSUS MULCHING

If you're not lucky enough to live near woods where you can dump your leaves, as Moulton does, then you probably have to bag them. This usually takes longer than the raking.

One way to speed it up, Skillin says, is to buy a pair of those big plastic "scoops" sold in the rake aisle. They can be as cheap as \$5 and look like Frisbees with teeth that you strap to your hands. But Skillin says they can help you pick up two or three times as many leaves at one time.

Hardware stores also sell big plastic funnels that fit on your bag and help you dump leaves in more quickly and efficiently, says Skillin. And they also are priced in the \$5 range.

Or you could mulch with a mower, like Fish does. Though Fish says if your trees have exhibited any signs of fungal disease – usually indicated by a target-like mark on the leaf – then you certainly want to bag those leaves and get them off your property.

Or you could rake and then shred the leaves for compost. That's what Kerr likes to do.

First, she rakes the leaves onto a tarp or into a kid's wading pool. With a dog leash attached to either, she pulls her leaves to an designated spot and gets ready to shred them with a leaf shredder/brush chopper machine she shares with a neighbor.

Then she bags the mulch for winter. In the spring, she empties the bags onto her flower beds. She says leaf mulch stops weeds like no other mulch she's used.

"I haven't had to weed in about five years," said Kerr.

PLASTIC VERSUS METAL OR BAMBOO

While Moulton swears by the spring of a bamboo rake, Kerr prefers metal. She thinks they dig in to the dirt and help pick up dead grass. She also thinks they last longer. It's a lot tougher to snap a metal tine than a bamboo one.

But Skillin, who has sold thousands of rakes in his day, makes a pitch for a new type of plastic rake being billed as "no clog."

Instead of having plastic tines, these rakes have little half-diamond-shaped teeth. So there is no space for leaves to get stuck in.

"If a rake gets clogged up they make you work twice as hard," said Skillin. "These new ("no clog") ones work very well."

And no matter what kind of rake you have, Skillin says don't try to rake with broken or bent tines -- it's not worth it.

"Don't hassle with one that's all broken up. You'll just work a lot harder," said Skillin.

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About Pesticides

You are here: [EPA Home](#) [Pesticides](#) [About Pesticides](#) [Pesticide News Stories](#) EPA Seeks to Disclose Hazardous Pesticide Inert Ingredients

Pesticide News Story: EPA Seeks to Disclose Hazardous Pesticide Inert Ingredients

For Release: September 30, 2009

The Environmental Protection Agency is moving forward with a plan to disclose the identities of all inert ingredients in pesticides including those that are potentially hazardous. This increased transparency will assist consumers and users of pesticides in making informed decisions and will better protect public health and the environment. Pesticide manufacturers typically disclose their inert ingredients only to EPA. Currently, EPA evaluates the safety of all active and inert ingredients in a product's formulation when determining whether the pesticide should be registered.

The Agency anticipates publishing its proposed rulemaking in the Federal Register within the next few months. In it, EPA will discuss ideas for greater disclosure of inert ingredient identities, including inerts associated with various hazards, as well as inerts in general. EPA believes one way of discouraging the use of the more hazardous inert ingredients in pesticide formulations is by making their identities public. In addition to pursuing regulatory action for inert disclosure, EPA is considering encouraging voluntary initiatives to achieve this broader disclosure.

On September 30, EPA responded to two petitions (one by Northwest Coalition for Alternatives to Pesticides, and a second by certain State Attorneys General), that identified over 350 inert pesticide ingredients as hazardous. The petitioners asked EPA to require these inert ingredients be identified on the labels of products that include them in their formulations. Copies of the petitions and EPA's response can be found on the [Web site](#).

The New York Times

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October 7, 2009

Regulators Plan to Study Risks of Atrazine

By [CHARLES DUHIGG](#)

The [Environmental Protection Agency](#) plans to conduct a new study about the potential health risks of atrazine, a widely used weedkiller that recent research suggests may be more dangerous to humans than previously thought.

Atrazine — a herbicide often used on corn fields, golf courses and even lawns — has become one of the most common contaminants in American drinking water.

For years, the E.P.A. has decided against acting on calls to ban the chemical from environmental activists and some scientists who argued that runoff was polluting ecosystems and harming animals.

More recently, new studies have suggested that atrazine in drinking water is associated with [birth defects](#), low birth weights and reproductive problems among humans, even at concentrations that meet current federal standards.

The E.P.A. is expected to announce on Wednesday that it will conduct a new evaluation of the pesticide to assess any possible links between atrazine and [cancer](#), as well as other health problems, such as premature births. The E.P.A. may determine that new restrictions are necessary.

The decision by E.P.A.'s administrator, [Lisa P. Jackson](#), who took over the agency in January, is a significant departure from the policies of the E.P.A. under President [George W. Bush](#).

For years, agency officials said that atrazine in drinking water posed almost no risk to humans or the environment. As recently as this summer, E.P.A. staff members argued that current regulations were adequate.

"We're going to use our scientific resources in a new and more aggressive way regarding atrazine," said Stephen A. Owens, who was recently confirmed as E.P.A. assistant administrator for prevention, [pesticides](#) and toxic substances.

"There are new scientific findings that deserve attention, and we're going to engage our scientific panels in actively reviewing the work of this office under previous administrations," he added. "We have a question: Did the decisions made in previous administrations use all the available science?"

A representative of atrazine's largest manufacturer, the Swiss company [Syngenta](#), said that she had not been fully briefed on the E.P.A.'s announcement. However, the spokeswoman, Sherry Ford, said, "we expect a positive outcome for atrazine at the end of this process."

Ms. Ford added that the company "stands behind the safety of atrazine, which has undergone extensive testing. We are a science-based company, and we expect the E.P.A. to make sound decisions based on science, no matter which administration is currently in power."

Observers say the E.P.A.'s announcement signals a significant shift.

"This is a dramatic change," said Linda Birnbaum, director of the National Institute of Environmental Health Sciences, part of the [Department of Health and Human Services](#). "There is growing evidence that atrazine could be a hazard to human health. This is a strong signal that the world is changing for some of the most widely used chemicals."

Atrazine has become a lightning rod in disputes over how the E.P.A. has used scientific findings to regulate chemicals and toxins.

The agency was sued in 2003 by an environmental advocacy organization, the [Natural Resources Defense Council](#), amid claims that regulators had ignored studies showing that atrazine was dangerous to some animals.

In August, The New York Times [reported on recent epidemiological studies](#) that suggested small amounts of atrazine in drinking water, including levels considered safe by federal standards, might be associated with birth defects — including skull and facial malformations and misshapen limbs — as well as premature births and low birth weights in newborns.

E.P.A. officials said those studies, as well as recent papers reviewing numerous studies that showed that atrazine interferes with the development and hormone systems of some animals, played a role in their decision to re-evaluate the chemical.

A Times analysis of E.P.A. records also found that in some American towns, atrazine concentrations in drinking water had spiked sharply, sometimes for as long as a month. Though the E.P.A. and Syngenta were aware of those spikes, they often did not promptly warn local water systems, and the reports produced by local regulators and distributed to residents often failed to reflect those higher concentrations. Interviews with local water officials indicated that many of them were unaware that atrazine concentrations sometimes jumped sharply in their communities.

But officials in other communities have grown concerned. Water systems in six states — Illinois, Indiana, Iowa, Kansas, Mississippi and Ohio — recently sued atrazine's manufacturers to force them to pay for removing the chemical from drinking water.

The E.P.A. is expected to announce on Wednesday four meetings over the coming year of the agency's independent scientific advisory panel that will focus on atrazine.

Jennings, Henry

From: Heather Spalding [mailto:heathers@mofga.org]
Sent: Monday, October 19, 2009 1:03 PM
To: Jennings, Henry
Subject: International Endosulfan Policy

Hi Henry,
I thought you would be interested to see this.
Heather

For immediate release: 16 October 2009
Contact: Mariann Lloyd-Smith, PhD, IPEN co-chair, cell +006-141-362-1557
Pamela K Miller, Alaska Community Action on Toxics, cell + 1 907-242-9991

International Expert Committee: Endosulfan requires global action

Pesticide moves closer to a global ban

GENEVA - After a heated debate, an international expert scientific panel concluded that the pesticide endosulfan requires global action to prevent further harms to human health and the environment.[1] <#_ftn1> [1] The decision by the Stockholm Convention POPs Review Committee (POPRC) sets the stage for a global ban of the chemical under the treaty. The panel acknowledged that endosulfan is persistent in the environment, is transported though the air to the Polar regions where it bioaccumulates in the food chain, and is of such high toxicity that it is a threat to humans and wildlife.

“Endosulfan is poisonous and indefensible. This decision puts the world on notice that production and use of endosulfan must stop,” said Dr Meriel Watts of Pesticide Action Network. “For the sake of protecting their own people and the health of the planet, China, India, Israel, and South Korea should cease manufacturing this poison.”

India is the world’s largest remaining manufacturer of endosulfan and the government itself owns a major endosulfan factory. In what is now regarded as one of the world’s worse pesticide incidents, the aerial spraying of endosulfan on cashew nut plantations in Kerala, South India resulted in hundreds of deaths and chronic illnesses including birth defects of nearby villagers.

“Endosulfan not only kills people but contaminates our environment, our wildlife, human breast milk, women’s placentas, and even our newborns. It is clear that the time for this old, outmoded and dangerous pesticide is over,” said Dr Lloyd-Smith, Co-Chair, International POPs Elimination Network.

During the meeting, the POPRC committee member from India tried to delay and block the decision. In the final moments, India refused to agree to a consensus decision and forced a vote to be taken. India was the only country to

vote against the proposal to proceed with the evaluation. Before the meeting Pesticide Action Network (PAN) and the International POPs Elimination Network (IPEN) expressed concern about allowing a country such as India with a clear conflict of interest to participate in decision making.

Endosulfan moves steadily to colder regions, contaminating the Arctic. “This decision is especially critical for the protection of the health of the Arctic Indigenous peoples who are exposed to endosulfan through their traditional foods such as fish, marine mammals and seabird eggs. Given that endosulfan levels are not diminishing in the Arctic and are likely to increase this decision is all the more necessary and urgent”, said Pam Miller, biologist and Executive Director of Alaska Community Action on Toxics.

[1][1] <#_ftnref1> The language of the decision states, “...endosulfan...is likely, as a result of long range environmental transport, to lead to significant adverse human health and environmental effects, such that global action is warranted”

Björn Beeler

IPEN International Coordinator

www.IPEN.org <<http://www.IPEN.org>>

Working Together for a Toxics-Free Future

NEW Learn about the POPs problem and the IPEN vision in a 6 minute online animation:

www.ipen.org/ipenweb/info.html <<http://www.ipen.org/ipenweb/info.html>>

Genetic Clues to Bee Deaths

Researchers recently reported in the *Proceedings of the National Academy of Sciences* of a single, objective molecular marker of colony collapse disorder (CCD), and proposed a data-driven hypothesis to explain the mysterious disappearance of American honey bees. The team included researchers from the University of Illinois and the U.S. Department of Agriculture.



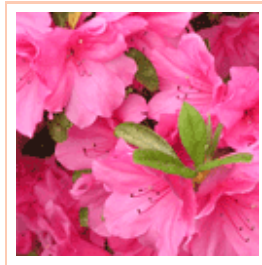
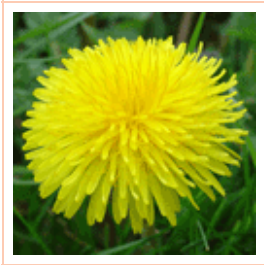
U. of I. researchers spearheaded the honey bee genome project, which was completed in October 2006, less than a month before the first reports of CCD began to circulate. The new study made use of the genome and a genome-based tool, the microarray, to look for differences in gene expression in the guts of healthy honey bees and in those from hives afflicted by CCD. Such microarray analyses normally identify only active genes - those that have been transcribed into messenger RNA in the first stage of building proteins. But Reed Johnson, a University of Illinois doctoral student in entomology and first author on the study, noticed that the microarrays were turning up large quantities of fragmented ribosomal RNA (rRNA) in the bees affected by CCD. Ribosomes are the factories in which proteins are made, but Johnson observed that this rRNA contained adenosine-rich sequences not seen in normal ribosomes. Such "polyadenylation" is believed to be a sign of ribosome degradation.

"Microarrays for other organisms also contain these mysterious pieces of ribosomal RNA, for reasons that are not yet altogether clear," said entomology and neuroscience professor Gene Robinson, a co-principal investigator on the study with entomology professor and department head May Berenbaum. But comparisons of healthy bees and bees from hives afflicted with CCD showed that the fragments were present at a much higher frequency in the CCD bees, he said.

"They are over represented in the CCD bees, significantly over represented," Berenbaum said. "The one consistent indicator of CCD across samples collected at multiple times and in multiple places was the overabundance of ribosomal fragments." When the team looked at the pathogens of healthy bees and bees from hives affected by CCD, they saw that the CCD bees suffered "more than their share" of infections with viruses that attack the ribosome, Berenbaum said. These so-called picorna-like viruses "hijack the ribosome," she said, taking over the cellular machinery to manufacture only viral proteins. The list of picorna-like viruses that afflict honey bees is long and includes Israeli acute paralysis virus, which was once suspected of being the primary cause of CCD. Numerous suspects have been identified in the hunt for a cause of CCD, from nutritional deficiencies to exposure to genetically modified plants or pesticides. Researchers in Spain recently pointed to a parasitic fungus, *Nosema ceranae*, which afflicts many CCD bees in Spain.

The loss of ribosomal function would explain many of the phenomena associated with CCD, Berenbaum said. "If your ribosome is compromised, then you can't respond to pesticides, you can't respond to fungal infections or bacteria or inadequate nutrition because the ribosome is central to the survival of any organism. You need proteins to survive," she said.

The Varroa mite, which is believed to have killed off a significant number of honey bees after it was accidentally introduced to the U.S. in 1986, is a carrier of picorna-like viruses, and is likely a significant contributor to the high viral pathogen load that afflicts U.S. bees. The mite may act as a tipping factor leading to ribosome breakdown, the researchers said. All of these influences, along with the practice of carting bees around the country for pollination services, are significant stressors on the bees, a heavy burden that would be amplified by a loss of ribosomal function, Robinson said. (U of I Press Release, 8/24/09).



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Nutritional quality of organic foods: a systematic review^{1,2,3,4}

Alan D Dangour, Sakhi K Dodhia, Arabella Hayter, Elizabeth Allen, Karen Lock and Ricardo Uauy

¹ From the Nutrition and Public Health Intervention Research Unit (ADD, SKD, AH, and RU) and the Medical Statistics Unit (EA), Department of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, London, United Kingdom, and the Health Services Research Unit, Department of Public Health and Policy, London School of Hygiene & Tropical Medicine, London, UK (KL).

² The funding organization had no role in the study design, data collection, analysis, interpretation, or writing of the report. The review team held 6 progress meetings with the funding organization.

³ Supported by the UK Food Standards Agency (PAU221).

⁴ Address correspondence to AD Dangour, Nutrition and Public Health Intervention Research Unit, Department of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom. E-mail: alan.dangour@lshhtm.ac.uk.

ABSTRACT

Background: Despite growing consumer demand for organically produced foods, information based on a systematic review of their nutritional quality is lacking.

Objective: We sought to quantitatively assess the differences in reported nutrient content between organically and conventionally produced foodstuffs.

Design: We systematically searched PubMed, Web of Science, and CAB Abstracts for a period of 50 y from 1 January 1958 to 29 February 2008, contacted subject experts, and hand-searched bibliographies. We included peer-reviewed articles with English abstracts in the analysis if they reported nutrient content comparisons between organic and conventional foodstuffs. Two reviewers extracted study characteristics, quality, and data. The analyses were restricted to the most commonly reported nutrients.

Results: From a total of 52,471 articles, we identified 162 studies (137 crops and 25 livestock products); 55 were of satisfactory quality. In an analysis that included only satisfactory quality studies, conventionally produced crops had a significantly higher content of nitrogen, and organically produced crops had a significantly higher content of phosphorus and higher titratable acidity. No evidence of a difference was detected for the remaining 8 of 11 crop nutrient categories analyzed. Analysis of the more limited database on livestock products found no evidence of a difference in nutrient content between organically and conventionally produced livestock products.

Conclusions: On the basis of a systematic review of studies of satisfactory quality, there is no evidence of a difference in nutrient quality between organically and conventionally produced foodstuffs. The small differences in nutrient content detected are biologically plausible and mostly relate to differences in production methods.

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Campus Chatter

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Making Sure the Bedbugs Don't Bite

July 13, 2009 7:06 AM



(Associated Press)

ABC News On Campus reporter Heather Riggs blogs:

University of Florida researchers say they have developed a solution to the creepy crawly, blood-sucking insects that live in beds and furniture everywhere.

Phil Koehler, an urban entomologist and professor with the University of Florida's Institute of Food and Agricultural Sciences, and his team say they have successfully designed a low-cost, low-tech heating method that will eliminate bedbugs.

The tiny creatures make their way into homes through used furniture and by clinging to personal items people bring in through the front door. Because of concerns about chemical treatments, the number of bedbugs has increased significantly in recent years.

“Bedbugs hide in the places you sleep, and the items you don't want to spray with potentially harmful

pesticides.” Koehler said.

But bedbugs, he said, are very susceptible to heat.

For much less than the cost of traditional fumigation techniques, Koehler’s team has developed a portable heating chamber that cooks the bugs to death.

The method combines oil-filled electric space heaters and fans surrounded by walls of polystyrene insulation board, to create a chamber that works much like a convection oven. The heaters slowly raise the temperature inside the chamber to a minimum of 113 degrees Fahrenheit, which is enough to eradicate the insects while keeping furniture intact.

In nine of 11 trials conducted in dormitories and apartments, researchers were able to eliminate 100 percent of the bedbugs. In places where there were tile floors instead of carpet, 83 percent of bedbugs were eliminated.

“Carpet acts as an insulator, helping the process of the heating chamber,” Roberto Pereira, an associate research scientist working on the project, said.

With good containment and good circulation of heat, the method can take as little as two to four hours, Pereira said.

The study, published in the latest issue of Journal of Economic Entomology, is currently being used to help teach the bedbug-killing technique to members of the pest control industry.

“I use it very regularly and see it being adopted by a lot of folks,” Wayne Walker, the senior pest control technician for UF’s Department of Housing, said.

Walker is one of the main reasons the research for the method began in 2006, when he approached Koehler with the problem of bedbugs in UF’s dormitories.

“Prior to this, we had been using very labor-intensive processes on campus, where we would fumigate furniture for almost two days,” Walker said. “And it was expensive.”

Pest-control workers are now able to quickly and efficiently eradicate infestations, he said, allowing them to control the insects more easily. “The key is early intervention,” Walker said.

Bedbugs reproduce and spread rapidly, so it is important to isolate and exterminate them quickly.

“In three to four months a person can go from having just a few bedbugs to literally hundreds, and sometimes even more,” Walker said.

According to UF researchers, the heat treatment is one of the more promising techniques for getting rid of these insects, but homeowners should not attempt to build their own heating chambers, as it may lead to fires.

The New York Times

ROOM  DEBATE

A Running Commentary on the News

OCTOBER 26, 2009, 5:18 PM

Can Biotech Food Cure World Hunger?By *THE EDITORS*

Carla Gottgens/Bloomberg A crop of genetically modified canola grows in a field in Lake Bolac, in the Western District of Victoria, Australia, Sept. 29, 2009.

With food prices remaining high in developing countries, the United Nations estimates that [the number of hungry people](#) around the world could increase by 100 million in 2009 and pass the one billion mark. A [summit of world leaders](#) in Rome scheduled for November will set an agenda for ways to reduce hunger and increase investment in agriculture development in poor countries.

What will drive the next Green Revolution? Is genetically modified food an answer to world hunger? Are there other factors that will make a difference in food production?

- [Paul Collier](#), economist, Oxford University
- [Vandana Shiva](#), activist and author
- [Per Pinstrup-Andersen](#), professor of nutrition and public policy, Cornell
- [Raj Patel](#), Institute for Food and Development Policy
- [Jonathan Foley](#), University of Minnesota
- [Michael J. Roberts](#), economist, North Carolina State University

Put Aside Prejudices

***Paul Collier** is a professor of economics at Oxford University and the director of the Center for the Study of African Economies. He is the author of "The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It."*

The debate over genetically modified crops and food has been contaminated by political and aesthetic prejudices: hostility to U.S. corporations, fear of big science and romanticism about local, organic production.

Food supply is too important to be the plaything of these prejudices. If there is not enough food we know who will go hungry.

Refusing genetic modification makes a difficult problem more daunting.

Genetic modification is analogous to nuclear power: nobody loves it, but climate change has made its adoption imperative. As Africa's climate deteriorates, it will need to accelerate crop adaptation. As population grows it will need to raise yields. Genetic modification offers both faster crop adaptation and a biological, rather than chemical, approach to yield increases.

Close

Opponents talk darkly of risks but provide no scientific basis for their amorphous expressions of concern. Meanwhile the true risks are mounting. Over the past decade global food demand has

risen more rapidly than expected. Supply may not keep pace with demand, inducing rising prices and periodic spikes. If this happens there is a risk that the children of the urban poor will suffer prolonged bouts of malnutrition.

African governments are now recognizing that by imitating the European ban on genetic modification they have not reduced the risks facing their societies but increased them. Thirteen years, during which there could have been research on African crops, have been wasted. Africa has been in thrall to Europe, and Europe has been in thrall to populism.

Genetic modification alone will not solve the food problem: like climate change, there is no single solution. But continuing refusal to use it is making a difficult problem yet more daunting.

The Failure of Gene-Altered Crops

Vandana Shiva is the founder of Navdanya, the movement of 500,000 seed keepers and organic farmers in India. She is author of numerous books, including "The Violence of the Green Revolution" and "Soil, Not Oil."

Food security over the next two decades will have to be built on ecological security and climate resilience. We need the real green revolution, not a second "Green Revolution" based on genetic engineering.

Genetic engineering has not increased yields. Recent research by Doug Gurian-Sherman of the Union of Concerned Scientists published as a study "[Failure to Yield](#)" has shown that in a nearly 20 year record, genetically engineered crops have not increased yields. The study did not find significantly increased yields from crops engineered for herbicide tolerance or crops engineered to be insect-resistant.

We need biodiversity intensification that works with nature's nutrient and water cycles, not against them.

The International Assessment of Agricultural Science and Technology for Development carried out by 400 scientists over four years has also concluded that genetic engineering does not hold much promise. Instead, small farms based on principles of agri-ecology and sustainability produce more food.

Close

That is why I am so disappointed that the Gates Foundation in its global development program is [supporting the use of genetically modified crops](#) in Africa.

Green revolution technologies and strategies, reliant on monoculture and chemical fertilizers and pesticides, have destroyed biodiversity, which has in many places led to a decline in nutrition output per acre.

As I have shown in my book "Soil, Not Oil," industrial systems of food production are also a major contributor to greenhouse gas emissions and climate change. Industrial monocultures are more vulnerable to climate change since they reduce soil organic matter which is vital for moisture conservation and resilience to draught.

The claim by the genetic engineering industry that without genetically modified food we cannot respond to climate change is simply false. Climate resilient traits in crops have been evolved by

farmers over centuries. In the community seed banks that I have helped create through the [Navdanya](#) movement, we have seeds for drought resistance, flood resistance and salt tolerance. This is the biological capital for the real green revolution.

The gene giants are now pirating and patenting the collective and cumulative innovation of Third World farmers. Patent monopolies on seed cannot create food security. They can only push small farmers in debt.

The green revolution that we are building through Navdanya is based on conserving biodiversity and conserving water while increasing food production per acre. What we need is biodiversity intensification, not chemical intensification. What we need is to work with nature's nutrient cycles and hydrological cycle, not against them. It is time to put small farmers, especially women, at the heart of this process.

A Green Revolution Done Right

Per Pinstrup-Andersen is the H. E. Babcock Professor of Food, Nutrition and Public Policy at Cornell University and the 2001 World Food Prize Laureate.

Helping farmers in developing countries produce more food without doing damage to natural resources is an essential component of the action needed to reduce existing poverty, hunger and malnutrition and to assure that future generations have access to the food they need at reasonable prices.

Science and technology combined with expanded use of plant nutrients and better plant protection and water management by highly motivated farmers produced the Green Revolution, which avoided mass starvation and helped millions out of poverty and hunger. However, the job is not done.

While new technology must be tested before it is commercially released, we should be mindful of the risks of not releasing it at all.

Many millions of people do not have access to sufficient calories and many more suffer from micronutrient deficiencies. Most of them are in rural areas and would benefit from productivity increases in agriculture. Furthermore, the world population will grow by more than two billion over the next 40 years.

Close

They will only have access to the food and nutrients they need at reasonable prices and without damaging the environment, if action is taken now.

Science must play a key role in such action, along with appropriate government policies and investments in rural infrastructure and markets. Science must be put to work to develop drought tolerance and pest resistance in crops, higher nutrient quality of staple foods, reduced animal diseases, mitigation of negative climate change effects and a host of other solutions to the current food losses and risks facing farmers and consumers in developing countries. The most appropriate scientific approaches, including genetic engineering and other molecular biology must be applied.

While new technology with potential health or environmental risks must be tested before it is

released for commercial use, such risks should be compared to the health and environmental risks of not releasing a technology. Status quo is not kind to millions of starving children and failure to act now will further deteriorate the environment and make food very expensive for future generations.

Misguided anti-science ideology and failure by governments to prioritize agricultural and rural development in developing countries brought us the food crisis. The challenge we are facing is not whether the world resources are sufficient to feed us all now and in the future, but whether we will change our behavior.

When Cheap Water and Oil Disappear

***Raj Patel** is a fellow at the Institute for Food and Development Policy, and author of "Stuffed and Starved".*

The U.S. leads the world in genetically modified agricultural technology, yet one in eight Americans is hungry. Last year, with bumper harvests, more than a billion people ate less than 1,900 calories per day. The cause of hunger today isn't a shortage of food — it's poverty.

Addressing that will require not new agricultural technology, but a political commitment to making food a human right.

Agriculture will need to be much more regionally controlled and locally adapted.

We do, however, need to transform the way we farm. Today's industrial agriculture depends on fossil fuels and abundant water. The growing and processing of food for the average American every year takes the equivalent of **more than 500 gallons of oil**. The future will see both cheap water and oil disappear.

Close

So how should we farm tomorrow? To answer this, we'll need the very best independent and peer-reviewed science. In 2005, the World Bank's chief scientist, Robert Watson, brought together leading natural and social scientists, representatives from government (including the U.S.), private sector and non-governmental organizations to ask how we'd feed the world in 2050, when there will be nine billion of us.

Over three years, more than 400 experts worked on a sobering report which has recently been published as "**Agriculture at a Crossroads.**"

The scientists concluded that genetically modified crops had failed to show much promise in feeding the world. Instead, the study suggested that to feed the world, we need both political and technological change. Tomorrow's agriculture will need to be much more regionally controlled and locally adapted, and will need a diversity of approaches to meet the challenges of climate change and resource scarcity.

Among the farming techniques endorsed by the report is agroecology, which builds soil, insect and plant ecology. The result is a farming system that uses water frugally, **sequesters vast amounts of carbon** and doesn't require external inputs.

This is cutting edge science, but it isn't terribly profitable for large U.S.-based agricultural corporations. Perhaps that explains why, despite strong support for this report among

governments overseas, the U.S. government last year refused to endorse it.

The Third Way

Jonathan Foley is the director of the new Institute on the Environment at the University of Minnesota. His research is focused on global land use, agriculture and climate.

The future of agriculture must address several goals simultaneously. First, it now appears that we will have to double world food production in the next 40 years given continued population growth, increasing meat consumption and pressure from biofuels.

We will also have to dramatically reduce the environmental impacts of our farming practices, which have caused widespread damage to soils, ecosystems, watersheds and even the atmosphere. In fact, agriculture's impacts rival climate change as a top environmental concern.

You're either with Michael Pollan or you're with Monsanto, but neither paradigm can fully meet our needs.

We will also have to improve food security for the world's poor. While the Green Revolution of the 1960s made it possible to feed hundreds of millions more people than in earlier eras, the number of undernourished in the world has started to rise again.

Close

Finally, we will have to increase the resilience of agriculture. Today, our high-efficiency, globalized world has many benefits, but it is vulnerable to disruption, whether from drought, disease or price spikes. We must start building more resilience into food systems to better insulate us from future shocks.

Currently, there are two paradigms of agriculture being widely promoted: local and organic systems versus globalized and industrialized agriculture. Each has fervent followers and critics. Genuine discourse has broken down: You're either with Michael Pollan or you're with Monsanto. But neither of these paradigms, standing alone, can fully meet our needs.

Organic agriculture teaches us important lessons about soils, nutrients and pest management. And local agriculture connects people back to their food system. Unfortunately, certified organic food provides less than 1 percent of the world's calories, mostly to the wealthy. It is hard to imagine organic farming scaling up to feed 9 billion.

Globalized and industrialized agriculture have benefits of economic scalability, high output and low labor demands. Overall, the Green Revolution has been a huge success. Without it, billions of people would have starved. However, these successes have come with tremendous environmental and social costs, which cannot be sustained.

Rather than voting for just one solution, we need a third way to solve the crisis. Let's take ideas from both sides, creating new, hybrid solutions that boost production, conserve resources and build a more sustainable and scalable agriculture.

There are many promising avenues to pursue: precision agriculture, mixed with high-output composting and organic soil remedies; drip irrigation, plus buffer strips to reduce erosion and pollution; and new crop varieties that reduce water and fertilizer demand. In this context, the

careful use of genetically modified crops may be appropriate, after careful public review.

A new “third way” for agriculture is not only possible, it is necessary. Let’s start by ditching the rhetoric, and start bridging the old divides. Our problems are huge, and they will require everyone at the table, working together toward solutions.

Declining Yields on the Horizon

Michael J. Roberts is an assistant professor of agricultural and resource economics at North Carolina State University. He is the writer of the [Greed, Greens and Grains](#) blog.

About 30 years ago Julian Simon, an economist, made a famous bet with Paul Ehrlich, the entomology professor and author of “The Population Bomb.” The bet was about the future direction of resource prices.

Where Mr. Ehrlich saw population growth leading to scarcity in resources and higher prices, Mr. Simon saw an impending resource boom that would easily compensate for population growth. Mr. Simon handily won the bet.

The green revolution came from public investments in crop science, not the wondrous market.

Staple commodity prices — from food to oil to metals — have all trended flat or downward over the long run. Technological optimists point to this fact and believe resource scarcity is of little concern to our post-industrial society. In a sense, they’re right. But what about the part of the world that isn’t industrialized?

Close

I am mindful of arguments coming from technological optimists who believe crop yields will continue to rise, that there is plenty of oil still left to find and that geo-engineering will solve global warming.

But I don’t think today’s doomsayers are a few voices in small corners of the scientific community. There is a real threat to worldwide food security over the next 10 to 40 years. The threat comes from global income inequality combined with projected global warming, which could cause tremendous declines in crop yields.

For the United States — by far the world’s largest producer and exporter of food commodities — my own statistical research with Wolfram Schlenker predicts yield declines of 18 percent to 35 percent for corn and soybeans due to global warming, and more than twice these losses by the end of this century.

A recent, far more comprehensive study by the International Food Policy Research Institute predicts large food production declines and higher prices for the whole world.

For people in the United States these dramatic predictions are actually of little direct concern. Raw commodities make up such a tiny share of retail food prices we would hardly notice a 10-fold increase in corn prices. The price of a quarter-pound hamburger (produced from corn-fed beef) would probably go up by less than a dollar. It’s hard to believe we’d buy much less meat as a result. Indeed, demand growth today comes less from population growth and more from rising incomes and meat consumption in China. (Keep in mind that it takes five to 10 calories of

staple grains to make one calorie of meat.)

But three billion people — nearly half the planet — live on \$2.50 per day or less. The poor typically spend a third to half of their income on food, composed mainly of staple commodities. If food quantities go down and prices go up, it's the world's poor who consume less.

If incomes were more equal around the world, prices would rise much further and we would buy less meat, but there would be little risk of famine.

Still, it could be that new genetically modified seeds will accelerate yield growth and offset projected damages from global warming. So far, genetically modified crops have shown yield gains in developing nations, but only modest gains in rich countries. And though yields have grown, my research shows no growth in tolerance to extreme heat, which is the key challenge going forward.

The green revolution didn't come about from a wondrous market. It came from public investments in crop science that people like Norman Borlaug then spread around the world. But public funding of crop science research has diminished over the years. Now seems like a good time to increase that kind of investment.



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September 24, 2009

IN THE GARDEN

The Grass Is Greener at Harvard

By [ANNE RAVER](#)

Correction Appended

CAMBRIDGE, Mass.

THERE is an underground revolution spreading across [Harvard University](#) this fall. It's occurring under the soil and involves fungi, bacteria, microbes and roots, which are now fed with [compost](#) and [compost tea](#) rather than pesticides and synthetic nitrogen.

The results have so astounded university administrators that what started as a one-acre pilot project in Harvard Yard has spread organic practices through 25 acres on the campus.

"Our goal is to be fully organic on the 80 acres that we maintain within the next two years," said Wayne Carbone, Harvard's manager of landscape services.

Harvard's president, Drew Gilpin Faust, who last year started a university effort to reduce greenhouse gases by 30 percent by 2016, has adopted the organic program at Elmwood, the president's house on Brattle Street. Dr. Faust became intrigued by the effort last spring when she saw a display that the Harvard Yard Soils Restoration Project had set up outside her office.

"The lumps of soil showed how grass grew when treated with chemical fertilizers and how it looked when treated organically," she said. "You could really see the root systems and how different they were."

As the project proceeded, "and I saw the impact, I was really excited," Dr. Faust said. "I think it's an integral part of the larger effort to advance sustainability at Harvard."

The organically grown grass on campus is now green from the microbes that feed the soil, eliminating the use of synthetic nitrogen, the base of most commercial fertilizers. No herbicides or pesticides are used, either. Roots reach eight inches into soil that was once so compacted the trees planted in it were dying.

Like most college campuses, Harvard Yard takes a beating every day.

“At commencement, rain or shine, we have 10,000 people here,” Mr. Carbone said, gazing at the expanse where chairs are traditionally set in front of Memorial Church. “We get about 6,000 to 8,000 people here every day.”

But the microbial activity beneath their feet has now aerated the soil. Tree roots can breathe because they are absorbing nutrients and water. Newly planted oaks outside Mass Hall, a few steps from Harvard Square, are thriving.

Soil tests show the presence not only of beneficial bacteria and fungi but also of the micro-organisms that feed on them, recycling nitrogen back into the soil. This dog-eat-dog world underground also retains moisture.

Thanks to these efforts, the university has reduced the use of irrigation by 30 percent, according to Mr. Carbone, thus saving two million gallons of water a year.

And the 40-year-old orchards at Elmwood, which have been treated with compost tea, are recovering from leaf spot and apple scab, two ailments that had afflicted them.

“We can already see the leaf spot has receded, and the trees have a much more vibrant canopy,” said Dr. Faust, who is composting her own yard and kitchen waste.

The project began in the spring of 2008. Eric T. Fleisher, the director of horticulture at the Battery Park City Parks Conservancy, was spending a year as a Loeb Fellow at Harvard’s Graduate School of Design, and he teamed up with Mr. Carbone and his staff to see what microbes could do on one acre of battered soil in the Yard.

The project was helped on its way by Michael Van Valkenburgh, the landscape architect who designed public spaces such as Teardrop Park in Battery Park City and Brooklyn Bridge Park. Mr. Van Valkenburgh has taught at Harvard for two decades and oversees the care and replanting of trees in the historic Yard.

When Dr. Faust became president in 2007, she and Mr. Van Valkenburgh toured Harvard Yard and discussed how switching from synthetic chemicals to organics would reinvigorate the soil and everything that grew in it.

Mr. Van Valkenburgh, who grew up putting DDT on the family’s vegetable plot, had seen how Mr. Fleisher’s use of compost and teas had improved Battery Park City’s 36-acre landscape, which thrives, despite heavy foot traffic, without the use of pesticides or synthetic fertilizers.

An organic approach requires a radical change in thinking.

“This is not a product-based program, it’s knowledge-based,” Mr. Fleisher said last week as he stood in front of Mass Hall, where the project began. Brandishing a long narrow spade that is often used to dig up

trees and shrubs, he added, "This is our first diagnostic tool."

Mr. Fleisher handed the spade to Kieran Clyne, the horticulturist in charge of making compost at the Arnold Arboretum, an arm of the university, as well as brewing vats of compost tea in a Harvard-owned garage.

When the project started, Mr. Fleisher said, "the soil was so compacted, we could not dig past three inches."

But when Mr. Clyne stepped down on his spade this day, it went through the grass like the proverbial knife through butter. He made a core sample, a square of turf and soil as wide and deep as his spade, then lifted it gently and laid it on the grass. The soil was dark and crumbly; the roots were six to eight inches long.

Lifting the core sample by its grassy top, he showed how the soil clung to the roots, another effect of all that microbial activity.

Healthy soil is a mixture of sand, silt and clay particles held together by the gums and gels formed by bacteria as well as by fungi and plant roots. These micro-organisms, as well as insects and earthworms, create the spaces through which air and water can trickle.

The test plot's new ability to absorb and hold water (thus reducing irrigation needs), coupled with the benefits of composting 500 tons of grass clippings, pruned branches, leaves and other material that was trucked off campus to the tune of \$35,000 a year, quickly convinced Mr. Carbone that the program should be expanded.

"Now we're composting all that organic material at the Arnold Arboretum, so we don't have to pay someone else to truck it out," he said. "And we don't have to buy compost or fertilizers, so we're saving an additional \$10,000 in those materials."

Organic growing techniques are so simple that any homeowner can get the hang of them. But to do so, it's necessary to learn some basic facts about the structure and biology of your particular soil. In an organic approach, one bag of chemicals does not fit all. And timing is key.

The first step, Mr. Fleisher said, is to take a core sample of your soil, and send some of it to a good testing laboratory, such as the one at the [University of Massachusetts](#), or one recommended by your state university. A textural analysis will indicate the percentage of clay, silt and sand in your soil, and how well it drains. A complete nutrient analysis will tell you what elements and micronutrients the soil contains. Such tests cost from \$13 to \$75, and results are returned within a few weeks.

The next step is to do a simple percolation test. Use a shovel or a post-hole digger to make a hole 12 inches deep.

“Make one-inch markings on a stick and put that in the hole,” Mr. Clyne said.

Then fill the hole with water and let it drain for 30 minutes. “Then, fill up the hole again, and see how fast it drains,” he said.

One inch an hour is adequate for a home lawn.

Without good drainage, water and air cannot be properly absorbed by plant roots.

Also, “compaction wreaks havoc on your fungal communities,” Mr. Clyne said. And fungi are key to soil health.

There’s a give-and-take between fungi and plants, as the fungi consume carbohydrates exuded by plant roots and give back water, phosphorus and other minerals. Bacteria also consume carbohydrates. And they in turn are eaten by protozoa and other creatures that convert the bacteria’s protein into nitrogen, which feeds the plants.

Adding compost to soil gets that biological community cooking.

“Once you get that nutrient cycling system going,” Mr. Fleisher said, “it can produce 150 pounds of nitrogen an acre. With that kind of available nitrogen, why would you fertilize?”

Not everyone is repeating the mantra “green is the new crimson.”

“I don’t approve of that at all,” said the Rev. Peter J. Gomes as he stood in the front yard of his residence, Treadwell-Sparks House, where a little sign near the viburnum hedge announced that it was part of one of Harvard’s organic landscapes. He thinks the motto and the sign are “a lot of nonsense.”

Mr. Gomes, the minister at the school’s Memorial Church since 1970, said he planted most of the trees, shrubs and perennials here “with my own hands.” But he has always left the grass in Harvard’s hands. “As long as it looks good, I don’t want to know,” he said.

But after an enjoyable joust with Mr. Fleisher, who explained that using compost was “mimicking the laws of nature,” saving water and might even revive the rather spindly hedge, Mr. Gomes put down his sword, sort of.

“Anything that would make this a lush garden,” he said, “I’ll do it.”

To help laypeople unravel the mysteries of the soil in their own yard, Harvard has posted a kind of mini-course on its Web site www.uos.harvard.edu/fmo/landscape/organiclandscaping. It includes simple directions for building a compost pile hot enough to eat weed seeds, building a compost tea brewer, and brewing teas particularly suited for grass, perennials or woody plants.

Due to an online editing error, the credit for the photograph of a microscopic image of roots from an

oak tree on Harvard Yard was incorrect. It was by Ben Wolfe.

Correction: October 1, 2009

An article and an accompanying picture caption last Thursday about the spread of organic gardening at Harvard referred incompletely to the Rev. Peter J. Gomes, whose residence, Treadwell-Sparks House, is part of the project. He is more widely known as the longtime minister at the university's Memorial Church, not just as a professor and a minister. The caption also referred imprecisely to the location of his residence. It is considered part of the campus; Mr. Gomes does not live "near Harvard."

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• October 08, 2009

The Mainichi Daily News

Business News

Clothing chain to release 'anti-swine flu' suit

Haruyama Trading Co., a major men's clothing chain operator, has announced that it will soon release an "anti-swine flu" business suit.

The surface of the wool suit is coated with titanium dioxide photocatalyst, which chemically dissolves molecules in viruses, mold and odors when exposed to ultraviolet light. The effect is expected to last even after the suit is washed more than 20 times.

The new suit, priced at 52,290 yen [\$589 US], will go on sale from Saturday mainly at Haruyama stores across the country. However, to celebrate the opening of a new store near the south exit of JR Shinjuku Station in Tokyo on Thursday, the chain will sell the suit at a special price of 18,900 [\$213 US] yen at the outlet until Oct. 18.

(Mainichi Japan) October 6, 2009



Haruyama Trading Co.'s new anti-swine flu suit (Mainichi)