

THE SCOOP

June - July 2009

Unearthing the science behind organic agriculture



In This Issue:

- [Breaking Science](#)
- [In The News](#)
- [Do You Know?](#)
- [Events and Presentations](#)
- [Core Truths](#)
- [The Art of Giving](#)
- [Join Mission Organic](#)
- [About THE SCOOP](#)
- [About The Organic Center](#)

Breaking Science



New Science Heightens Concern over Children's Exposures to Organophosphate Insecticides

The PON1 enzyme plays a critical role in detoxifying organophosphate insecticides. The conventional wisdom held that by age two, infants were producing as much PON1 as adults, and were therefore no more or less susceptible than adults to neurological damage following a given exposure episode.

Scientists have now shown that PON1 levels are as much as four-fold lower in children compared to adults through at least age seven, extending by five years the period during which children are at heightened risk of abnormal neurological development following OP insecticide exposures. Such exposures occur many times in most days, as documented in the Center's March 2008 report "[Simplifying the Pesticide Risk Equation: The Organic Option](#)".

Moreover, the human population contains a variety of genotypes with PON1 polymorphisms. In short, some individuals naturally produce significantly more of certain forms of PON1, while others produce much less. Those infants and children with depressed PON1 production are at the greatest risk of sustained neurological damage from OP exposures.

Past research has already established that lower PON1 levels increases the risk of reduced head circumference, a marker for brain size and intelligence.

Work by Dr. Alex Lu, now at the Harvard University School of Public Health, has shown that a predominantly organic diet virtually eliminates exposure to OP insecticides within days. The important series of studies undertaken by Dr. Lu and colleagues are featured in the TOC report "[Successes and Lost](#)"



[Opportunities to Reduce Children's Exposures to Pesticides.](#) The Center is currently working with Dr. Lu on future research needs focused on the impacts of pesticides on children's health.

Source: Huen, K. et al., "Developmental Changes in PON1 Enzyme Activity in Young Children and Effects of PON1 Polymorphisms," *Environmental Health Perspectives*, Online, June 9, 2009.

Oregano Oil Reduces *E. coli* O157 in Hamburger



High heat and prolonged cooking kills most or all of the *E. coli* O157 in hamburger, but increases the production of carcinogenic heterocyclic amines and diminishes palatability for most consumers. A team of USDA-funded scientists working in Arizona have found that a 1% solution of carvacrol, the main ingredient in the oregano oil used in many salad dressings, reduced *E. coli* levels 2.5 to 5 logs – efficacy comparable to irradiation. Moreover, the reduction was achieved with cooking at lower temperatures, reducing by ten-fold the production of heterocyclic amines.

The authors also point out that carvacrol also helps control a range of other pathogens, and is but one of several natural constituents in food that could play a positive role in advancing food safety in the future.

Sources: Friedman, Mendel et al., "Carvacrol Facilitates Heat-Induced Inactivation of *E. coli* O157:H7 and Inhibits Formation of Heterocyclic Amines in Grilled Ground Beef Patties," *Journal of Agricultural and Food Chemistry*, Vol. 57, No. 5, March 11, 2009.

Caloric Restriction Extends Life and Delays Onset of Disease in Monkeys



A group of Rhesus monkeys was fed 30% less calories than a control group on a "normal" diet for 20 years. The impacts on health were remarkable:

- The control group had three-times the death rate of the caloric-restriction group at any given time during the study;
- The incidence of the most common cancer afflicting

monkeys was reduced 50%;

- Indicators of cardiovascular disease were reduced 50% by caloric restriction;
- The volume of brain grey matter was higher in the caloric-restriction group; and
- The animals on the restricted diet appeared to be biologically younger than the control animals.

Source: Colman, R.J. et al., "Caloric Restriction Delays Disease Onset and Mortality in Rhesus Monkeys," *Science*, Vol. 325, July 10, 2009.

Editor's Note: The Center's March 2009 report ["That First Step: Organic Food and a Healthier Future"](#) summarizes in Chapter 2 the encouraging science suggesting that resveratrol, a key antioxidant in red grapes and other fruits and vegetables, can mimic the impacts of caloric restriction on longevity and health.

Multiple studies show that organic farming substantially increases the concentrations of resveratrol in a range of foods.

[Back to top](#)



Excerpts from the Organic Center's Review of USDA's Economic Analysis of the House-passed Climate Bill



Secretary Tom Vilsack released USDA's preliminary analysis of the economic impacts of the American Clean Energy Act (ACES) bill during testimony before the Senate Agriculture Committee on July 22, 2009. The USDA press release summarizing the Secretary's prepared remarks, and the 13-page economic analysis are posted on the USDA website. Access the [report](#) from the "Newsroom archives" on the USDA website.

The major cause of added costs to the agricultural sector from the ACES bill come through increases in energy costs...

The nitrogen fertilizer industry will...receive what amounts to a near one-half billion dollar annual subsidy...

If and as new policies are put in place to bring about climate change-driven payments, Congress and the USDA will have to adopt novel policies to assure that other farm program, and even conservation payments reinforce rather than undermine progress toward more climate-friendly farming systems.

At this point, the ACES bill dances around, or just flat out ignores, some of the most promising farming system changes, if the goal is to cost-effectively reduce net agricultural GHG emissions. These options include adoption of organic farming systems, re-inventing the nitrogen cycle on corn farms, shifting beef cattle from the feedlot back onto well-managed pastures, reducing per capita consumption of beef, and adoption of water-saving irrigation system technology, especially drip systems. If and as American agriculture gets serious about reducing greenhouse gases and as higher energy prices force changes down on the farm and in society as a whole, these will be among the changes delivering the biggest bang for the buck, regardless of who is picking up the check.

Read the [full analysis](#) on the Center's website.

Bayer CropScience to Pull the Plug on Endosulfan in 2010

Endosulfan (Thiodan) insecticide is heavily used on fruits and vegetables worldwide and is without doubt one of the most worrisome pesticides on the market. It is a proven endocrine disruptor, and is persistent and tends to bioaccumulate.

The major manufacturer, Bayer, announced in Australia that it will phase out global manufacture of endosulfan in 2010. While an important step in ending the use of this insecticide, many other smaller companies hold registrations for the chemical and can, and likely will continue manufacturing it.

Source: Sydney Morning Herald, <http://www.smh.com.au/action/printArticle?id=636349>

Editor's Note: The only way to end most uses of endosulfan is a coordinated campaign to revoke all U.S. and international (Codex) tolerances governing endosulfan residues in food. Now that Bayer has decided to no longer fight to keep endosulfan on the market, the U.S. EPA should initiate steps to revoke

all tolerances in early 2011.

Monsanto Projects that Over Two-thirds of National Corn Acreage will be Planted to "SmartStax" GE-Corn Varieties

In a conference call with investment analysts, Monsanto's Chief Technology Officer predicted that "SmartStax" corn would eventually be planted on 50 to 65 million acres of corn annually. These varieties combine eight GE-traits covering resistance to two herbicides and expression of several different forms of *Bacillus thuringiensis* (*Bt*) for protection against the European corn borer and corn rootworms.



Several "SmartStax" varieties are likely to sell for over \$300 per bag (about 80,000 seeds, or enough to plant about 3 acres). In the 1980s, corn farmers spent perhaps \$25 per acre on seed.

Source: Jeffrey Tomich, *St. Louis Post-Dispatch*, July 21, 2009.

Editor's Note: "SmartStax" corn costs so much because of the eight GE-trait "technology fees" embedded in each seed. Yet no farmer needs nor will benefit from more than a few of these traits.

In addition, corn varieties genetically engineered to express multiple novel traits pose new sorts of risks, yet there has been no change in the science reviews undertaken by the government prior to approval. Regulators in USDA and EPA have essentially accepted the industry argument that each individual trait should be evaluated separately in terms of food safety or environmental risks, and that there is no reason to expect any new or unanticipated risks from the combination of the genetic material and promoters needed to activate eight unique traits in a single variety.

Imagine a pharmaceutical company arguing to the FDA that a pill with eight drugs should be approved with no further testing, as long as each of the eight drugs is approved for human use in its own right. Fortunately, the FDA is aware of the possibly dangerous consequences of drug interactions, and requires a set of studies and rigorous clinical trials to assure that combination drugs will be both safe and effective.

"A Tale of Two Films" Reviews *Food, Inc.* and *Fresh*

Two new documentary films, *Food, Inc.* and *Fresh*, have injected new energy into the national dialogue about what we eat and how we grow food in America. The two movies cover much of the same ground, but differ greatly in tone. *Food, Inc.* strives to leave viewers alarmed and eager for change, while the stories in *Fresh* about people creating healthier local and regional islands within the larger food system are uplifting and hopeful.

The Center has prepared an in-depth joint review of these films, accessible on the Center's website. The review includes an [overview](#), ["Two Takes on Scale, Efficiency, Food Safety, and How to Change the Food System"](#), and [discussion of how the films address the key issue of whether organic farming can feed the world](#).

Information is also posted on how to access and view the films, as well as scientific resources that delve more deeply into the topics covered in the films.

[Back to top](#)



People consuming significant amounts of Great Lakes sport fish contaminated with DDE, the major breakdown product of the insecticide DDT, were over seven-times more likely to be diabetic, compared to people with low-levels of DDE in their blood.

Source: Turyk, M. et al., "Organochlorine Exposure and Incidence of Diabetes in a Cohort of Great Lakes Sport Fish Consumers," *Environmental Health Perspectives*, Vol. 117, No. 7, July 2009.

There are about 26,000 stillbirths annually in the United States – one in every 160 pregnancies.

Source: Washington Post, July 7, 2009.

[Back to top](#)



Acres USA Interview Traces the Roots of Organic Farming in the U.S.

The June 2009 issue of *Acres USA* contains a lengthy interview with TOC Chief Scientist Chuck Benbrook entitled "Policy, Science & Organic Agriculture: Winning Hearts & Minds in the Quest for a Healthy, Sustainable Food System."

Summary of Key Research Findings Posted on The Organic Center Blog

The Organic Center has compiled a brief summary of fully referenced key research findings from our own primary research and from research around the world on the health and environmental benefits of organic food and farming. The Key Findings are posted on our blog at <http://theorganiccenter.wordpress.com/category/science-research/>. Please visit our blog regularly, where Managing Director Steven Hoffman helps readers of "The Scoop" stay current on the activities of the Center, events, and other breaking developments via the Center's blog.

Join The Organic Center for Bay-Area Events on September 12

Join The Organic Center on Saturday, September 12, in Oakland and Berkeley, CA, for the Center's 5th Annual Bay Area Celebration.

Events include a new networking opportunity, The Entrepreneur's Open Forum, held 10:00am – noon at Numi Tea Garden in Oakland. The open forum will feature an informal discussion of today's most important issues impacting organic and sustainability. Discussion leaders include Walter Robb, Whole Foods Market; Michael Funk, UNFI; Samantha Cabaluna, Earthbound Farm; Linda Gerwig, Hain Personal Care; Ahmed Rahim, Numi Tea; Jeff Mendelsohn, New Leaf Paper; Alex Petrov, Better Living Brands Alliance; Brent Knudsen, Partnership Capital Growth Advisors; and other Bay Area organic business leaders.

The evening reception, held 6:00 – 9:30 pm at Clif Bar's headquarters in Berkeley, will feature top area business leaders, delicious organic food and beverages, live jazz music, a brief talk with Myra Goodman, co-founder of Earthbound Farm, and the "15-Minute Organic Film Festival!" Cost is \$25 and includes both events. Sponsors include O Organics, Lundberg Family Farms, Organic Valley, Horizon, Partnership Capital Growth, Be Green Packaging, and Whole Foods Market. To register, visit www.organic-center.org or call 303-499-1840.

[Back to top](#)



Core Truths on the Major Benefits of Organic Food and Farming



Core Truths is a ground breaking compilation of the most current research on organic agriculture. This highly readable and graphically stunning 108-page coffee table book documents the verifiable health and environmental benefits of organic products.

Core Truths includes fascinating research about why:

- Organic often tastes better
- Organic produce contains, on average, 30 percent higher levels of antioxidants
- Organic farming can cut mycotoxin risk by over 50 percent
- Organic food dramatically reduces pesticide exposure
- Organic farms typically use less energy

Order your copy now! Only \$30 (plus \$5 shipping and handling in US).

[Click here](#) for a preview of the book.

[Click here](#) to order.

Donate \$100 Now! Receive Free Copy of Core Truths

Be a part of supporting vital research about the science behind organic. Make a gift of \$100 to The Organic Center now, and we'll send you a free, hard-cover copy of our ground-breaking book, *Core Truths* (a \$35 value.)

Email [Seleyn DeYarus](mailto:Seleyn.DeYarus@organic-center.org) for details.

[Back to top](#)



The Organic Center Features Jerry Garcia Artwork

Do you or someone you know love The Grateful Dead? Do you enjoy beautiful original works of art? If so, select a giclee of Jerry Garcia original artwork and benefit The Organic Center. This unique fundraising initiative to benefit The Organic Center is made possible through the generosity of filmmaker Deborah

Koons Garcia and features the series, "In the Garden," by the late Jerry Garcia. Individual prints are \$250, or get the full series for \$1,000. To order your Jerry Garcia art, [click here](#).



The Organic Center's on-line fundraising program - Become a Friend of The Organic Center

We can now accept secure on-line donations with both [yearly](#) and [monthly](#) giving options. We also have wonderful gifts to say thank you for your support – including a free one-year subscription to *Organic Gardening* magazine, organic t-shirt, organic tote bag, our book, *Core Truths* and Dr. Alan Greene's new book, *Raising Baby Green*. We have many ways to say thank you for supporting our work.

[For more information](#)

[Back to top](#)



Our Research –

Individuals can support the scientific work of The Organic Center by:

- Sharing new information, data, or "Hot Science," email our [Chief Scientist](#)
- Helping us identify scientists that can contribute to our work, email [Chuck Benbrook](#)
- Making a contribution, [click here](#)

Companies, foundations, or individuals can support work by The Organic Center on a critical issue, or in a specific area through our donor directed research program. Contact [Dr. Benbrook](#) for details.

Our Outreach and Communication Program –

Informed consumers drive the organic marketplace. Help The Organic Center reach consumers with the latest science on the organic benefit by:

- Join [Mission Organic 2010](#) as an individual
- Distributing or reprinting excerpts from our studies
- Making a [donation to our communications program](#)



For companies, The Organic Center's Mission Organic Affinity Marketing Partnership Program provides resources and tools to help educate your customers about the personal benefits of organic food and farming. Become part of an effort to grow the U.S. market for organic from 3 percent to 10 percent by 2010.

- For more information about our affinity marketing program, email [Seleyn DeYarus](mailto:Seleyn.DeYarus@organic-center.org)
- Learn more about the [health and environmental impacts of Mission Organic 2010](#)

[Back to top](#)



"The Scoop," is an electronic newsletter published monthly by The Organic Center. For a free subscription, visit www.organic-center.org.

© 2008, The Organic Center. All rights reserved. Permission for reproduction of these materials for educational purposes will be granted by contacting The Organic Center at info@organic-center.org.

Editor: [Chuck Benbrook](#), Ph.D., Chief Scientist, The Organic Center

Design: [Karen Lutz Benbrook](#)

Circulation: [Matthue DeYarus](#)

[Back to top](#)



Backed by the world's leading scientists, physicians and scholars, The Organic Center is committed to two goals.

1) RESEARCH: providing free, peer-reviewed, credible science that explores the health and environmental benefits of organic agriculture.

2) EDUCATION: helping people and organizations access and better understand science that sheds light on the organic benefit.

To access free downloads of the latest in organic science, or to Join the Mission, go to: www.organic-center.org.

Managing Director: [Steven Hoffman](#)
Development Director: [Seleyn DeYarus](#)

TOC Board Chair: Michelle Goolsby, Consultant to Dean Foods
Chair Elect: Mark Retzliff, President, Aurora Organic Dairy
Treasurer: Mark Retzliff, President, Aurora Organic Dairy
Secretary: James White, CEO, Jamba Juice

The Organic Center



P.O. Box 20513
Boulder, CO USA 80308
tel 303.499.1840
fax 419.858.1042
www.organic-center.org