

THE ORGANIC CENTER PRESENTS: SOUNDS GOOD... BUT WHAT ABOUT THE CHEMICALS?

Friday, September 15, 2017

12:30 – 1:30 p.m.

SPEAKERS

Tracy Misiewicz, Associate Director Science Programs, The Organic Center

Gary Hirshberg, Co-Founder & Chairman, Stonyfield

Mark Lipson, Senior Policy & Program Specialist, Organic Farming Research Foundation

MODERATOR

Cynthia Barstow, Marketing Faculty, University of Massachusetts, Isenberg, School of Management
Founder & Executive Director, Protect Our Breasts

Sounds good... but what about the chemicals?



Tracy Misiewicz, PhD
Associate Director of Science Programs
The Organic Center



Do we really need to consider the use of synthetic chemicals in sustainable agriculture?



- Toxic, Synthetic Pesticides and fertilizers

Human Health

- Farm worker health
- Consumer health

Environment

- Water pollution
- Climate change
- Pollinator health

Human Health



Farmers, Farmworkers and Their Families



Health effects of pesticides: Adult mental health



- **Lower cognitive scores in elders**
Kim et al. 2016
- **Hypertension-induced dementia**
Kim et al. 2016
- **Depression**
Beard et al. 2014

Health effects of pesticides: Heart disease



- **Coronary heart disease**

Han et al. 2016

- **Myocardial Infarction**

Dayton et al. 2010

Health effects of pesticides: Respiratory health



- **Asthma**
Kim et al. 2017
- **Poor lung function**
Negatu et al. 2016
- **Wheezing**
Hoppin et al. 2016;
Henneberger et al. 2014

Health effects of pesticides: Cancer



- **Lung cancer**
Bonner et al. 2016
- **Prostate cancer**
Lewis-Mikhael et al. 2016
- **Breast cancer**
Cohn et al. 2015
- **Non-Hodgkin lymphoma**
Alavanja et al. 2014
- **Bladder cancer**
Koutros et al. 2015
- **Thyroid cancer**
Lerro et al. 2015
- **Ovary cancer**
Lerro et al. 2015

Health effects of pesticides: Children's health



- **Obesity and metabolic disorders**
Debost-Legrand et al. 2016
- **Tremors**
Rauh et al. 2016
- **Cognitive and developmental impairment**
Butler-Dawson et al. 2016;
Gonzalez- Alzaga et al. 2015
- **Lower IQ**
Bouchard et al. 2011; Gunier et al. 2016
- **ADD and hyperactivity**
Bouchard et al. 2010
- **Respiratory function**
Raanan et al. 2015

Community Exposure: Indirect exposure



Exposure to pesticides increases when:

- An agricultural worker lives in the home
- The home is close to agricultural land



Consumer Health



Pesticide Contamination



- Organic crops are 4X less likely to test positive for pesticide residues

An organic diet reduces pesticide exposure



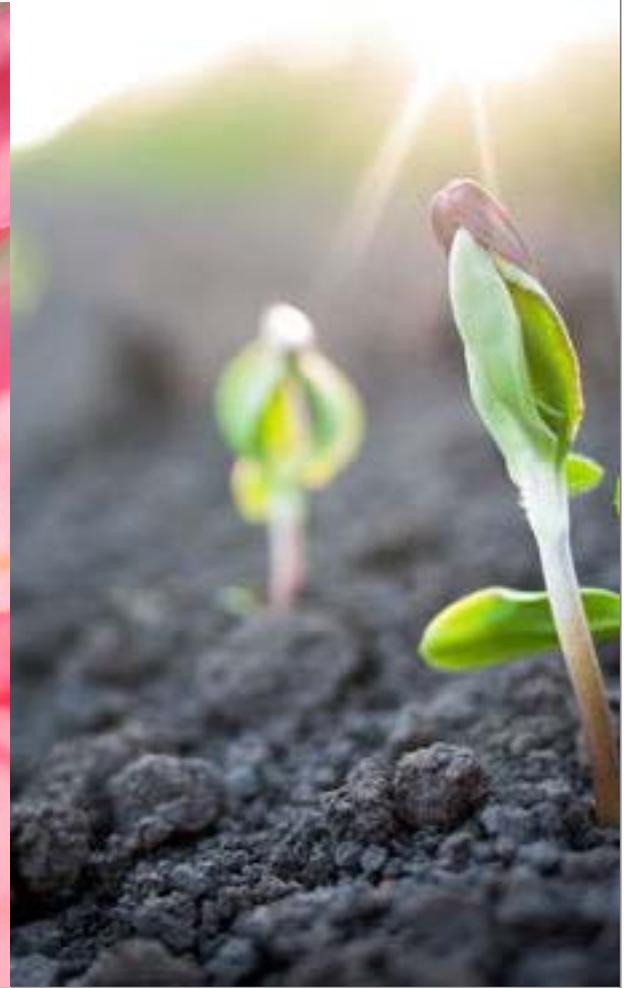
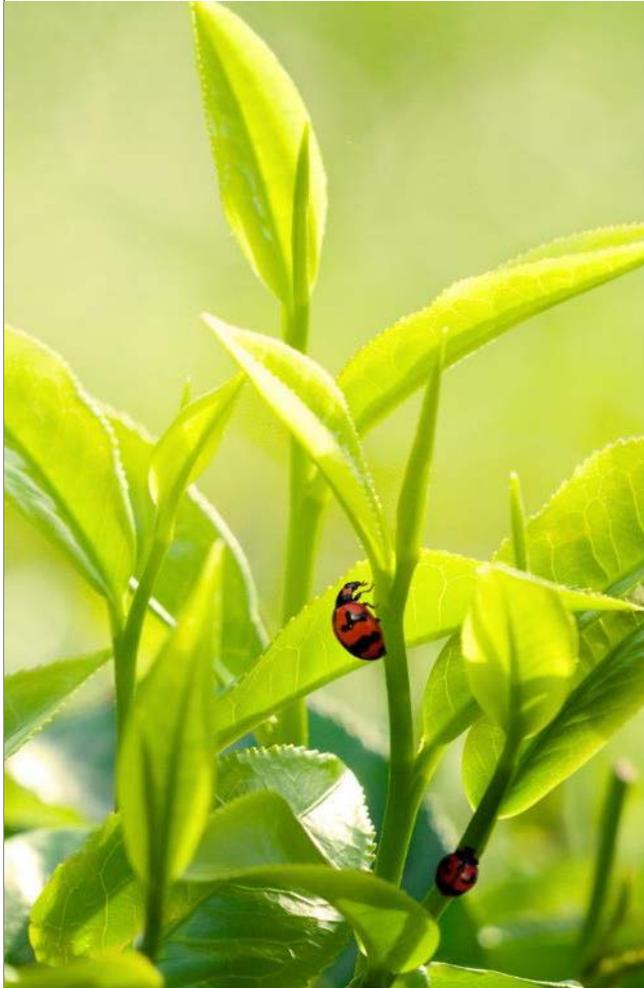
- Choosing an organic diet results in significant lower levels of pesticides in the body
- Even choosing organic “sometimes” results in a measurable difference.

Dietary pesticide exposure and human health



- Dietary exposure to pesticides is linked to lower sperm count and quality
- A lower risk of preclampsia in pregnant women has been associated with high organic vegetable consumption
- An organic diet during pregnancy is associated with reduced risk of certain birth defects.

Environmental Health



Water Quality



- Pesticide runoff
- Nutrient runoff
 - Dead zones
 - Algal blooms

Water Quality



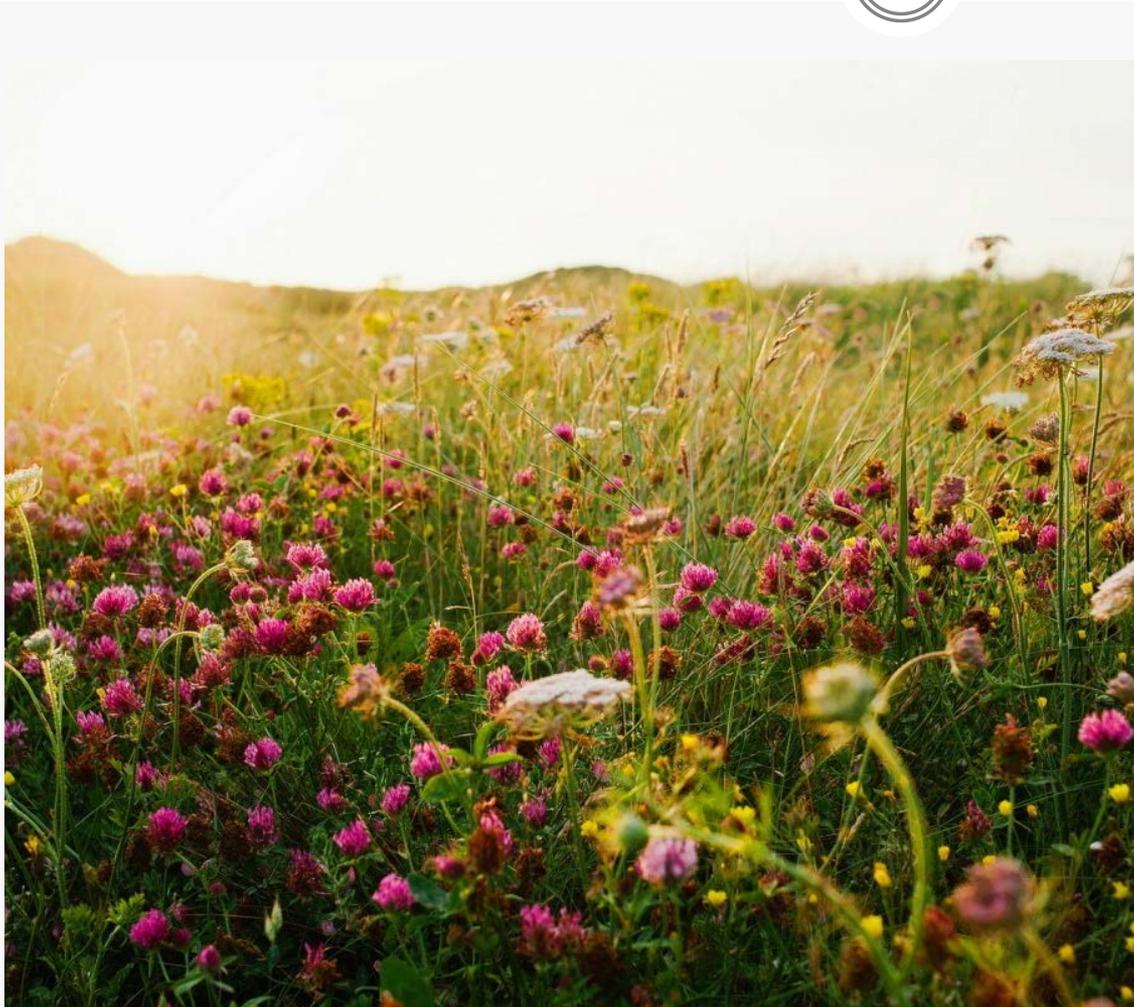
- Lower nutrient runoff
- Reduced pesticide runoff

Climate Change



- **Synthetic fertilizer use**
 - **Fossil fuels**
 - **Soil carbon depletion**

Climate Change



- Carbon sequestration in soil
- Decreased energy use
- Less greenhouse gas release

Pollinator Health



- Bee populations are declining
- Pesticides play an important role

Pollinator Health



- Organic farms prohibit toxic synthetic pesticides
- Provide habitat and forage for bees
- Organic farms have higher pollinator richness and abundance.

Do we really need to consider the use of synthetic chemicals in sustainable agriculture?



Sustainable farming techniques are important

- Crop rotations
- Manure and legumes
- Conservation tillage
- Fallowing
- Polycropping
- Hedgerows and buffers

Toxic synthetic pesticide and fertilizer use has cascading effects across all areas of environmental and human health

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DISCUSSION / QUESTIONS

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