The Multifunctional Benefits of Organic Agriculture

IFOAM – Organics International

The only global umbrella body for the organic sector.

People

800 member organizations in over 125 countries worldwide.

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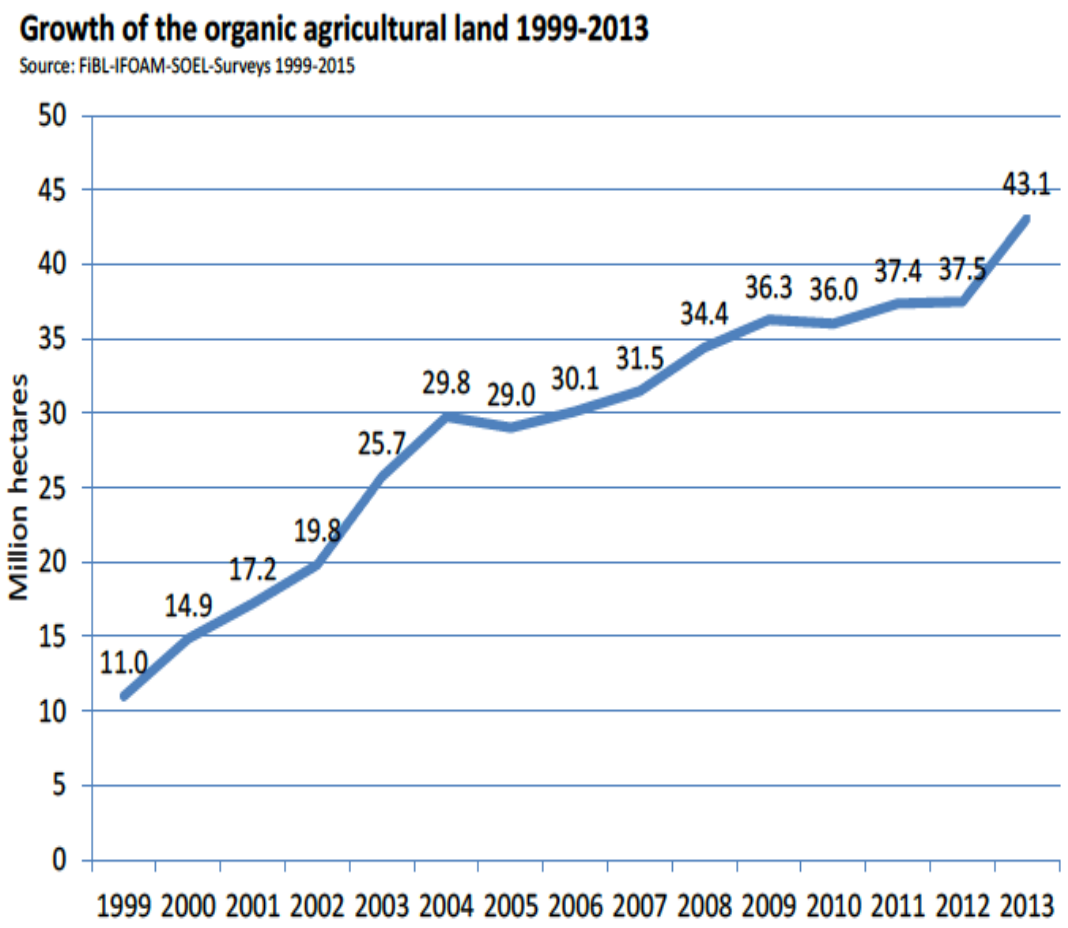
Presentation by Andre Leu, President, Kiev, Ukraine, April 16, 2015

The Rapid Growth of Organic

The Organic sector is the fastest growing multi-product agricultural sector in the world

The certified organic sector was worth over:

- **US $72 billion in 2013**
- **US $59.1 billion in 2010**
- **US $54.9 billion in 2009**
- **US $33.2 billion in 2005**
- **US $15.2 billion in 1999**



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Climate Change - Greater Resilience to Adverse Conditions

Organic Higher Yields in Climate Extremes

- Organic systems have higher yields than conventional farming systems in weather extremes such as heavy rains and droughts. (Drinkwater, Wagoner and Sarrantonio 1998; Welsh, 1999; Lotter 2004)
- The Wisconsin Integrated Cropping Systems Trials found that organic yields were higher in drought years and the same as conventional in normal weather years. *(Posner et al. 2008)*
- The Rodale FST showed that the organic systems produced 30 per cent more corn than the conventional system in drought years. *(Pimentel D 2005, La Salle and Hepperly 2008)*

2015 International Year of Soils
Improved Efficiency-Water Use, Erosion

Organic Practices Increase Infiltration and Soil Stability

Organic **Conventional**

Picture: FiBL DOK Trials

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Improved Soil Structure

Soil Organic Matter Multiple Benefits

- Higher water infiltration
- Higher water holding cap
- Higher microbial activity
- Increased stability

- Higher corn and soybean yields in drought years
- Increased soil C and N

Source: Rodale Institute

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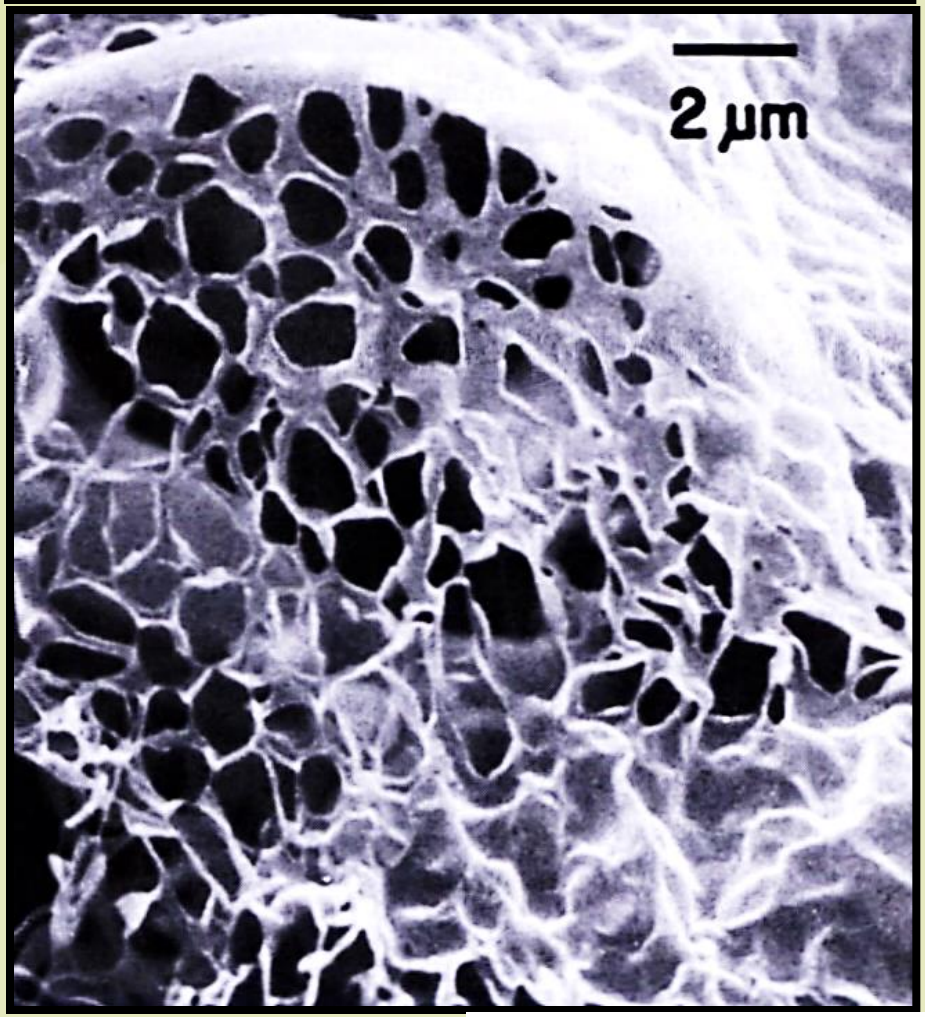
Soil Organic Matter
Living Carbon-Humus

- Holds up to 30X its weight in water
- Cements soil particles and reduces soil erosion
- Increases nutrient storage & availability
- Humus can last 2000 years in the soil

Electron micrograph of soil humus



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The RODALE INSTITUTE

Improved Efficiency of Water Use

Research Shows that Organic Systems use Water More Efficiently

Volume of Water Retained /ha (to 30 cm) in relation to soil organic matter (SOM)

- **0.5% SOM = 80,000 litres (common level Africa, Asia)**
- **1 % SOM = 160,000 litres (common level Africa, Asia)**
- **2 % SOM = 320,000 litres**
- **3 % SOM = 480,000 litres**
- **4 % SOM = 640,000 litres (levels pre farming)**
- **5 % SOM = 800,000 litres (levels pre farming)**

Adapted from Morris, 2004.

Organic Corn - 1995 Drought - Resilience

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High Yield Organic Agriculture in Droughts

The average corn yields during the drought years were from 28% to 34% higher in the two organic systems.

The yields were 6,938 and 7,235 kg per ha in the organic animal and the organic legume systems, respectively, compared with 5,333 kg per ha in the conventional system (Pimentel, 2005)

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Provides Good Yields

A report by the United National Conference on Trade and Development (UNCTAD) and the United Nations Environment Programme (UNEP) stated on Organic Agriculture:

114 projects in Africa covering 2 million hectares and 1.9 million farmers

'…the average crop yield was … 116 per cent increase for all African projects and 128 per cent increase for the projects in East Africa.'

Organic Agriculture and Food Security in Africa 2008

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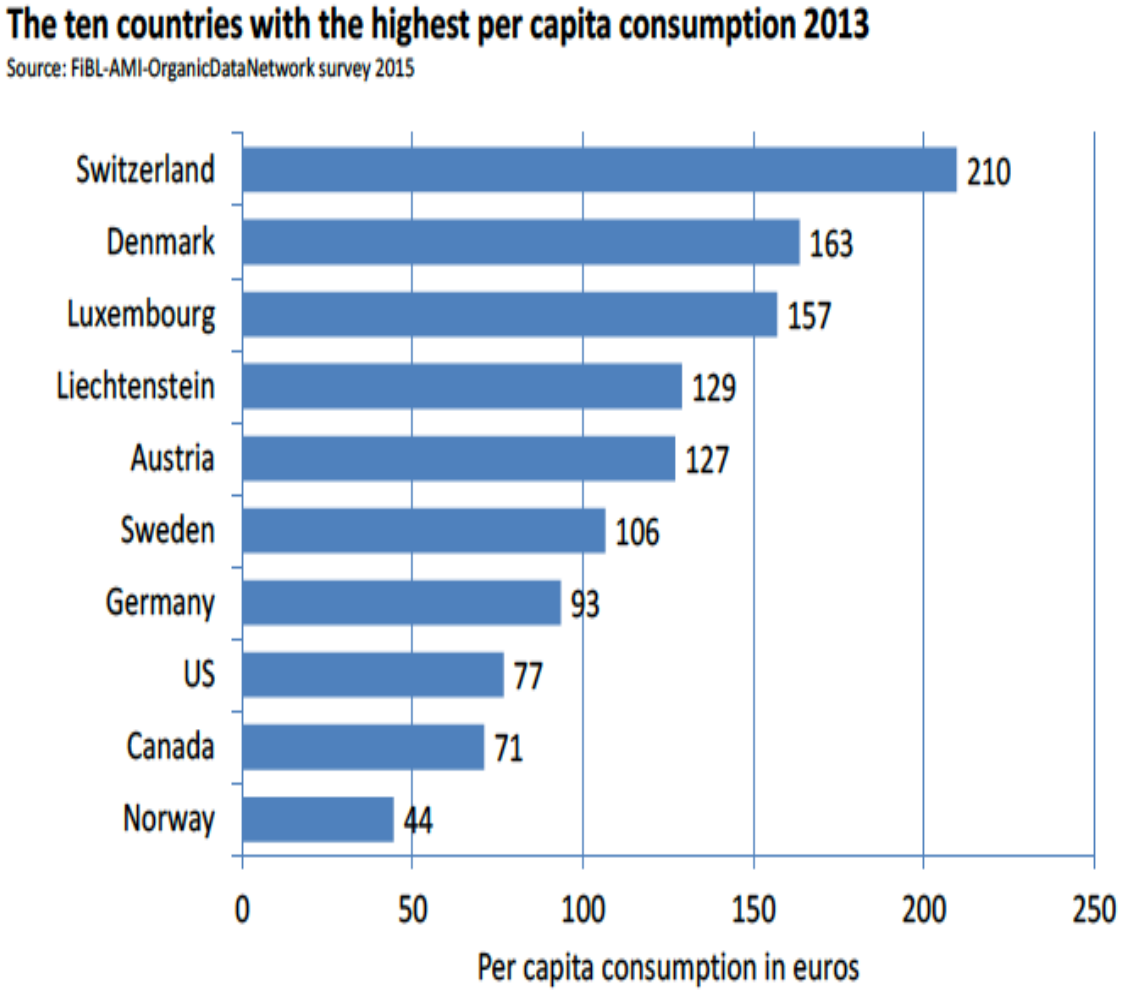
The Main Driver of Growth - Health

The Organic Sector is Consumer Driven – Still with low base

All surveys show that ***Health*** is the ***main driver*** for purchasing organic food – rather than environment, taste, animal welfare etc.

Become organic consumers when they have children – want the best for them

Avoiding ***Pesticides*** followed by food additives, synthetic chemicals and GMOs are the main health concerns – rather than nutrition



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The Drivers of Growth - Health

The Sydney Morning Herald

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Half the pesticides found in urine of people who eat organic produce, study finds

February 9, 2015

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Sarah Berry

Life & Style reporter

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Are the current residues in food safe?

"The study suggests that by eating organically grown versions of those foods highest in pesticide residues, we can make a measurable difference."

Dr Ian Musgrave, senior lecturer in Pharmacology at the University of Adelaide, isn't convinced the difference is meaningful.

Although those who ate conventional produce had double the amount of pesticides in their urine, it's still well below the safety levels, Musgrave said.

This means that those who eat mostly or all conventional produce tested 500-fold below the estimated safety levels.

"If you eat mostly or only organic produce, you will excrete fewer pesticide metabolites but that the risk of having more pesticide metabolites in your body compared to the benefits of eating more fruit and vegetable is negligible."

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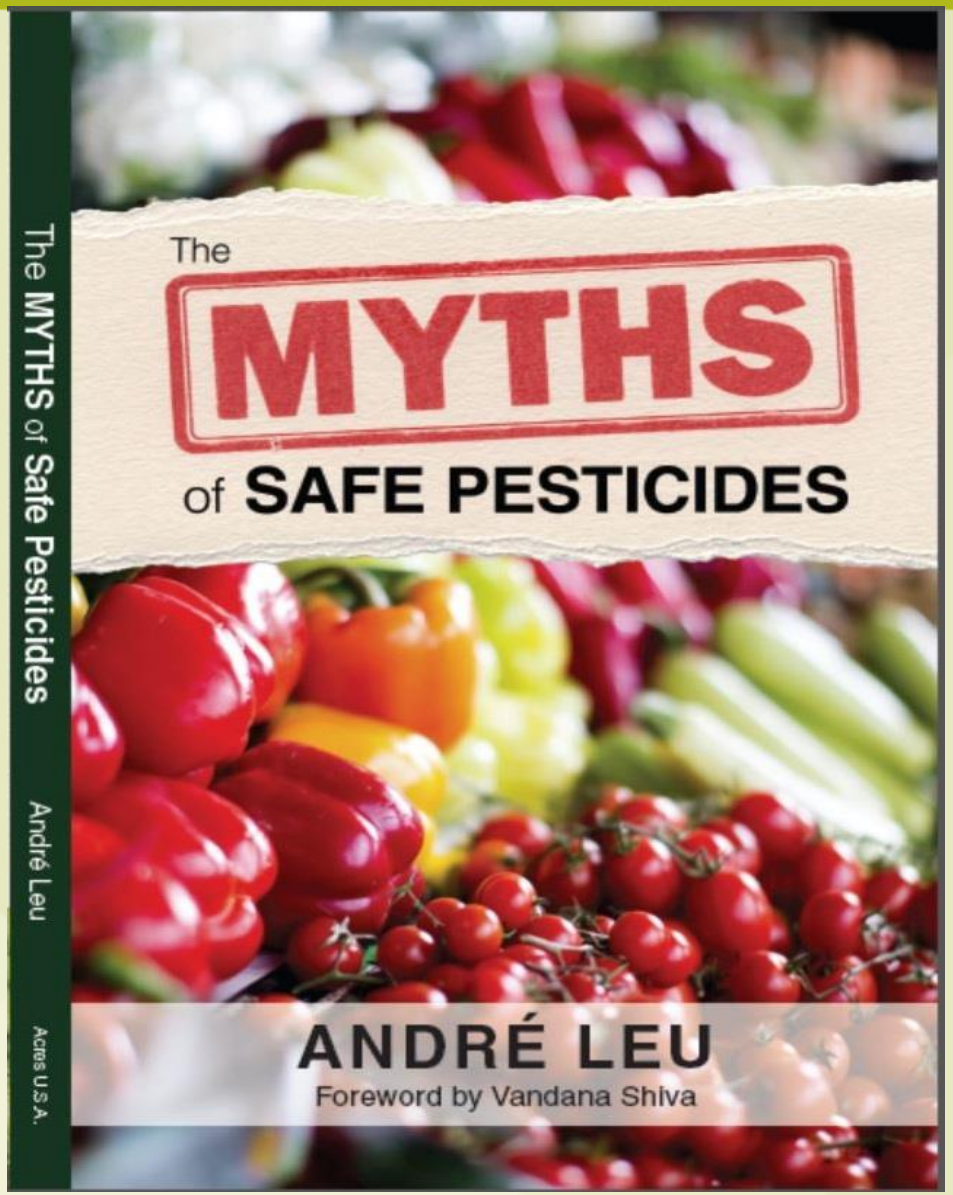
Increasing Awareness about the Dangers of Food Pesticides to Children – Health Benefits of OA

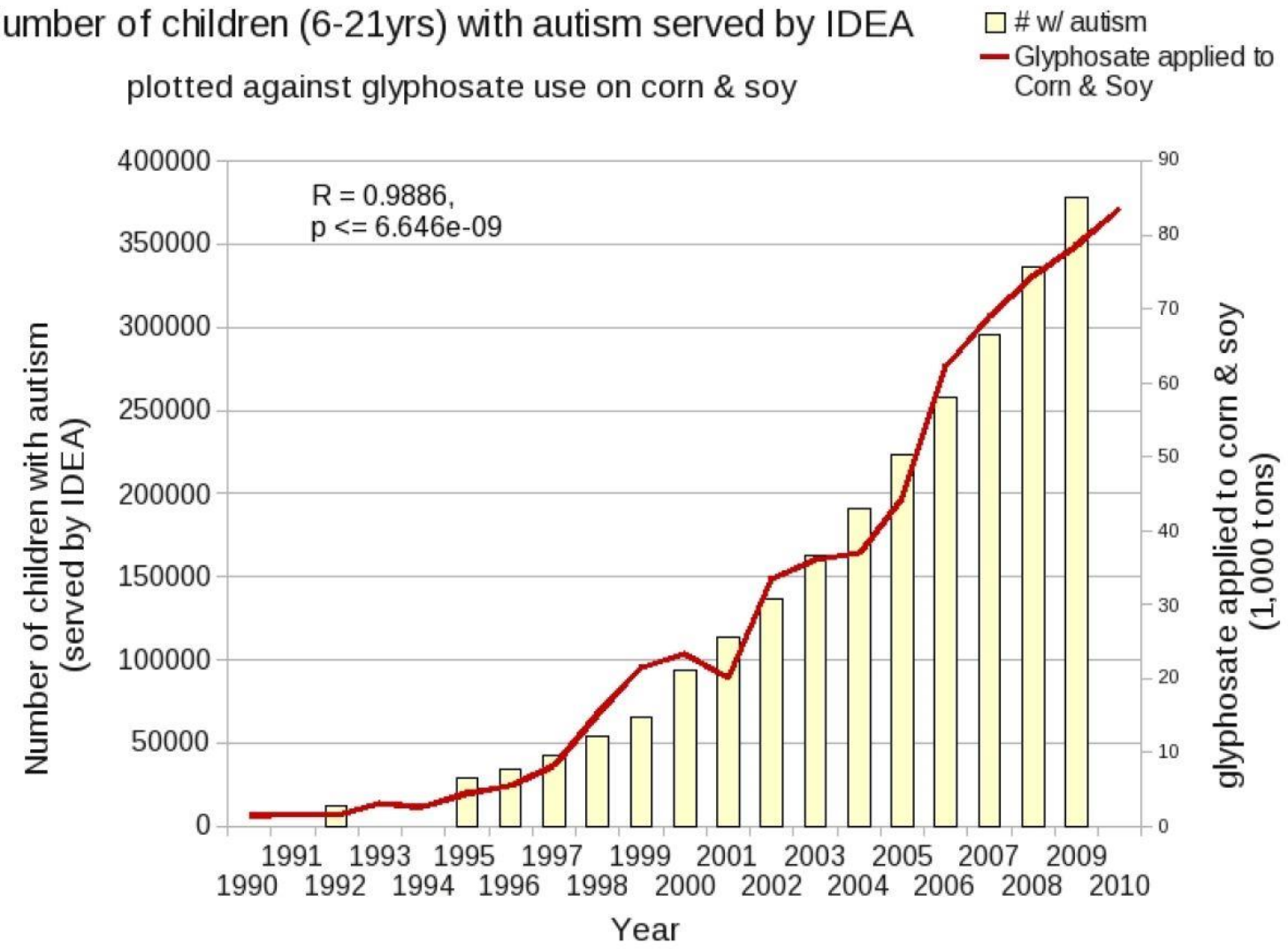


Children, newborn and the fetus

Pesticide damage in developing children causes:

- Lower IQs
- ADHD
- Autism spectrum disorders
- Lack of physical coordination
- Loss of temper – anger management issues
- Bipolar/schizophrenia spectrum of illnesses
- Depression
- Childhood obesity

Increasing Awareness about the Dangers of Pesticides to Children- Health Benefits of OA



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The Myths of Safe Pesticides

The US President's Cancer Panel (USPCP)

'Some of these chemicals are found in maternal blood, placental tissue, and breast milk samples from pregnant women and mothers who recently gave birth.'

'These findings indicate that chemical contaminants are being passed on to the next generation, both prenatally and during breastfeeding.'

'Leukemia rates are consistently elevated among children who grow up on farms, among children whose parents used pesticides in the home or garden, and among children of pesticide applicators.'

'Yet over the same period (1975–2006), cancer incidence in U.S. children under 20 years of age has increased.'

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The Myths of Safe Pesticides

Children, newborn and the fetus

•Scientific research shows that pesticides effect the normal development of the nervous system in the fetus and children
•The fetus and newborn possess lower concentrations of protective of serum proteins
•The brain is the largest collection of nerve cells

'These results indicate that chlorpyrifos and other organophosphates such as diazinon have immediate, direct effects on neural cell replication.' (Qiao 2001)

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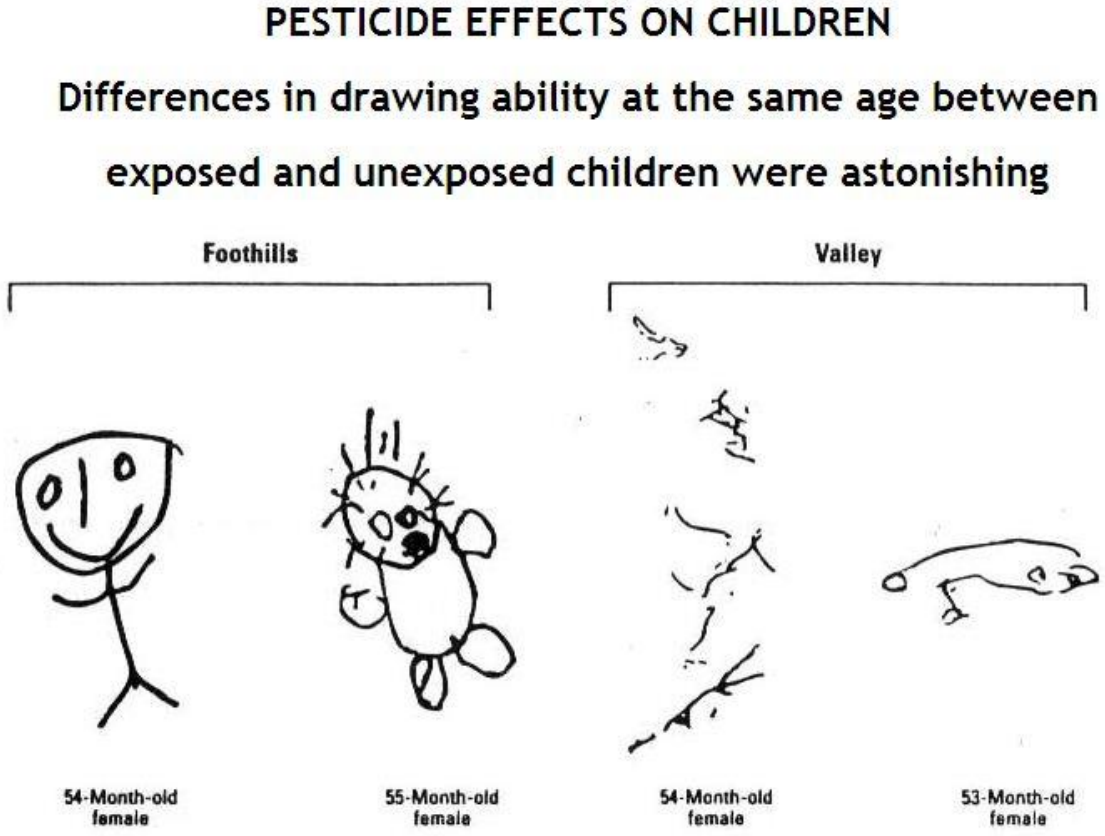
The Myths of Safe Pesticides



1. Representative drawings of a person by 4-year-old Yaqui children from the valley and foothills of Sonora, Mexico.

E. A. Guillette et al, "An Anthropological Approach to the Evaluation of Preschool Children Exposed to Pesticides in Mexico," Environmental Health Perspectives, 106(6):347-53, June 1998.

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The Myths of Safe Pesticides

Children, newborn and the fetus

Four recent studies show that prenatal exposure to organophosphate insecticides (OPs) adversely affects the neurological development of children. (Rauh et al., 2011, Rauh et al., 2012, Bouchard et al., 2011, Engel et al., 2011)

•Parents should have considerable concern that the Columbia University study found that there was ***no evidence of a minimum level of exposure*** in the observed adverse impact on intelligence.

•Caused brain abnormalities in children who were exposed to chlorpyrifos in utero through normal non occupational uses – i.e. eating conventional food

•***Most people get their exposure from residues in food***

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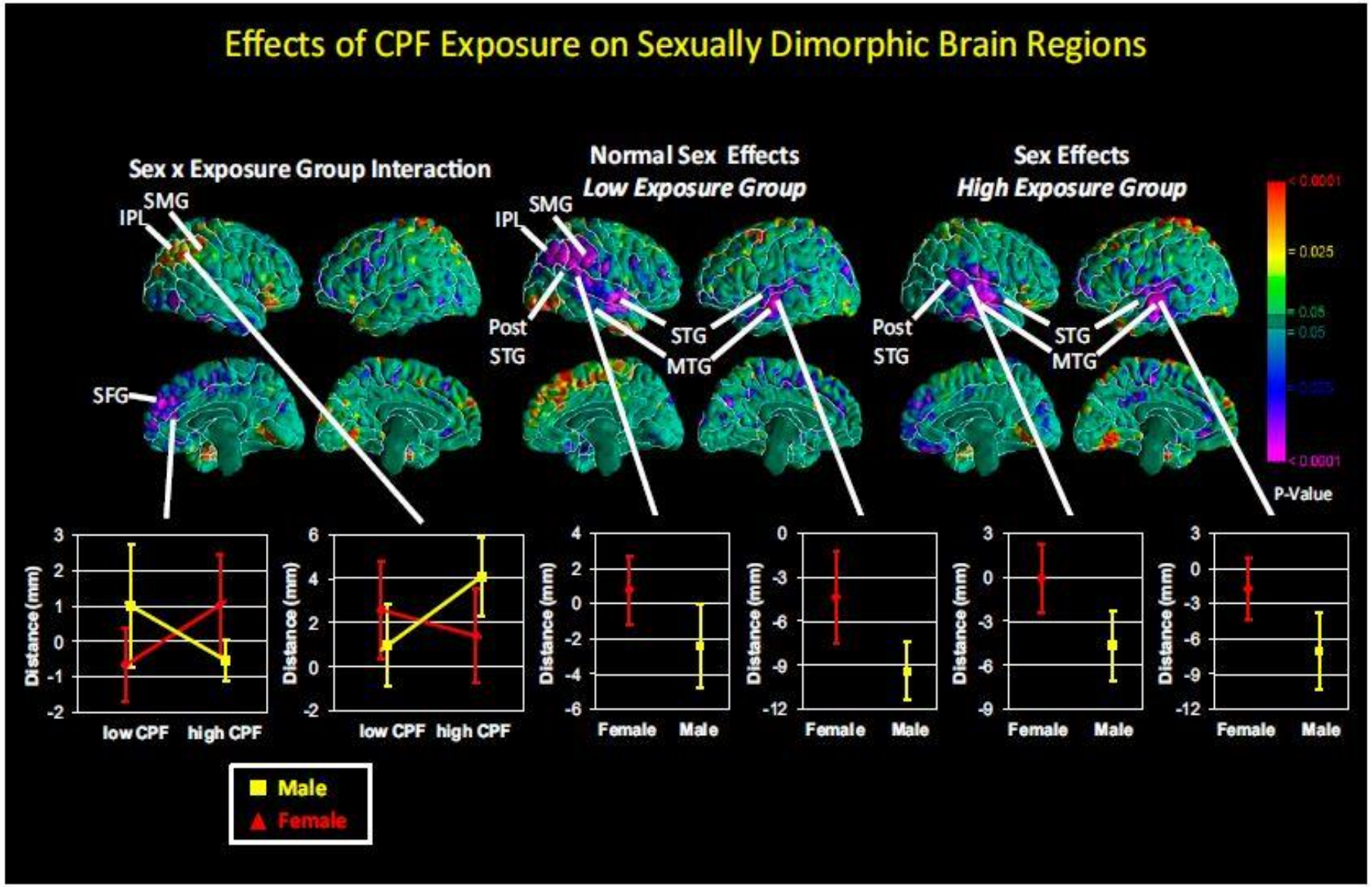
Increasing Awareness about the Dangers of Pesticides to Children- Health Benefits of OA



Thank You

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