Modern Agricultural Myths: From factory farm fallacies to biotech BS

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Campaign Against Modern Farming

- Pesticides cause cancer
- Farm chemicals kill wildlife
- More food = more people (overpopulation due to modern farming)
- Modern farming unsustainable due to soil erosion
- Biotechnology is dangerous and food safety risk
Reality of Accusations

- Pesticides reduce cancer
- Modern agriculture saves wildlife through habitat conservation
- More food = less people
- Soil erosion is being tackled through modern agriculture
- Biotechnology our best option to REDUCE food safety risks
There is zero evidence that modern pesticides have caused cancers or other human health problems.
Organophosphate Pesticide Residues: How Risky?

- 2005 studies by U.S. CDC researcher shows that the most exposed theoretical 5% of North American children are exposed to less than $1/2000$th of a non-toxic dose in the most sensitive animal species tested. Fully within FDA/EPA daily exposure safety levels.

- For comparison, therapeutic dose of aspirin is $1/70$th of a toxic dose.
DDT Caused Bird Declines?

Simply NO EVIDENCE that DDT caused population declines or prevented population recovery.

- Bald eagles gone from New England by 1937 (HENCE: Bald Eagle Protection Act of 1940, four years prior to 1st use of DDT)
- 170 Peregrine breeding pairs in 1940
- Brown Pelican population down to 200 in 1941 (down from 5,000 in 1918)
DDT Thins Eggshells?

- Carson claimed that DDT thinned eggshells, based on studies of Dr. James DeWitt, USFWS.
- Actual DeWitt paper (J. of Ag and Food Chem. 1956) shows that in quail 84% of control eggs hatched vs. 75-80% of DDT-fed birds.
- With pheasants, 57.4% of controls hatched vs. 80.6% of DDT-fed birds.
- 8 week survival was 89.7% control vs. 93.3% DDT birds.
- Similar findings for raptors. Only egg thinning achieved by severely restricting calcium in diet.
Hawk Mountain Bird Count Data

Number of migrating hawks and eagles:

- 1946 -- 9,291
- 1963 -- 16,163

Note: considerable fluctuation year to year
• EPA Administrative Law judge ruled against banning DDT for lack of evidence of harm.

His decision was overruled by EPA Administrator Ruckelshouse, a political appointee who admitted he did not attend a single minute of seven months of scientific testimony or read any transcripts. Ruckelshaus was a charter member of the EDF
Carson’s Scientific Integrity

• Carson originally had a co-author for *Silent Spring*, Edwin Diamond, science editor of *Newsweek*. He backed out soon after they started collaborating. He eventually called her work “an emotional, alarmist book seeking to cause Americans to mistakenly believe their world is being poisoned.” (Sat. Evening Post, Sept. 28, 1963)
Organic is “Better for the Environment”

#2 justification of the organic movement and the organic faithful, behind #1 claim of “healthier/safer”

#2 marketing claim of organic food retailers, behind “healthier/safer”

#1 reason of organic activists advocating 100% organic farming
“Whenever you buy organic products, [you are telling] farmers, producers and retailers that you care about the earth, too, and that you want them to continue with their efforts to save the planet.”

Organic Trade Association website

Better for Environment How?

The main supporting “facts” for the “better for the environment” claim are less pollution from:

- Claimed non-use of “toxic pesticides”
- Claimed environmental benefits of using only “organic” fertilizers
Organic & Environment

Organic farming is promoted by environmental groups as “solution” to environmental problems and the “future” of farming.

Yet organic agriculture can NOT meet world food needs without massive environmental destruction.
Organic Unreality

• It would require manure from additional 6-8 BILLION cattle to replace current use of 80 mmt of synthetic Nitrogen fertilizer with organic nitrogen fertilizer!
• Total global cattle population is only 1.3 billion cattle (Vaclav Smil, Univ. of Manitoba, Canada)
Organic Fertilizer = Land
Denmark with 100% Organic

Danish Human-Edible Crop Production

- Eggs
- Beef
- Fruits and berries
- Vegetables
- Sugar
- Rape
- Potatoes
- Pork and Poultry
- Milk
- Grain

Production

1996

100% Organic
Organic Yields Lower

Corn: field trials

Wheat
20 YEARS
OF REFUSING TO FARM WITH
TOXIC PESTICIDES.

Stubborn, perhaps. Healthy, most definitely.

When it comes to protecting your family’s health, we stand our ground. That’s why we’ve never wavered from the commitment we made 20 years ago: to grow all of our salads, fruits and vegetables without toxic and persistent chemicals. And while farming organically may cost more, the rewards are most certainly worth it. Because with each delicious bite, you can take comfort in knowing you’re protecting your family’s health. And that’s priceless.

Earthbound Farm
Food to live by.
No Toxic Pesticides?

- Copper
- Sulfur
- Oil (petroleum distillates)
- Pyrethrum
- Rotenone
- Sabadilla
Organic Pesticide Ecological Risks

- Rotenone extremely toxic to fish
- Copper toxic to fish, long-term soil and/or sediment contaminant
- Sulfur toxic to arthropods and long-term soil contaminant
- Impacts on beneficial organisms?
### Traditional Pest Management Strategy

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<th>Material</th>
<th>EIQ</th>
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# Organic Pest Management Strategy

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Organic Pesticide Flunks EPA Cancer Test

MEMORANDUM

SUBJECT: Pyrethrins - Report of the Cancer Assessment Review Committee

FROM: Sanjivani Diwan
Executive Secretary
Cancer Assessment Review Committee
Health Effects Division (7509C)

TO: Barry O'Keefe, Chemical Review Manager
Reregistration Branch 2
Special Review and Reregistration Division (7508C)

May 6, 1999
Soil Erosion: Stanley Trimble
Finds Truth
Soil Erosion Past
Soil Erosion Present
Organic farming has no practical alternative to plowing and increased soil erosion.

Latest USDA data show herbicide-based no-till farming reduces soil loss by 80% over organic and old-style conventional plowing.
Organic Trade Association

Protect water quality…
Organic growers and processors use practices that eliminate polluting chemicals and nitrogen leaching, and thus protect and conserve precious water resources.

Really? . . .
Nitrogen leached from the Broadbalk Experiment
Mean of the years 1990-8

N leached (kg/ha/yr)

Same yields!!

All manure

Annual fertiliser N application (kg ha$^{-1}$)

--- + P, K, Mg

--- + FYM
Hog Farming and Environment

- Water quality threat from massive waste.
- “Typical factory hog farm produces more waste than small city”
- North Carolina water quality ruined by intensive hog farming
- Robert F. Kennedy Jr. says hog farming worse threat to the U.S. than Osama bin Laden!

Really? . . .
Hog population in Black River Watershed (thousands)
Water Quality: Hogs

Black River Nutrient trends
Station NC 411 NR Tomahawk
Herrings Marsh Run

Beaver Dam

Subwatershed 2

Watershed Outlet

Subwatershed 3
No More Chicken Run
By ALEX AVERY and DENNIS AVERY
August 26, 2005
Factory farming is healthier: for animals and people. That's the take-home message as Dutch health authorities this week ordered free-range poultry farmers to bring inside their five million outdoor birds. There the birds will be less vulnerable to catching or spreading the deadly avian flu virus that's made its way from Southeast Asia to the doorstep of European Russia in recent weeks.

German health authorities are considering their own ban on outdoor birds, over the objections of their country's organic, free-range poultry farmers. Thomas Dosch, head of Bioland, Germany's largest organic organization, said that "exceptions are needed from the order," such as allowing birds to use open-air pens covered by netting. Unfortunately, such netting will not protect the flocks from the wild-bird droppings that spread the disease. Organic farmers are obviously more concerned with their market premiums than public and poultry health.
Biotechnology

Increased productivity through biotech

- Wild crop relative genes
- Crop tolerance to contaminants in soil, such as aluminum or salt
- Higher resource use efficiency, such as water and fertilizer
- Reduced pesticide use
- Reduced contamination with toxins
Higher Yields
Biotech Salt Tolerance
Aluminum Tolerance
Golden Rice

1

2

3

4
Biotech Forest Products
Myth: Biotech will not help farmers in developing countries

Wrong! Herbicide tolerant crops in Africa, insect resistance, virus resistance, nutritional enhancement, etc.
Bt cotton yields up 80%
Global food demand will at least double and likely triple over the next 50 years.
World Future Food Demand 2000-2050

- Total food demand is a combination of population and affluence
- Global population is still growing rapidly
- Major portions of global population are gaining relative affluence faster than at any time in human history
Population Growth

Malthusian Population Predictions

Billion People
Population

Past and Projected World Population

(Billion People)

Year

Declining Fertility

The graph shows the comparison of fertility rates between 1960-65 and 1996 for different countries:

- **China**: 1960-65 (5.0), 1996 (2.5)
- **India**: 1960-65 (3.8), 1996 (3.2)
- **Egypt**: 1960-65 (7.5), 1996 (5.0)
- **Bangladesh**: 1960-65 (6.5), 1996 (3.8)
- **Mexico**: 1960-65 (4.5), 1996 (2.8)
Population Brakes On!

Fertility Rate in Developing Countries

Food Demand: Affluence

Increasing affluence in formerly poor countries will be as big if not a bigger factor in the next 50 years of food demand growth as population growth.
Rising Affluence: China

- In 1970, the “Precious Three” most desired consumer goods were: bicycle, wristwatch, & transistor radio
- 1980: Telephone, television, refrigerator
- 1990s: Cell phone, computer, & Automobile
Affluence: Diet Impact

- Food is one of the first things people change when they get higher relative incomes.
- More diverse grains, cooking oil, eggs, dairy products, meat, fruits and vegetables.
- Animal protein increases.
- Very few voluntarily vegan cultures.
Affluence = Meat

Chinese Meat Consumption

[Graph showing the consumption of pork, poultry, and beef from 1991 to 2003 in thousand metric tons. The graph indicates a steady increase in consumption over the years.]
Affluence: Not just food

- Clothing demand increases with affluence
- Pet food demand increases with affluence
- Beer demand increases with affluence
Chinese Affluence

- One extra beer per week for each of China’s 500 million adult men would add 3.25 billion gallons of beer demand annually!
- Equivalent pet ownership as N. America for China would be 500 million cats and dogs!
Population + Affluence

Rising demand for high-quality foods (meat, dairy products, etc.) will increase the effective food demand of the growing world population.
World Land Use

- Forest
- Pasture/R
- Crops
- Other
High-Yield Farming

- Greatest Conservation tool.
- If we still achieved yields of 1960, an additional 15-20 million square miles of farmland needed to produce today’s food supply.
- Only two ways to meet 21st century food challenge: more land or more food per acre
Modern Agriculture

- Best way to reduce health and environmental risks
- Increased food safety
- Lower pesticide use (Safer too!)
- Wildlife habitat conservation
Sign High Yield Conservation Declaration

www.highyieldconservation.org

Join Greenpeace co-founder, Dr. Patrick Moore

Two Nobel Peace Prize Winners, Borlaug and Arias

Senators McGovern and Boschwitz