“Organic Pesticide” is not an Oxymoron

- Gary Fish

Do organic growers use pesticides?

- Over 25% of OMRI listed products are pest management products
- 312 are registered by EPA as pesticides
- 188 are registered as pesticides in Maine
- 139 of the pesticide products are not registered by EPA and should not be used to control pests in the US

Organic produce may contain organic pesticide residues

- According to the 2008 USDA Pesticide Data Program Report:
  - 43% of organic spinach samples were positive for spinosad
    (13 of 30 samples positive)

Dow AgroSciences

Entrust®

A Naturalyte® insect control product formulated for the organic grower for control of lepidopterous larvae (worms or caterpillars), leafminers, thrips, and red imported fire ants.

This bag [container] is not for individual resale.

Active Ingredient:
spinosad
(a mixture of spinosyn A and spinosyn D) 80%
Other Ingredients 20%
Total 100%

Contains 80% active ingredient on a weight basis.

U.S. Patent No. 5,362,634 and 5,496,931

OMRI Listed

Listed by the Organic Materials Review Institute (OMRI) for use in organic production.

Keep Out of Reach of Children

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for additional precautionary information including Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

EPA Reg. No. 62719-282 900-014240 / 00216558

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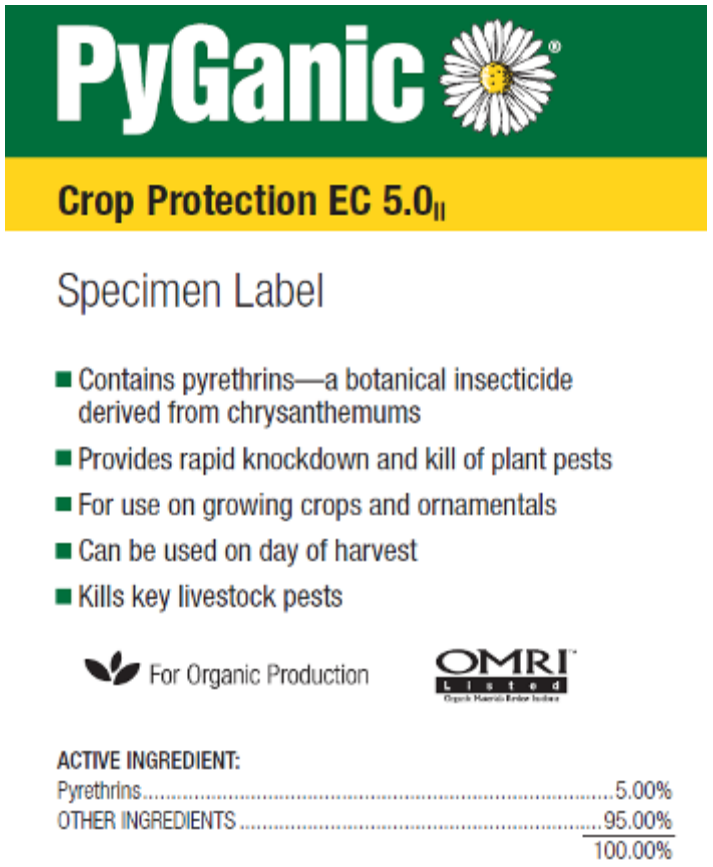
Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

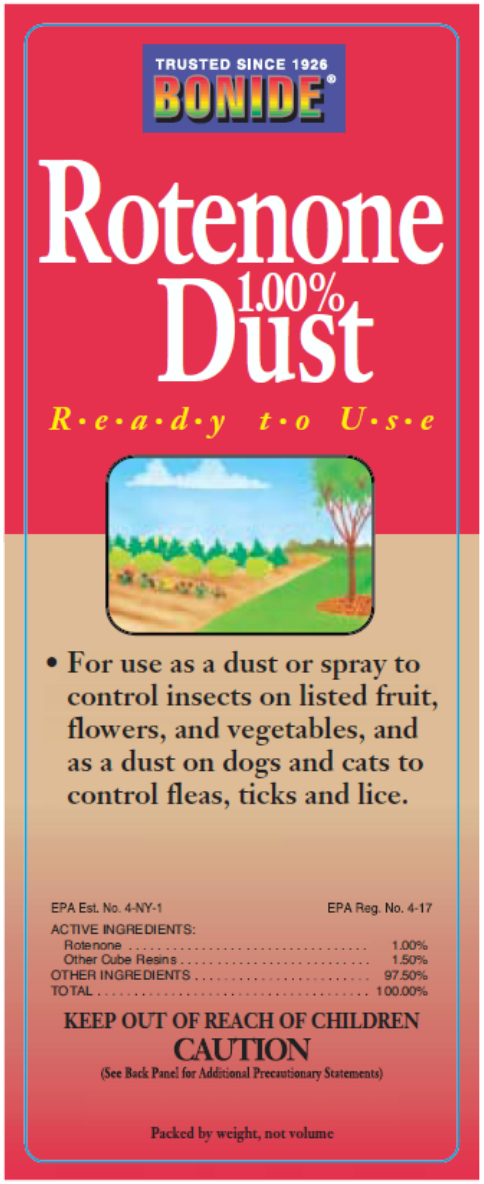
Are botanical pesticides risky?

- **Pyrethrin has a changing cancer rating –**
  - **EPA now ranks it as a carcinogen at doses that cause increased cell division in the liver**
- **It has also been shown to be a thyroid hormone disruptor**



Are botanical pesticides risky?

- Old standby botanical insecticide
- In 2006 the manufacturers/distributors voluntarily canceled the registration
- Why? In 2004 EPA required an inhalation neuro-toxicity study.
  - Looking at Parkinson's Disease-like symptoms.
  - Dust products are of particular concern for inhalation exposure.
  - Because of fetal sensitivity EPA required a 10X reduction in exposure potential



Are “organic” fungicides risky?

- **Copper is an element, so it does not degrade in the soil**
- **Since 2006 the EU has severely restricted use of copper fungicides (5.4 lbs/Ac/Yr) and Holland and Denmark have banned them**

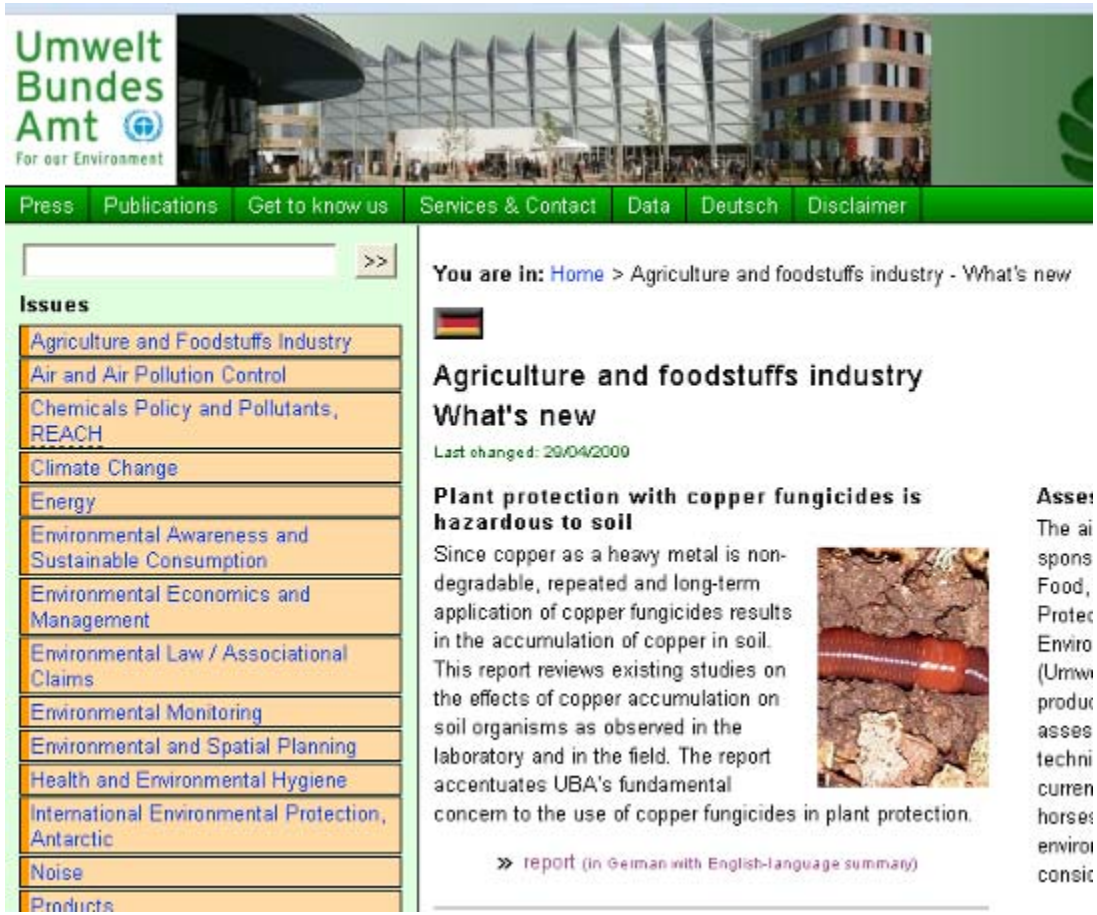
Battling blight the organic way

An example of the blight-free potatoes

Potato late blight is a serious disease in both conventional and organic agriculture, causing drastic crop loss as the Irish potato famine of 1845 most graphically demonstrated. Organic production of potatoes has long relied on copper based fungicides to control blight, but the negative impact of the accumulation of copper in perennial crops (e.g. grapevine and top fruit) led, in March 2002, to a ban on their use in organic agriculture across Europe. Organic potato producers must learn to control blight without copper while maintaining the yields required to remain competitive. A Europe-wide project, funded via the European Commission's Key Action Five programme, is underway that seeks to develop new strategies for the long-term control of potato blight in organic agriculture.

Are “organic” fungicides risky?

- **Soil accumulation is especially pronounced in perennial crops**



Recent research shows the environmental hazards of copper fungicides

- Copper concentrations are higher in many agricultural soils
- In the lab copper significantly harms soil organisms (especially earthworms)
- Field results for soils over 50 ppm of copper have clear effects on earthworms
- 20 – 36% of copper fungicides can run off from plastic mulch and harm aquatic life

Environmental Fate and Ecological Impact of Copper Hydroxide: Use of Management Practices to Reduce the Transport of Copper Hydroxide in Runoff from Vegetable Production

Pamela J. Rice[1], Jennifer A. Harman-Fetcho[2], Lynne P. Heighton[2], Laura L. McConnell[2], Ali M. Sadeghi[2], and Cathleen J. Hapeman[2]

[1]Agricultural Research Service, U.S. Department of Agriculture, St. Paul, MN 55108;
[2]Agricultural Research Service, U.S. Department of Agriculture, Beltsville, MD 20705

Vegetable production practices combining copper-based pesticides with polyethylene mulch create conditions for highly toxic runoff emissions to surface waters. Copper hydroxide is a widely used fungicide-bactericide approved for both organic and conventional agricultural production of vegetable crops for control of diseases. Copper-based pesticides are often viewed as more "natural" than synthetic organic pesticides, but aquatic biota, such as the saltwater bivalve *Mercenaria mercenaria*, are extremely sensitive to low concentrations of copper. The use of polyethylene mulch in organic and traditional vegetable production is gaining popularity because it decreases pesticide use and warms the soil allowing for earlier crop planting, but its use also increases runoff volume and soil erosion. Two field studies were conducted to evaluate the effectiveness of management practices to reduce loads of copper in runoff from tomato production. Seasonal runoff losses of 20 to 36% of applied copper hydroxide were observed in tomato plots using plastic mulch with bare soil furrows. The addition of vegetative furrows between the raised, polyethylene-covered beds or the replacement of polyethylene mulch with vegetative residue

Essential oil pesticides

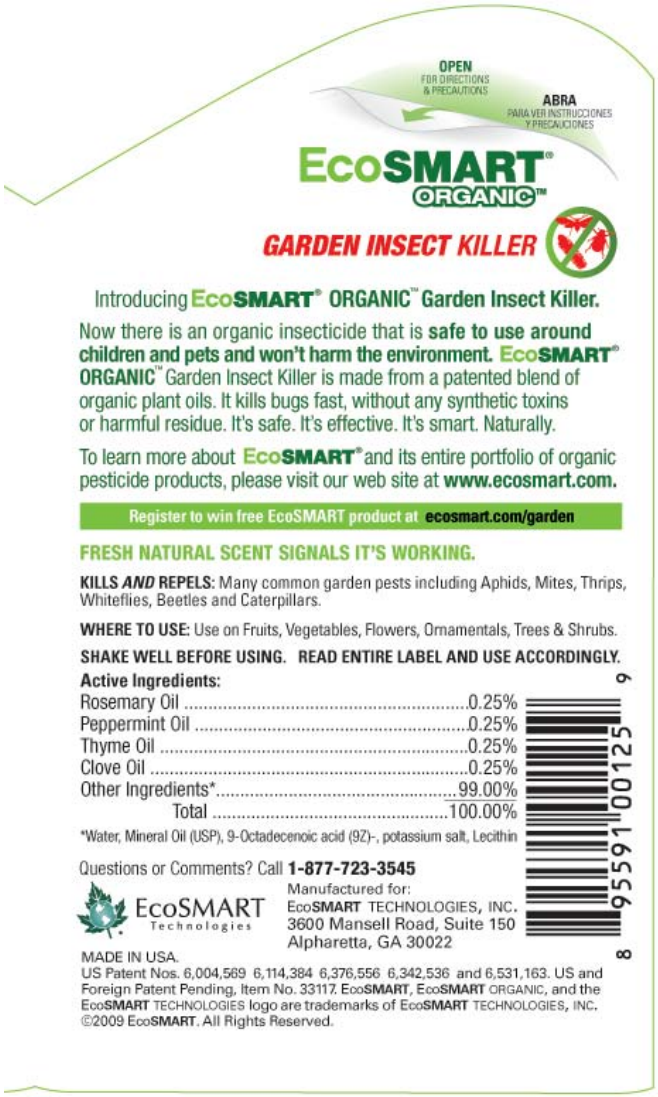
- **Some pesticides have been deregulated by EPA**
  - **FIFRA 25(b) Exempt**
  - **Exempt from Federal registration**
  - **Exempt from toxicity testing**
  - **Some are OMRI listed**

Ingredients in these products

- **Rosemary oil**
- **Peppermint oil**
- **Thyme oil**
- **Clove oil**
- **Wintergreen oil**
- **Cinnamon oil**

What do we know about the risks?

- Not enough since they are exempt from toxicity tests
- Rosemary oil – not well tested
- Peppermint oil –
  - sensitization,
  - irritant,
  - lung damage,
  - not recommended for children, infants or during pregnancy or breast feeding
- Clove oil –
  - allergic reactions,
  - not good for people with liver or kidney disorders,
  - increases bleeding risks,
  - interacts with drugs,
  - contains eugenol which when methylated becomes a potent carcinogen



What are the risks?

- **Wintergreen oil –**
  - highly toxic,
  - not recommended during pregnancy,
  - causes dermatitis,
  - inhalation hazard
- **Cinnamon oil –**
  - powerful irritant and
  - even worse sensitizer

EcoSMART ORGANIC INSECTICIDE FLYING INSECT KILLER

Introducing EcoSMART FLYING INSECT KILLER

Now there is a new, organic, fast-killing insecticide that is **safe to use around children and pets.** Unlike other insecticides, it is made from organic plant oils and kills bugs naturally to better protect your family. Plus, there's no pesticide residue. It's safe. It's effective. It's smart. Naturally.

To learn more about the EcoSMART story, as well as our products and technology, please visit us at **www.ecosmart.com.**

FRESH NATURAL SCENT SIGNALS IT'S WORKING.

DIRECTIONS FOR USE:

SHAKE WELL BEFORE USING. READ ENTIRE LABEL AND USE ACCORDINGLY.

FLYING INSECT TREATMENT: Kills flies, gnats, mosquitoes, moths, wasps and other flying insect pests on contact. Hold container upright and aim nozzle away from person. Press button firmly to spray. Direct spray at flying insects, contacting as many insects as possible. Spray in short 2-3 second bursts.

NOTE: When used indoors, wipe away excess product.

PRECAUTIONARY STATEMENTS: We recommend good safety practices when using any insecticide, such as avoiding contact with eyes and skin. If product gets in eyes, flush with water for at least 15 minutes. If on skin, wash with soap and water. If irritation persists, contact a physician.

PHYSICAL HAZARDS: Contents under pressure. Keep away from heat, sparks and open flames. Do not puncture or incinerate container. Exposure to temperatures above 130° Fahrenheit may cause container to burst.

STORAGE & DISPOSAL: CAUTION: Keep out of reach of children. Store in a cool, dry area away from heat or open flame. When container is empty, recycle if available. Do not puncture or incinerate.

LIMITATION OF LIABILITY: EcoSMART makes no warranties of merchantability or of fitness for a particular purpose, nor any other express or implied warranty except as stated above. Buyer assumes all responsibility for safety and use not in accordance with label, directions and precautionary statements.

EcoSMART represents that this product is a Minimum-Risk pest control product, and qualifies for exemption from EPA registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Active Ingredients: Organic Plant Oils

Peppermint Oil	2.00%
Cinnamon Oil	1.00%
Sesame Oil	1.00%
Other Ingredients*	96.00%
Total	100.00%

*Water, Wintergreen Oil, Isopropanol, Canola Oil, Lecithin, Carbon Dioxide

EcoSMART

Questions or Comments? Call **1-877-723-3545**
24 hours a day, 7 days a week

EcoSMART Technologies

Manufactured for
EcoSMART TECHNOLOGIES, INC.
3600 Mansell Road, Suite 150
Alpharetta, GA 30022

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Toxicity of Common Organic-Approved Pesticides to Pollinators

PESTICIDE	NON-TOXIC	LOW TOXICITY	HIGHLY TOXIC
Insecticides/Repellants/Pest Barriers			
Bacillus thuringiensis (Bt)			
Beauveria bassiana			
Cydia pomonella granulosis			
Diatomaceous Earth			
Garlic			
Insecticidal Soap			
Kaolin Clay			
Neem			
Horticultural Oil			
Pyrethrins			
Rotenone			
Sabadilla			
Spinosad			
Herbicides/Plant Growth Regulators/Adjuvants			
Adjuvants			
Corn Gluten			
Gibberellic Acid			
Horticultural Vinegar			
Fungicides			
Copper			
Copper Sulfate			
Lime Sulfur			
Sulfur			

Eric Mader – The Xerces Society for Invertebrate Conservation

All pesticides have risks!!!

- Organic ≠ Safe
- Synthetic ≠ Highly toxic
- Natural ≠ Safe

Even organic products are toxic!

Mail Online

Thousands of tons of organic food produced using toxic chemicals

By DAVID DERBYSHIRE

Last updated at 00:00 01 January 2008

Comments (9) | Add to My Stories

Thousands of tons of organic vegetables sold in British shops this year were produced using toxic chemical pesticides, it emerged yesterday.

Many shoppers - who pay premium prices for "naturally" grown veg - are unaware that any chemicals are allowed on any organic produce.

Under Soil Association rules, a small number of sprays are permitted.

But yesterday it emerged that increasing numbers of potato farmers have been asking for special permission to use large amounts of copper fungicide over the summer and autumn.

Scroll down for more...

TABLE 2-12 Original chart from Pests of the Garden and Small Farm by Mary Louise Flint Amended by Gary Fish September 2007

Oral LD_{50} Values for Some Pesticides Used in Small Farms and Gardens.

CHEMICAL	COMMON TRADE NAMES	ORAL LD_{50}[a]	EIC[b]	TYPE OF PESTICIDE
Nicotine	Black Leaf 40	55	45[1]	insecticide
Rotenone*		132	33	insecticide
Bordeaux*		300	68	fungicide
Diazinon		300	43	insecticide
2,4-D		375	17	herbicide
Carbaryl	Sevin	500	21	insecticide
Acephate	Orthene	866	23	insecticide
Copper hydroxide*	Kocide	1000	33	fungicide
Copper oxychloride sulfate*	C-O-C-S	1000	33[1]	fungicide
Ryania*		1200	55	insecticide
Malathion		1375	24	insecticide
Pyrethrum*		1500	18	insecticide
Propargite	Omite	2200	43	acaricide
Sabadilla*		4000	36	insecticide
Glyphosate	Round-up	4300	15	herbicide
Cryolite*	Kryocide	10,000	21	insecticide
Benomyl	Benlate	>10,000	53	fungicide
*Bacillus thuringiensis**	Dipel	15,000	8	insecticide

NOTE: Some materials on this list may not be currently registered as pesticides or their use may be restricted.

*asterisk indicates chemical was acceptable for organically grown produce.

[a]LD_{50} indicates the amount of pesticide that will kill half of a group of test animals. These values are for milligrams of pesticide per kilogram of body weight. These figures do not provide an indication of the chronic health risk or persistence in the environment.

[b]EIC or Environmental Impact Quotient is a method to calculate the environmental impact of most common fruit and vegetable pesticides (insecticides, acaricides, fungicides and herbicides) used in commercial agriculture. The values obtained from these calculations can be used to compare different pesticides and pest management programs to ultimately determine which program or pesticide is likely to have the lower environmental impact.

[1]Estimated EIQ.

"All substances are poisons; there is none which is not a poison. The right DOSE differentiates a poison from a remedy."

—Paracelsus (1493-1541)

Even too much water can kill – over 1.5 liters/hour

Woman dies after water-drinking contest

Water intoxication eyed in 'Hold Your Wee for a Wii' contest death

AP Associated Press

Updated: 10:24 p.m. ET Jan 13, 2007

SACRAMENTO, Calif. - A woman who competed in a radio station's contest to see how much water she could drink without going to the bathroom died of water intoxication, the coroner's office said Saturday.

Jennifer Strange, 28, was found dead Friday in her suburban Rancho Cordova home hours after taking part in the "Hold Your Wee for a Wii" contest in which KDND 107.9 promised a Nintendo Wii video game system for the winner.

"She said to one of our supervisors that she was on her way home and her head was hurting her real bad," said Laura Rios, one of Strange's co-workers at Radiological Associates of Sacramento. "She was crying and that was the last that anyone had heard from her."

NBC VIDEO

Launch

Woman in water drinking contest dies

Jan. 15: Sacramento Bee reporter Christina Jewett talks to MSNBC-TV's Contessa Brewer about the death of a woman who had competed in a radio station contest.

MSNBC

Resources

- http://www.nlm.nih.gov/medlineplus/
- http://www.pesticideinfo.org/
- http://www.epa.gov/pesticides/biopesticides/regtools/25b_list.htm
- http://www.omri.org
- http://www.ams.usda.gov/AMSv1.0