

# PEST MANAGEMENT: What Can We Learn from Organic Farmers?

By Mario Lanthier

The number of tree fruit orchards that were "certified organic" went up dramatically between 1998 and 2002, with a four-fold increase in the number of certified apple orchards. So reported researchers with the Washington State University in a study published in 2002. Studies in Canada indicate a similar trend, and the percentage of shoppers buying organic is also going up.

If organic farmers were to become landscape managers, what tricks would they bring with them?

## THE TRANSITION TO ORGANIC

Linda Edwards is an organic tree fruit grower in Cawston, in South-Central B.C. For two years, she was the president of the Certified Organic Associations of British Columbia. In her book "Organic Tree Fruit Management", she talks of the transition from "conventional" to "organic".

### 1) Pest management is different.

Many insect problems decline after predators and parasites become more important. However, weed control will require major changes, including new equipment and more labour work.

### 2) Fertilisation is different.

There is no more quick fix with nitrogen, phosphorus and potassium. Fertilisation is done with composts and green manures, and working with local soil and weather conditions.

### 3) Marketing is different.

The contacts with buyers and customers become more direct and more frequent, with a better understanding of market conditions. The product must be certified by an independent agency.

*Adapted from Edwards L. 1998. Organic Tree Fruit Management. Certified Organic Associations of British Columbia, Keremeos, B.C. Available at <http://www.certifiedorganic.bc.ca/Booksand/index.html>*

## I. INSECT PEST MANAGEMENT

Organic farmers rely on two major tools for their insect management programs.

**Beneficial insects:** predators and parasites become more

numerous when broad-spectrum pesticides are not used and play a large role in the control of aphids and spider mites. Landscapers can use flowers to attract beneficials such as syrphid flies and parasitic wasps.

**Natural source pesticides:** organic farmers have a prescribed list of pesticides they can use on their farm. These pesticides are registered in Canada, are usually from a natural source or have a low ecological impact, and must be approved by a certifying agency.

## ATTRACTING BENEFICIAL INSECTS

Native beneficial insects can be attracted to landscapes by plants that provide them with pollen and nectar. Plants that are known to attract beneficial insects include:

Alyssum	Marigolds (Tagetes)
Aster	Potentilla
Candytuft (Iberis)	Rudbeckia
Coreopsis	Shasta daisy (Chrysanthemum m.)
Lavenders (Lavendula)	Yarrow (Achillea)

Adapted from Gilkeson L.A., R.W. Adams. 2000. Integrated Pest Management Manual for Landscape Pests in British Columbia. B.C. Ministry of Environment, Lands and Parks. Available at:

<http://www.wlap.gov.bc.ca/epd/epdpa/eripm/landtoc.htm>

## II. DISEASE MANAGEMENT

Two important procedures of organic farming would be of interest to landscapers and gardeners.

**Sanitation:** if there is a problem, take it out. Strict sanitation is an important aspect of "natural" disease management. If a branch is diseased, cut it out. If a plant is highly susceptible to a local disease, replace it with another cultivar that is less susceptible.

**Microbial products:** many products now entering the market are made of naturally-occurring soil microbes. They offer an exciting new way to prevent plant diseases. For example, mycorrhizal formulations can help the plants become more tolerant of environmental stresses such as drought, cold, or low soil fertility. Other products, such as Mycostop and Rootshield, are currently registered for greenhouse production for the prevention of damping off and root rot.



## PESTICIDES FOR ORGANIC FARMING

In British Columbia, organic farmers refer to the standards described in the "Organic Agricultural Products Certification Regulation". This official publication of the provincial government can be viewed at:

[www.certifiedorganic.bc.ca/Standards/section8e.htm](http://www.certifiedorganic.bc.ca/Standards/section8e.htm).

**Allowed pesticides:** these products can be used without restrictions. They include acetic acid, *Bacillus thuringiensis*, boric acid, fatty acid soap, and insecticidal soap.

**Regulated pesticides:** these products are for short-term needs and other methods should be sought for the future. They include diatomaceous earth, dormant oil, ferric phosphate, fixed copper, lime sulphur, and sulphur.

**Prohibited pesticides:** these products cannot be used under any circumstances and include all synthetic products. All products not listed as "allowed" or "regulated" are prohibited.

### III. WEED CONTROL

Can we live without Round-up? Many cities and school districts now face that question after being told to cut down their pesticide use in public areas. As they will attest, it is almost impossible to find a replacement that is just as effective and inexpensive.

#### Acetic acid

Acetic acid is a weak acid found in household vinegar. A number of products are registered in Canada as post-emergent herbicides (applied after the weeds are already growing).

Contact with acetic acid will dissolve the cell membrane, leading to desiccation of tissues and death of the top portion of the plant. The roots are not affected. Best results are obtained with 10% or 20% concentration, with addition of soap at 1% concentration to help distribution on the leaf surface. Application to plants in full sun is more effective than application on a cloudy day.

Household vinegar is 5% concentration. Commercial products at 10% or 20% concentration will cause skin burn, and spray equipment must be thoroughly cleaned after application.

Average percent control of lawn weeds sprayed once with different products

Treatment	After 24 hours	After 2 weeks	After 9 weeks
Glyphosate	53 %	98 %	97 %
Acetic acid 5%	93 %	75 %	33 %
Acetic acid 20%	98 %	96 %	76 %

*Adapted from Chinery D. 2002. Using Acetic Acid (Vinegar) as a Broad-Spectrum Herbicide. Cited in HortIdeas. 19 (11): 121-122.*

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