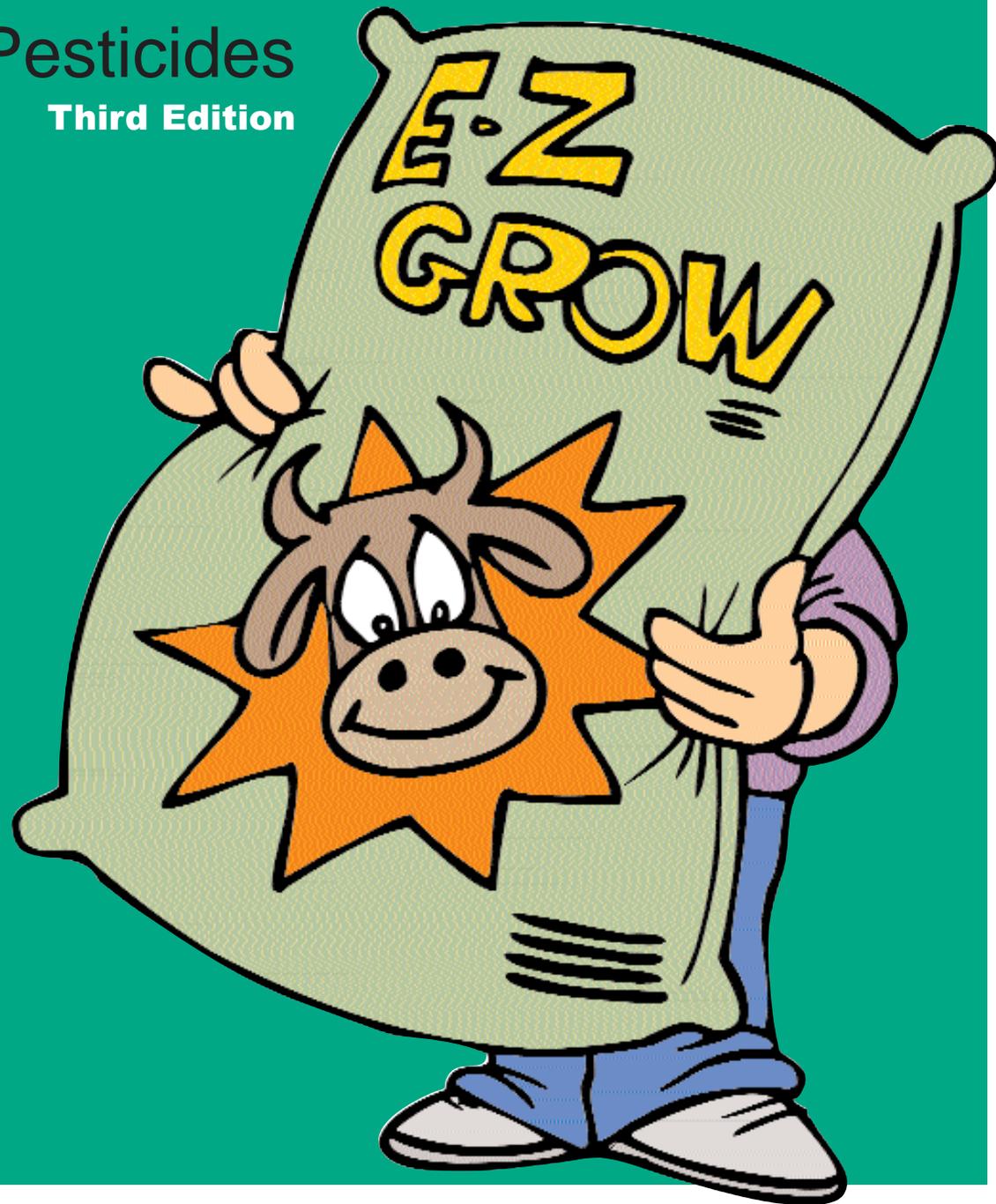
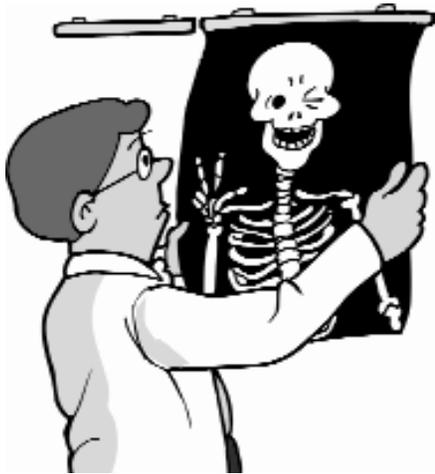


Easy Lawn and Garden Care

Natural Alternatives to Pesticides

Third Edition





Introductory Remarks

Dr. THOMAS BARNARD, M.D.

Canadian Association of Physicians for the Environment (C.A.P.E.)

As a physician in practice for nearly 25 years, and with a large practice experience in both rural and urban North American settings, the wisdom of Mark Twain has never been more evident than in today's society. Rushing to carry out the many tasks we have set before us, we operate on the expediency principle. Thus, we eat fast food, rarely have quiet time in our day to day lives, and would never imagine manually removing weeds from the cracks in the driveway or sidewalk. Instead, we spray toxic and noxious chemicals in abundance around our yards, our gardens, our schools, our hospitals, even on our pets. We fully expect that these exposures represent only a

minor threat to our families and our loved ones, our acquaintances, and yet we wonder about the neighbor's pet Collie who dies after the lawn company sprays the yard.

We see our children affected by learning abnormalities and hyperactive states of behavior, seemingly having difficulty processing information, or controlling the energy of childhood in a productive way for school experiences. Our aging parents develop cancer, and suffer from loss of memory and Parkinson's disease. Nearly all of our fathers, indeed our brothers and spouses have a high risk of cancer of the prostate. Our wives, sisters, and daughters have faced a risk for breast cancer that has risen to a ratio of one in eight North American women today. We have come to see illnesses like multiple chemical sensitivity syndromes, where people have the balance of their immune system so distorted that they become "allergic" to nearly all foods, and even to the scent of the soap or lotion used to enhance personal hygiene

There is a mountain of scientific evidence linking all of these issues to the overuse and indeed unnecessary use of biocidal chemicals in our communities, both for personal and for agricultural or industrial uses.

Together, we can reduce this exposure, thus changing the risk profile for our generations to come.

This booklet provides a collection of tools by which individual families, and indeed whole communities can begin to achieve this laudable goal. It will show you real alternatives to the use of chemical pesticides and other biocidal chemicals, launching you, your family, and your community institutions on the road to a better, more fulfilling and risk free lives.

May the result of your study of this material be a life full of happiness, and free of the pain of the illness or debility of someone in your immediate family or someone you care about.

Dr. THOMAS BARNARD, M.D.

DISCLAIMER: THE PURPOSE OF THIS BOOKLET IS INFORMATIONAL.

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"IF YOU DON'T CHANGE DIRECTIONS, YOU WILL WIND UP WHERE YOU ARE HEADING!"
Quote by Mark Twain

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INDEX

Introduction and Disclaimer	Page 2
INDEX	Page 3
Information - "Are you aware of what you are using?"	Page 4
Local contacts	Page 5
Caring for your lawn	Page 6
Lawn Care Calendar	Page 7
Using the Alternatives Chart	Pages 8-9
Natural Alternatives Chart When downloading part or all of the Chart - join two pages for a complete view of the total chart for each of the subjects. For instance - pair page 10 with 11 - page 12 with 13 Page 14 with 15 - page 16 with 17 and page 18 with 19	Pages 10-19
General weed control	Page 20
Print Information Sources	Pages 21-22
Sources of free information	Pages 23-24
Organic/Natural Producers & Suppliers	Page 25
Integrated (and responsible) Pest Management	Pages 26-27
Companion Planting	Page 28
Composting	Pages 29-30
Using Native Plants in the home landscape	Pages 31-32
Canadian Distributors of alternative products	Page 33

BE AWARE OF WHAT YOU ARE USING:

Non-chemical pest control, as natural ALTERNATIVES, really work and it has many advantages. Compared to chemical treatments, non-chemical methods are generally effective for longer periods of time. They are less likely to create hardy pest populations with the ability to resist pesticides. And many ALTERNATIVES can be used with fewer safeguards, because they are generally thought to pose virtually no hazards to human health or the environment.*

***U.S.-EPA Publication, "Citizen's Guide to Pest Control & Pesticide Safety", #EPA 730-K-95-001, Sept., 1995- Single copy-FREE**

Try a non-chemical ALTERNATIVE, first, and only choose to use a chemical pesticide as a LAST resort. To do this - review and try the ALTERNATIVES that are listed in the CHART on PAGES 10 -19.

*If you need to use a chemical pesticide handle it properly and safely. Follow these recommendations:

1. Read and follow the label directions.
2. Wear protective clothing.
3. Don't smoke or eat during preparation and application.
4. Mix and apply only the amount you need.
5. Store and dispose pesticides properly and safely.

*In Canada, natural and synthetic chemical pesticides or chemicals have the following letter coding on their label:

Caution - "C" means least harmful
 Warning - "W" means moderately harmful
 Danger - "D" means poisonous or corrosive
 Danger-Poison- means highly poisonous



WHAT YOU CAN DO

Keep all pesticides out of children's reach to avoid accidental poisoning

Wash all fruits and vegetables with water

Use in-season produce, as they are less likely to be heavily sprayed to maintain freshness

If possible, eat foods that are grown without the use of chemical pesticides or a minimum of chemical pesticides

Use non-chemical pest control methods in your home and garden

Notify neighbors before any outdoor spraying

From the **AMERICAN ACADEMY of PEDIATRICIANS,**
"Your Child and the Environment"



PESTICIDES - Although they are designed to kill insects, weeds and fungi, many pesticides are toxic to the environment and to people, especially children.

MASTER GARDENERS' HOTLINE

519 776- 6328

TIPS from the MASTER GARDENERS - for Lawn & Garden care appear in the Saturday, weekend edition of the Windsor Star.

GENERAL GARDENING INFORMATION

ANDY PEDDEN @ (519) 728-4592

E-mail: composting33@hotmail.com

ORGANIC FARMERS

MIKE TREMBLAY @ (519) 682-3649

Department of PARKS & RECREATION

For questions about pesticide use,

CALL: 519 253-2300

Download booklet , "EASY LAWN & GARDEN CARE" -

At www.citywindsor.ca

LOCAL MOTION

Address: 16824 Kercheval Place, Suite B100
Grosse Pointe, Michigan 48230

Ph: (313) 881-2263

Web site: www.local-motion.org

NATURAL INSECT CONTROL

Promotes non-chemical answers and other life promoting products, books and ideas for your health and a healthy environment. Order a FREE catalogue.

Address: 3737 Netherby Rd, Stevensville,
Ontario, Canada, L0S 1S0

Phone: (905) 382-2904 Fax: (905) 382-4418

E-mail: nic@niagara.com

Web site: www.naturalinsectcontrol.com



If a person suspects poisoning from exposure to a pesticide by swallowing, inhalation, or contact with skin or eyes, read the label on the pesticide container and carry out the first-aid treatment suggested.*

These are the most common and immediate adverse effects that have been observed - headache, nausea, dizziness, shortness of breath and eye and skin irritation - similar to most other allergic reactions.

*Guide to WEED CONTROL 2000, Pub. 75-Ministry of Ontario Agriculture, Food and Rural Affairs (OMAFRA)

REGIONAL POISON INFORMATION CENTRE - CALL: 1-800-268-9017 A 24 hr./7-day a week service that serves all of Ontario

For more information about pesticides, call the NATIONAL PESTICIDE INFORMATION CENTER toll-free at 1-800-858-7378, 7 days a week (except holidays) 6:30 a.m. - 4:30 pm. (Pacific Time), 9:30 a.m. - 7:30 p.m. (Eastern Time). You also may write to: U.S. EPA-Office Of Pesticide Programs-Communications Services Branch (7506C)-Ariel Rios Building-1200 Pennsylvania Ave. NW-Washington, D.C. 20460

E-mail: npic@ace.orst.edu Web site: <http://ace.orst.edu/info/npic>

In 1993, approximately 25% of the 140,000 people reporting pesticide exposure exhibited symptoms of pesticide poisoning. More than half of the cases were children under the age of six. - GO-FOR-GREEN, Active Living & Envir. Program, "Gardening for Life", Factsheet 3p.2

Caring for Your Lawn

6

Healthy Soil = Healthy Lawn

Healthy soil is alive and sustains life on Earth. At the Royal Botanical Gardens in Hamilton, a display states that one handful of soil from a healthy forest has more living organisms than people on the planet (last count that was about 6 billion). Many pesticides destroy these essential organisms and worms necessary to build and maintain healthy soil that promotes a healthy lawn and garden. Grass plants thrive in alkaline rather than acidic soils. LIME "sweetens" the soil and neutralizes acidity. Oak leaves and pine needles have a high acidic content. You can order your own soil test kit for fertility.*

*What YOU do with your LAWN:

1. Mow High - Set your lawnmower to its highest point. This helps the grass grow longer roots, helps shade weed seeds, preventing germination, and holds moisture longer in the soil.
2. Leave your clippings on the lawn. This helps prevent moisture evaporation and provides free nutrients to your lawn. In the fall, instead of raking those leaves - run your mower through dry leaves for extra and free nutrients. For easy lawn care: Buy a fine mulching lawn mower - no more bag to empty.
3. Water deeply if you have to water at all and if we have a drought in the middle of the summer, let your grass go dormant (and brown). It will green up when we get rain again. It never died.

*What you can do or an organic lawn care service should do:

1. Fertilize in the fall with a natural source NOT synthetic chemical fertilizer. Natural source fertilizers such as compost and composted manure contain multiple nutrients, don't burn the grass, and won't run off as easily into our stormwater system (and your supply of drinking water). Any run off goes back into the water, untreated.
2. Overseed with a mix of grass seeds - perennial rye, fine fescues and Kentucky bluegrass are suitable for sun or shade. Top dress at the same time with topsoil, compost or composted manure.

3. Aerate if the soil is heavy clay, compacted, or a high-traffic area AND when weeds are not going to seed. Good to do when you're overseeding. Late Spring or Fall is a good time.

4. Try not to use pesticides - herbicides, (weed killers) insecticides or fungicides - as a first choice. Overuse of chemical pesticides will sterilize the soil by killing beneficial microbes, earthworms and pollinators. A soil amendment with corn gluten meal acts as a natural suppressant for weed growth.

5. Repair any bare spots with a mixture of grass seeds and compost or natural fertilizer .

6. Investigate alternative groundcovers and plants. Native plants have evolved with a natural disease and pest resistance and are often more drought tolerant.

7. Dethatch, if necessary, when the lawn is in transition to becoming pesticide-free.

8. Be Patient! When you are in transition from chemical-dependent to eco-friendly, there will probably be setbacks.

*Rodale's Organic Gardening magazine at www.organicgardening.com
**Provided by Campaign for Pesticide Reduction, Ontario at www.cprontario.org (2000-7-27)

MORE INFORMATION ON LAWN CARE: WEBSITES

From the City of Toronto - www.city.toronto.on.ca/pesticides/index.htm

From the HEALTHY LAWNS WORKING GROUP established by the Pest Management Regulatory Agency (PMRA), a branch of Health Canada - www.healthylawns.net/english/html/hg-e.shtml

From Seattle Public Utilities - www.seattle.gov/util/services/Yard

"When you use a power mower for ONE HOUR to cut the grass it releases the pollution equivalent of driving 563 km in a car."
GO-FOR-GREEN, The Active Living & Envir. Program, Gardening for Life Factsheet 2

Lawn Care Calendar

7

MARCH & APRIL (snowmelt)	-don't walk on soggy lawns -remove debris from lawn -apply gypsum to yards with pets	-inspect for dead patches due to salt or mechanical damage -inspect for bare and thin areas -aerate and water deeply to flush away salt	-repair damaged areas: lightly rake and patch -seed or overseed and/or topdress, (optional-aerate first) -use corn gluten meal as a natural weed&feed	-if needed, treat sections with snow mould, mosses and disease with natural practices or control -consider ground covers as an alternative	-convert shady areas (less than 4 hours sun) to alternative groundcovers -plan to minimize salt damage next year
MAY	-mow high (8cm), leave clippings on lawn, cut less than 1/3 of blade height each time, mow when dry	-keep mower blades sharp	-do not fertilise	-hand pull weeds and spot seed the bare area (can be mixed in with compost)	
JUNE	-as growth slows, reduce mowing-cut to 9cm		-optional, apply biostimulant with help. Unnecessary if you leave your lawn clippings on.	-monitor for heat stress, insects and disease	-hand pull weeds or apply a commercial or home-made natural weed control - fill in any bare spots
JULY		-cut only when necessary	-In June to Aug. water fully with even and moderate pressure, at least to a 1" depth everyday, <u>during a long dry period</u>	-sharpen mower blades	
AUGUST	-in hot dry spells, allow grass to go dormant (turn brown) and don't cut until it recovers after a rain		-mid to late August apply corn gluten meal. It will not burn your lawn and does not require immediate watering		
SEPTEMBER	-lower mowing height to 8cm		-dethatch if necessary -aerate, fall is better time than spring -overseed and topdress (good topdress material is compost)		
OCTOBER	-chop fallen leaves with mower and leave .5cm on the lawn for over winter protection. It works like a slow release fertilizer	-service lawnmower and sharpen blades	-more important to apply fertilizer - the most critical root-building feeding of the year. Roots grown in fall and winter are stronger		-best time to overseed or reseed is during the Fall and cool weather -plan to minimize salt damage for next year

Adapted from information in Great Lakes, Great Lawns by Wisconsin's Environmental Decade Institute and Building a Healthy Lawn by S. Franklin

MORE INFORMATION ON LAWN CARE from WEB SITES - 1) City of Toronto- www.toronto.ca/pesticides/index.htm 2) Pest Management Regulatory Agency (PMRA) www.healthylawns.net

3) Organic Lawn Care for the Cheap & Lazy @ www.richsoil.com/lawn/

Alternatives Chart

8

Usage Guidelines

EXPLANATION OF CATEGORIES IN THE ALTERNATIVES' CHART

The PROBLEM

Specific problems, such as "Yellow Jackets" (wasps) are listed alphabetically.

In some cases there is a short description to identify the actual problem.

There is also GENERAL INFORMATION on Insect Control and Weed Control at the end of the ALTERNATIVES' CHART.

HOME REMEDY, the non-chemical ALTERNATIVE

At least, review and try the ALTERNATIVES before you reach for the natural and/or synthetic chemical pesticide. Check out information on IPM on a later page.

COMMERCIAL PRODUCT as NATURAL ALTERNATIVE

"G.E." stands for Green Earth product line

"S" stands for Safer's* (changed to Woodstream Canada Corp. in 2001)

*SAFER'S markets its products under several brand names Chemfree, Attack, Trounce, and Defender. For more information on specific products check this website: www.safer.com.

"C" stands for Chemfree

"N" stands for ^Neem Oil

Some of these products can now be purchased at HOME HARDWARE, HOME DEPOT and CAN. TIRE. All of the stores that are part of the LOBLAWS chain, including ZEHR'S do not sell any garden and lawn care products that contain

chemical pesticides - as of 2003.

BRAND NAMES (for the chemical pesticides)

The different chemical manufacturers have a variety of names for certain types of pesticides. For instance, Monsanto makes the brand name of herbicide or weed killer called "Roundup". We have listed a few of the different brand names along with the title given to that particular pesticide product. For instance, GREEN CROSS - "Bug-B-Gone" is sold as an insecticide or a bug killer.

We found many other brand names but selected the ones that are better known and more commonly used. We also wanted to suggest the best solution to the specific problem. Sometimes, there is a specific chemical that controls specific kinds of insect(s).

MAIN/ACTIVE INGREDIENTS

The MAIN or ACTIVE ingredient(s) we named in this category were listed on the label of the corresponding pesticide products that were named in category D.

Possible ADVERSE EFFECTS (long-term)

*Meaning of the symbols -

"x" = Possible adverse effect

(-) = Either no data available or information available is not sufficient to make a determination. In many cases of chemical pesticide products Health Canada must admit that it was impossible to do

thorough testing for all of the 6,000 to 7,000 chemical formulations that are now in use. To date, only limited research, for health and safety, has been done.

"o" = Adequate data and no adverse effect noted.

For a better understanding of the "Possible Adverse Effects" Category:

Here are definitions of the 3 long-term adverse effects that were initially looked at when the EPA was reviewing earlier research data.

*Definition of Cancer/Tumours

A tumour is an abnormal growth. Substances that cause cancer are called carcinogens.

*Definition of Reproductive Damage

This includes low birth weight, sterility/infertility and birth defects such as, missing arms or legs or a hole in the heart. Substances that cause birth defects are called teratogens.

*Definition of Genetic Damage

Genetic damage refers to effects on genetic material including genes, chromosomes and DNA.

***Sources for the above chronic toxicity data are from Cal-EPA, SB-950 Toxicology Summaries, U.S. EPA Factsheets, U.S. EPA R.E.D.'s. (Registration Eligibility Documents), and scientific journals.**

Alternatives Chart

Usage Guidelines Cont.

9

This information was compiled by the U.S. Environmental Protection Agency (EPA) after evaluation of the research that had been undertaken, to date, to determine levels of potential harm and toxicology, if any. Based on these findings the EPA through the Office of Pesticides Program and the science policies of the U.S. Food Quality Protection Act (FQPA) will register a new pesticide product for public use or allow re-registration of established pesticide products for public use.

The Canadian, Pest Management Regulatory Agency (PMRA), overseen by Health Canada, is the corresponding agency to the Office of Pesticides Program, in the U.S. In November, 1998 the PMRA informed registrants, applicants and agents (stakeholders) that it is committed to the harmonization of the registration process with the U.S.- EPA. Prior to that in July, 1998 the PMRA announced that it would accomplish this harmonization by adopting those science policies that have already been adopted by the EPA.

CASE STUDY - CHLORPYRIFOS (a bug killer or insecticide)

Risk assessments now done by the U.S. EPA are based on the science policies developed under the FOOD QUALITY PROTECTION ACT (FQPA) of 1996, which "sets a more stringent standard for most pesticides and which offers special protection for children". Original assessment for registration, in 1970 for chlorpyrifos, did not take into account the larger risk to children when exposed to this type of chemical.

More comprehensive product labels are now on products containing chlorpyrifos, (or Dursban - either can be identified as the main, active ingredient) Some indoor and outdoor insecticide products may list only the chemical name on the label - "O,O-diethylO-(3,5,6-trichloro-2pyridinyl) phosphorothioate". Under this variety of names, there are more than 800 different household products that contain chlorpyrifos. Changes in use of chlorpyrifos were phased in over Year-2001 in Canada. Retail sales of Domestic (household) Class products, which were

applied around homes and other areas where children may be exposed, ended on December 31, 2001

DID YOU KNOW?



In the case of the common dandelion, the solution can be far more harmful than the problem. The dandelion is virtually harmless and actually has disease-fighting properties.

CHECK THIS OUT

To obtain information about a particular pesticide product call:

PEST MANAGEMENT INFORMATION SERVICE

c/o PEST MANAGEMENT REGULATORY AGENCY, (PMRA) @ 1-800-267-6315 or <http://www.pmra-arla.gc.ca/>

Address:

Pest Management Regulatory Agency; 2250 Riverside Drive; Ottawa, Ont. K1A 0K9

ENVIRONMENTAL PROTECTION AGENCY (EPA)

Office of Pesticides Program (7506C)

www.epa.gov/pesticides/

Address:

401 M Street, SW;
Washington, DC 20460
Ph: (703) 305-5558

Alternatives Chart

10

For a better understanding of the information contained in this chart, please refer to pages 8 & 9 titled "Alternatives Chart - Usage Guidelines".

The Problem	Non-chemical Home Remedy Alternatives (n-cA)
<p>ANTS</p>	<ol style="list-style-type: none"> 1. Place used coffee grounds on anthill. 2. Pour boiling water into anthill. 3. Use ^Diatomaceous Earth. See special note for handling. 4. Sprinkle cayenne pepper, bone meal, or powdered charcoal as a barrier strip. 5. Make a solution of the peel from one whole orange)and steep in 2 cups of water for 48 hours. Strain and spray directly into holes of entry. or Make a mixture of orange peel in a food processor with a small amount of water and dilute this with some orange juice. Then strain and spray directly into holes of entry. 6. Cover the mound with dry potato flakes(directly from the carton). They eat the flakes and it swells up inside their stomachs and causes them to explode. *3
<p>APHIDS Aphids feed on different species of plants which can vary from season to season. *1</p>	<ol style="list-style-type: none"> 1. Removal with a forceful spray of water from the garden hose on infested, but sturdy, plants. 2. Prune, securely wrap, and discard heavily infested plant parts. 3. Mix 1 TBSP of dish soap with 1-cup of vegetable oil (canola oil works well). Take 1 tsp of this mixture and add 1 cup of water. Spray on aphids. (and mites) 4. Use remedy #5 (citrus) for controlling ants.
<p>CHINCH BUGS Chinch bugs are usually found on lawns stressed by drought and by an excessive build up of ^ thatch. They do damage by removing juices from the grass blades. *1</p>	<ol style="list-style-type: none"> 1. Aerate your lawn to reduce compaction of soil and increase your soil moisture. *1 2. Drench the lawn with insecticidal soap solution to flush the bugs to the surface to locate heavy infestations and physically remove the bugs. A mixture of 1 cup dry or liquid dish soap per gallon of water for every 2-foot by 2-foot area can be used to drive out the bugs. *1 3. Dethatch in September. Reseed the bald areas with grass varieties like fine fescues and perennial ryegrass that contain a fungi that actually repels insects. *1 4. Put in more shaded areas to replace some of the grassy areas with plantings of trees and bushes. 5. Do not use synthetic chemical fertilizers with a high nitrogen content. This gives you that "quick green" effect by promoting grass blade growth but shallow root growth and this leads to more build up of thatch.
<p>EARWIGS These generally beneficial insects can cause damage by eating small holes in leaves and seedlings. *1</p>	<ol style="list-style-type: none"> 1. Use rolled up newspaper, tubes or small cans with bait (vegetable oil or moist bread crumbs) as traps. Place the trap near plants on the soil at nighttime and then check the next morning. The insects can then be drowned in soapy water. *1 2. Place grapefruit or orange halves upside down and then collect them. 3. Place a mixture of 50% sugar and 50% baking soda in a pie plate with the rim set level with the ground. The critters eat the bait and die.

*1 "Alternative Pest Controls for Lawns and Gardens", RACHEL CARSON COUNCIL, INC. Written by: Husain, Peterson, Collins, and Post.

*2 "Jerry Baker's Flowering Garden" by Jerry Baker. 1989. Collier Books, Macmillan Publishing, New York

*3 "DESIGNER POISONS-How to protect your Health and Home from toxic pesticides" by Dr.MARION MOSES,MD. 1995. ISBN 1-881510-15-8

Alternatives Chart

11

Commercial Product Alternatives	Suppliers for n-CA	Brand Names for Chemical Pesticides	Main/Active Ingredients	Possible Adverse Effects		
				Cancer	Reproductive	Genetic
1. C -Insectigone Contains remedy #3 2. S.- Attack Ant Traps	1. H & S 2. S	1. Raid Crawling Insects 2. CIL Solguard Ant & Grub Killer 3. Wilson Ant & Grub Killer 4. Green Cross Bug-B-Gone	1. a. Allethrin b. Permethrin 2. Chlorpyrifos 3. same 4. Diazinon	0 X 0 0 0	0 X 0 0 X	0 0 X X X
1. G.E. - "Ready Spray" Insecticidal Soap 2. G.E. - "Aim Insect Garden Spray" Contains ^pyrethrin. 3. G.E. - ^"Rotenone Dust" 4. S. - Insecticidal Soap 5. S. - Rose & Flower Insecticide	H -1 to 4 S- 4 & 5 Neem	1. WILSON-Diazinon 2. CIL- Malathion 3. RAID- Garden Outdoor Bug Killer	1.Diazinon 2.Malathion 3.a. Allethrin b. Piperonyl Butoxide	0 X 0 --	X 0 0 --	X 0 0 0
1. G.E. - 500ml Attach with Water, Insecticidal Soap 2. Safer's Insecticidal Soap	H -1 S - 2	CIL Tomahawk Crawling Insect Killer	Chlorpyrifos	0	0	X
1. G.E. - Ready Spray Insecticidal Soap 2. S. - Insecticidal Soap	H.- #1 S.- #2 Neem	1. WILSON-Diazinon 2. CIL- Malathion 3. RAID- Garden Outdoor Bug Killer	1.Diazinon 2.Malathion 3.a. Allethrin b. Piperonyl Butoxide	0 X 0 --	X 0 0 --	X 0 0 0

Alternatives Chart

12

For a better understanding of the information contained in this chart, please refer to pages 8 & 9 titled "Alternatives Chart - Usage Guidelines".

The Problem	Non-chemical Home Remedy Alternatives (n-cA)
<p>FUNGUS (Lawn) Approximately one-quarter of all lawn fungi are potentially harmful. They live in decaying organic matter, including thick fresh lawn clippings and thatch. In late fall, early spring and the hot, humid weather of summer if there is excess nitrogen it will cause rapid grass blade growth which makes your lawn more susceptible to fungi diseases. (This limits root growth which anchors your grass plants and provides a way for the grass plant to reach the nutrients and moisture deeper in the soil.) *1</p>	<ol style="list-style-type: none"> 1. Physical control technique: ^solarization. The infected area to be treated should be small. *1 2. Biological control techniques: <ul style="list-style-type: none"> -Establish a beneficial fungus, Trichoderma, by using home-made compost or tree bark-based soil amendments sold at most nurseries which also act as a natural mulch. For more information on Trichoderma check out www.nysaes.cornell.edu/ent/biocontrol/ -Purchase a new natural product that adds microbes and fertility with the microbial name, Actinomycetes. These products persist in the soil even if it rains soon after application. *1 3. Plant a mixture of different grasses. Diversity will prevent your entire lawn to be adversely affected by the fungus that is attracted to one type of grass plant. A combination of Fine Fescue, Kentucky Bluegrass and perennial rye is good. One type of grass resists some of the types of fungi that attack the lawn but not necessarily all of the same ones that the other two varieties might resist. *1 4. Least toxic control techniques: <ul style="list-style-type: none"> -Products with NEEM OIL are slowly becoming registered for use in Canada. It shows promise as a potential fungicide. -Garlic oil combats fungus, specifically mildew. Place 3 ounces of finely minced garlic in 2 tsp of mineral oil for 24 or more hours. After, slowly add 2 cups water containing 1/4 ounce of soap as surfactant. (This helps one apply a water-based solution to a leaf's waxy and slippery surface.) Then strain the mixture to remove the minced garlic. Make a spray solution with 2 TBSP of the garlic mixture and 2 cups of water. *1 5. Periodically, spray the lawn with soap. A couple of cups of biodegradable dish soap, (or pure soap flakes which you can get at a Health Store), in a 15-20 gallon hose-sprayer will do the job. This allows air and water to penetrate and is a deterrent for damaging organisms.*1 6. Seaweed and seasoned kelp treatments, types of bio-stimulants that work like a tonic to strengthen the grass plants, work against two fungus diseases, Fusarium and Dollar Spot.*1 <p>GARDEN</p> <ol style="list-style-type: none"> 7. Rose Black Spot: <ul style="list-style-type: none"> -Spray a solution of 1 tsp. baking soda in 1 litre of water, weekly. -Spray mixture of 2 TBSP soap flakes in 1 liter of water. Rinse. -Mulch and sprinkle baking soda directly on the ground beneath bushes. 8. Powdery Mildew and Downy Mildew - Make a spray from 1 TBSP baking soda and 2.5 TBSP horticultural oil dissolved in 4 litres of water. Apply during the dormant period or later in the growing season. Avoid spraying in early spring growth stage. This could cause injury to the plants at this time of development. Sulfur sprays may also be used but should not be used within 3 weeks of an oil spray and never at temperatures higher than 85*. *1 9. Rust - Use sulfur to treat with same restrictions as noted in point #8. 10. Discourage fungal disease by not watering plants in the late evening or at night when moisture will not evaporate quickly. *1

*1 "Alternative Pest Controls for Lawns and Gardens", RACHEL CARSON COUNCIL, INC. Written by: Husain, Peterson, Collins, and Post.
 *2 "Jerry Baker's Flowering Garden" by Jerry Baker. 1989. Collier Books, Macmillan Publishing, New York
 *3 "DESIGNER POISONS-How to protect your Health and Home from toxic pesticides" by Dr.MARION MOSES,MD. 1995. ISBN 1-881510-15-8

Alternatives Chart

Commercial Product Alternatives	Suppliers for n-cA	Brand Names for Chemical Pesticides	Main/Active Ingredients	Possible Adverse Effects		
				Cancer	Reproductive	Genetic
1. GE Readi-Spray Garden Sulfur Fungicide 2. S - Defender Fungicide 3. S - Garden Sulfur Dust	H - 1 S - 2 & 3	1. No-Damp Plant Product 2. WILSON - Benomyl Systemic Fungicide 3. GREEN CROSS - Funginex-Rose & Ornamental Disease Control 4. CIL- Garden Doctor	1. Benzoxine 2. Benomyl 3. Triforine 4.a. Folpet b. Malathion c. Carbaryl	-- X -- X X	-- X -- O O	-- X -- O X

Alternatives Chart

14

For a better understanding of the information contained in this chart, please refer to pages 8 & 9 titled "Alternatives Chart - Usage Guidelines".

The Problem	Non-chemical Home Remedy Alternatives (n-cA)
<p>JAPANESE BEETLES</p> <p>The "white" grubs or worms feed on grass roots. Grub damage occurs in early spring and fall and is indicated by odd shaped patches of dead or wilted grass and high numbers of birds feeding on the lawn, as they eat the grub infestation.</p>	<ol style="list-style-type: none"> 1. Use Milky Spore Disease, a biological control for the grubs. Apply during early spring and fall when the grubs are present. Avoid conditions of high winds or frozen ground. Method is effective over the course of 2 seasons and the benefits can last for several years.*1 2. Parasitic Nematodes (<i>Steinernema glaseri</i>) are good for grub control. The nematodes should be applied in a spray formulation and do not harm earthworms or beneficial insects. They should be applied to thoroughly moist soil. *1 3. A HEALTHY lawn with HEALTHY biologically active soil can sustain up to 20 grubs per square foot. Grubs do not like organic material. Healthy soil is full of this type of material. Let your lawn and garden achieve a natural balance that sustains life like birds, bees, microbes and yes, grubs! The grubs provide food for starlings which eat a remarkable number of these pests and many others damaging insects. 4. For ADULTS: <ul style="list-style-type: none"> - When the adult beetles appear on plants remove by hand in the early morning hours and drown the beetles in soapy water. *1 -Use a vacuum with a disposable bag to collect and eliminate the critters. *1 -Apply wood ashes or diatomaceous earth to the foliage of vulnerable plants. Avoid inhaling the dust particles from these 2 products and wear a dust mask. *1 5. Aerate the lawn. Fertilize with an organic, natural fertilizer not a synthetic chemical fertilizer. This gives you that "quick green" effect by promoting grass blade growth but shallow root growth that weakens the grass plant. Once in the growing season use a natural fertilizer with a high potassium content (seaweed or kelp-based fertilizer)
<p>MOSQUITOES</p> <p>Mosquito larvae need standing water for 5-10 days to grow and emerge as adults. To control the larvae all potential breeding grounds should be eliminated. Any size of receptacle that can hold water can harbour mosquito larvae and are considered a breeding site.*1</p>	<ol style="list-style-type: none"> 1. For PONDS - Mosquito control oils applied as a surface film suffocate larvae in stagnant ponds/pools. *1 <ul style="list-style-type: none"> -Consider adding a flowing waterfall and goldfish or other surface feeding fish as predators. *1 2. Citronella candles can be used to deter adult mosquitoes.*1 3. Mosquitoes are attracted to dark clothing and warm moist skin.*1 4. Always wear protective clothing when outside. 5. If you use an insect repellent containing the chemical DEET, apply it to your clothes rather than your skin. This is particularly important for children. DEET can damage spandex, rayon and acetate, and dissolve vinyl and plastic. *1 Check out a well-stocked Health store for natural insect repellents containing TEA TREE OIL or NEEM OIL. 6. A biological control product uses the bacteria, <i>Bacillus thuringiensis israelensis</i>(BTI), and comes in solid or aerosol forms. It is applied directly to mosquito-infested waters and specifically works on the larvae of both the mosquito and blackfly. *1 7. METHOPRENE as an insect growth regulator (IGR) prevents the adult mosquito from emerging from the pupa. It is available in solid briquettes that last 30 days or as aerosols. Methoprene is more persistent than BTI and more selective than traditional pesticides. It might have various adverse effects on fish and aquatic invertebrates. *1

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*2 "Jerry Baker's Flowering Garden" by Jerry Baker. 1989. Collier Books, Macmillan Publishing, New York

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Alternatives Chart

Commercial Product Alternatives	Suppliers for n-cA	Brand Names for Chemical Pesticides	Main/Active Ingredients	Possible Adverse Effects		
				Cancer	Reproductive	Genetic
1. C -Insectigone Contains remedy #3 2 S- Attack Ant Traps	S E N	1. CIL Solgard- Ant & Grub Killer 2. CIL Chlorisect-Ant & Grub Killer 3. WILSON -Soil Insect Dust	1. Chlorpyrifos 2. same as #1 3. Diazinon	0 0 0	0 0 X	X X X
S - Insecticide with BTI	S Neem	1. CIL Mosquito Sticks 2. CIL Methoxychlor Blackfly & Mosquito Killer	1. (d-trans) Allethrin 2. Methoxychlor	0 --	0 X	0 --

Alternatives Chart

16

For a better understanding of the information contained in this chart, please refer to pages 8 & 9 titled "Alternatives Chart - Usage Guidelines".

The Problem	Non-chemical Home Remedy Alternatives (n-cA)
<p>RODENTS</p>	<ol style="list-style-type: none"> 1. Use a pheromone trap. 2. Be meticulously clean. Lock up garbage and the container for compost material should be covered. 3. Eliminate any outdoor food sources. Do not feed your pets outside and do not put out bird seed. 4. If the nest is located seal off entry points.
<p>SCALES These are sucking insects that can appear to be brown. They attack the crown and roots of many varieties of grasses.</p>	<ol style="list-style-type: none"> 1. Prune, securely wrap, and discard heavily infested plant parts. *1 2. Remove scales from leaves with a brush and soapy water. *1 3. Spray with horticultural oil during the dormant period or later in the growing season. Avoid spraying in early spring growth stage that could cause injury to the plants at this time of development. *1 4. Repeated applications of insecticidal soap for control of scale insects on grasses. *1
<p>SNAILS / SLUGS</p>	<ol style="list-style-type: none"> 1. Place a saucer of beer- like solution inserted at ground level. SOLUTION: 1-cup water, 1 tsp sugar, ¼ tsp yeast. BEER works well, too. They will drown in the saucer. Since this trap draws so many of these critters you should place it outside the garden. 2. Wood ash or sand, on the ground beneath the plants acts as a repellent or barrier strip. 3. Sprinkle Diatomaceous Earth around areas of slug activity. *1 4. Turtles enjoy slugs and snails.
<p>SOWBUGS / PILLBUGS</p>	<ol style="list-style-type: none"> 1. Eliminate moist areas, such as piles of decaying wood and leaves. *1 2. Diatomaceous Earth acts as a physical control if it is sprinkled in a thick layer which will sufficiently dry an area to repel these moisture-loving critters. *1 3. Use corn cobs placed under a tipped plate or pot, in the early evening. Each morning the bugs can be collected - then moved or destroyed. *2
<p>YELLOWJACKETS Their sting can be dangerous. They have thin waists and can inflict multiple stings.</p>	<ol style="list-style-type: none"> 1. Remove a magnet for them by disposing of garbage properly and cover all trash cans. *1 2. Eliminate the source -the nest. Use a vacuum to remove only the nests found in a wall and/or underground. *1 3. They are best treated in the cooler evening hours when the wasps have all returned to the nest and the lower temperatures make them more inactive. *1 4. A trap, using a plastic container, clear above and bright yellow below, with 4 yellow ports through which the insects may enter but not leave. It is baited with cat food - tuna fish. The insects will die in the trap if it is left in the sun or it can be put in the freezer to kill them. *1

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Alternatives Chart

Commercial Product Alternatives	Suppliers for n-cA	Brand Names for Chemical Pesticides	Main/Active Ingredients	Possible Adverse Effects		
				Cancer	Reproductive	Genetic
C.- Critter Ridder Animal Repellant	H S	1. WILSON- Rat & Mouse Bait 2. CIL - Bromone Rat & Mouse Blocks	1. Bromadiolone 2. Bromadiolone	-- --	-- --	-- --
1. GE - Ready Spray Insecticidal Soap 2. Safer's - Insecticidal Soap	H - 1 S - 2	1. WILSON-Diazinon 2. CIL- Malathion 3. RAID- Garden Outdoor Bug Killer	1. Diazinon 2. Malathion 3.a. Allethrin b. Piperonyl Butoxide	0 X 0 --	X 0 0 --	X 0 0 0
1. S - Slug & Snail Bait 2. GE -Dio Bug & Slug Killer 3. C - Slug & Snail Copper Barrier Tape	H - 1 & 2 S - 1 & 3	1. META - Slug & Snail 2. WILSON-Slug & Bait	1. Metaldehyde 2. Same	X X	0 0	0 0
1. GE - DIO Bug & Slug Killer 2. GE - Aim Insect Garden Spray 3. C - Chemefree Insectigone	H - 1 & 2 S - 3	1. Wilson Bulb & Soil Dust 2. RAID - Garden Outdoor Bugkiller 3. SCHULTZ House Plants & Garden Insect Spray	1.a. Carbaryl b. Captan 2.a. Pyrethrins b. ^Piperonyl Butoxide as secondary ingredient and ^synergist. 3. same as #2	X X X 0 X 0	0 0 X 0 X 0	X 0 X X X X
S-Deluxe Wasp & Hornet Trap	S	RAID Wasp & Homet Killer The vapourous spray contains particles that can harm your respiratory system. Wind drift pushes up to 95% of the spray away from the target area.	a. Propoxur b. Tetramethrin	X X	0 X	0 0

Alternatives Chart

18

For a better understanding of the information contained in this chart, please refer to pages 8 & 9 titled "Alternatives Chart - Usage Guidelines".

The Problem	Non-chemical Home Remedy Alternatives (n-cA)
<p>General INSECT CONTROL</p>	<ol style="list-style-type: none"> 1. Boil a concoction of water, 3 onions, 1 clove of garlic, and cayenne(or chop your own hot peppers) for 10 minutes. Cool. Grind in a blender ; put into a gallon of water and let sit over night. Strain. Particularly good for roses, azaleas and mums. The stronger the smell, whether good(from flowers) or bad (from the ingredients in this concoction) it will more effectively repel the unwanted, damaging insects. A mixture of strong smells adds another deterrent. 2. Mix 1 TBSP of biodegradable dish soap or "pure" soap with 1-cup vegetable oil.(canola oil is good) Take 1 tsp of this mixture and add to 1-cup of water. This is a good all-purpose, home-made "insecticidal" soap or Dissolve 2 TBSP. (30ML) of ordinary soap flakes, not laundry detergent, into 1 litre of water. 3. Plant garlic, onions or chives near your roses. Marigolds, mums, garlic, onion, and chives are excellent repellents because of their strong smells. Plant them in different parts of both your flower and vegetable gardens.
<p>General WEED CONTROL WEED SEEDS: They can't run away or hide but weed seeds have ingenious methods of survival. . . Rodale's Chemical-Free Yard and Garden cites a statistic from England of six million weed seeds from three different kinds of weeds in the top few inches of soil. If growth conditions are not right weed seeds can lay dormant in the soil for years before germinating again. You may win an occasional battle but you cannot win the war of the weeds. Total eradication is neither possible, nor desirable. *3</p>	<ol style="list-style-type: none"> 1. ^CORN GLUTEN MEAL comes in the form of a yellow powder(for large scale application you should wear a dust mask) or pellets. It prevents weeds from germinating. Should be applied in early spring and/or the month of August. For more information check - www.hort.iastate.edu/gluten/cframe.html. 2. Placing your plants close together will provide shade and discourage weed seeds to propagate. When you leave your lawn cut at least 2 ½ to 3 inches high. The longer grass blades shade the soil and prevent weed seeds from germinating. 3. A mulch for the garden can be decomposed leaves, tree bark, straw, and hay as examples. Garden mulches should be at least 3 inches thick. The finely shredded grass clippings from a mulching lawn mower serve as a nourishing mulch for the lawn. In the garden and on the lawn a mulch cuts down on moisture evaporation. 4. Make sure you pull weeds before they go to seed or at least "dead head" the weeds before the flowers go to seed. In the lawn, cutting the flower heads off the weed as you mow will cut down on the future weed supply. 5. Hand digging the weeds is good exercise. To be effective you must get at least 2/3 of the root - especially for dandelions. 6. Soil should not become compacted. Try to aerate once every season. Bare spots in the lawn should be filled. Make sure you overseed with a mixture of grass seeds and compost in these bare areas. In fact, this mixture should be applied to your lawn once every season. Eventually, the larger number of healthy grass plants will overcome the decreasing number of weeds in your lawn. 7. Fertilize with sea kelp or seaweed . It mainly adds potassium and plant hormones to make plants hardy and more resistant to disease, insects and drought. 8. Boil a liter of water. Add 2 TBSP salt and 5 TBSP of apple cider vinegar. Pour or spray directly on weeds while still hot, the hotter the better. Be careful to hit your target because this is a non-specific weed killer. It does an awesome job on weeds growing in sidewalk and driveway cracks. 9. CREEPING CHARLY: Dissolve 5 tsp BORAX (regular 20-Mule Team Borax) in a litre of water(covers 25 sq. feet of lawn) or one cup of Borax to two gallons of water. Let the Borax settle to the bottom of the container and only use the water, not the sediment. You may need several applications. Borax is toxic to children and pets. 10. If there is a large infestation of weeds in one area of the lawn you can smother weeds out by covering with newspaper or cardboard or a sheet of plastic. (see "Solarization" in Glossary).

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				Cancer	Reproductive	Genetic
1. GE - AIM Insect Garden Spray 2. GE - Ready Spray Insecticidal Soap 3. GE - Rotenone Dust 4. C - Insectigone 5. S - Insecticidal Soap	H 1,2, & 3 S 4 & 5	1. CIL- Ambush Insecticide 2. CIL- Cygone 2-E 3. CIL- Floritect 4. CIL- Houseplant Insect Dust	1. Permethrin 2 .Dimethoate 3.a. Folpet - Is no longer sold in the U.S. for consumer use. b. Carbaryl 4. Diazinon	X O -- X O	X X -- O X	O X -- X X
1. GE - Readi-Spray Garden Sulfur Fungicide 2. S - Topgun Weed Killer 3. Turfmaize	H - 1 S - 2 & 3 E - 3	1. Round Up 2. Weedex 3. WILSON - Lawn Weed Out 4. Killex 5. CIL- Fall Green up, Weed & Feed	1. Glyphosate 2. 2,4-D 3. 2,4-D 4.a. 2,4-D b. Mecoprop(MCPP) c. Dicamba 5. same as 4	X X X X -- -- X -- --	O X X X X X X X X	O X X X -- -- X -- X

LESSONS from the WEED WARRIORS -

Organic Gardening magazine, MAY/JUNE 1998

Lesson #1 - Timing is everything. Example: When the soil is moist it is easier to remove plants with their roots.

Lesson #2 - Hot water works. NOTE: More tenacious weeds, particularly with long taproots, will likely need to be scalded a few times before they surrender.

Lesson #3 - A little sodium will do the trick. Example: pour salt between the cracks in your patio to prevent weeds from growing there.

Lesson #4 - Manage the weed's life cycle. Example: Cut the lawn before the flower heads on the dandelions go to seed.

Lesson #5 - Crowd them out. Example: Get your grass plants strong and healthy by cutting the lawn to a height of 2-1/2" to 3" high. This shades the dormant weed seed and stops them from germinating.

Lesson #6 - When in doubt, MULCH. Example: Newspaper mulch makes a particularly good weed barrier. After your garden plants have broken ground and are 2" to 3" in height, spread newspaper two layers thick and cover it with grass clippings.

Lesson #7 - Action must follow realistic planning. Example: the dedicated gardener hopes to conquer every last one of the weeds in the garden but just remember-"**They can't run away or hide but weed seeds have ingenious methods of survival. . .**"

Did you know?

A. Rotten eggs were proven to be a very effective repellent for **deer**.

B. Ordinary laundry starch on regular cotton or cotton-polyester clothing protects pesticide applicators from harmful chemicals by binding the starch with chemical pesticides and keeping them away from their skin until the clothing can be washed. JULY, 2004

Information Sources

ALTERNATIVE LAWN & GARDEN CARE

FORUM on ORGANIC GARDENING

<http://forums2.gardenweb.com/forums/organic>

This forum is meant for the discussion of organic gardening and lawn care.

ORGANIC LAND CARE

www.organic-land-care.com/intro.htm/Gaia_College/programs/land_care/index.php

SEATTLE PUBLIC UTILITIES (Resource conservation page)

www.seattle.gov/util/Services/Yard

OR Contact national lawn care hot line : 1-888-860-LAWN
How to restore a lawn without chemicals.

Address: 710 Second Ave., Suite 505; Seattle, WA 98104
Ph: (206) 684-7650

CHEMICALS

PANUPS (Part of PESTICIDE ACTION NETWORK of NORTH AMERICA-PANNA)

Pesticide database @ www.pesticideinfo.org

ORGANIC FARMING

CANADIAN ORGANIC GROWERS, Inc.

www.cog.ca

Address: (For NATIONAL OFFICE)

323 Chapel St.

Ottawa, Ont. K1N 7Z2

Ph: TOLL FREE: 1-888-375-7383 or Ph: 613-216-0741

E-mail: office@cog.ca

PESTICIDE GROUPS

CANADIANS AGAINST PESTICIDES www.caps.20m.com

Ph: (613) 225-3673

E-mail: canadiansagainstpesticides@hotmail.com

GREEN COMMUNITIES ASSOCIATION

www.gca.ca

Offer the "PESTICIDE FREE NATURALLY" action kit as a pesticide reduction program.

Address: P.O. BOX 928; Peterborough, Ont. K9J 7A5;

Ph: (705) 745-7479

NATIONAL COALITION AGAINST THE MISUSE of PESTICIDES (NCAMP) at

www.beyondpesticides.org

Address: 701 E Street SE #200; Washington, DC 20003

Ph: (202) 543-5450 & E-mail: info@beyondpesticides.org

NORTHWEST COALITION for ALTERNATIVES to PESTICIDES (NCAP)

www.pesticide.org

Address: Box 1393; Eugene, OR 97440; Ph: (503) 344-5404

E-Mail: info@pesticide.org

PESTICIDE FREE ONTARIO

(formerly CPR-O! - Campaign for Pesticide Reduction in Ont.)

www.pesticidefree.ca CONTACT: Janet May

Address: 2781 Hwy 7, #207, Concord, ON L4K 1W1

Call: (905) 660-9782 E-mail: info@pesticidefree.ca

RESPONSIBLE PEST MANAGEMENT

www.pestinfo.ca

Address: Can. Centre for Pollution Prevention; 100 Charlotte St.;

Sarnia, N7T 4R2 Ph: 1-800-667-9790, E-mail: info@pestinfo.ca

RACHEL CARSON COUNCIL, INC.

<http://members.aol.com/rccouncil/ourpage/>

Address: P.O. Box 10779, Silver Springs, MD 20914

Ph: (301) 593-7507, FAX: 301-593-6251

E-mail: rccouncil@aol.com

WORLD WILDLIFE FUND, Canada

www.wwf.ca

Address: 245 Eglinton Ave. E.; Suite 410; Toronto, Ont. M4P 3J1

TOLL FREE: 1-800-26-PANDA & Ph: (416) 489-8800

For every garden problem, there's an organic solution. While it's true that some organic methods of weed & pest control take more time and effort than a quick chemical fix you can be absolutely certain that you're not harming the environment and potentially putting yourself at risk. GO-FOR-GREEN, The Active Living & Envir. Program, Factsheet # 3.

Print Information Resources

22

INTEGRATED PEST MANAGEMENT (IPM)

BIO-INTEGRAL RESOURCE CENTER (BIRC) www.birc.org

Address: Box 7414; Berkeley, CA 94707;

Ph: (510) 524-2567 FAX: (510) 524-1758 E-mail: birc@igc.org

INTEGRATED PEST MANAGEMENT with Michigan State University

www.msue.msu.edu/ipm/

PRODUCT Information and Suppliers

LEE VALLEY(special section for gardening supplies)

www.leevalley.com

Address: Lee Valley Tools Ltd.; 2100 Oxford St. E., London, Ont.

(519) 659-7981

TOLL FREE-Ph: 1-800-267-8761 & E-mail: customerservice@leevalley.com

RITTENHOUSE - garden supplies & carries a line of natural alternatives

www.rittenhouse.ca

Address: M.K. Rittenhouse & Sons Ltd.; R.R. #3, 1402 Fourth Avenue St. Catherine's, Ont. L2R 6P9

Phone: Toll Free: 877-488-1914

MAGAZINES

Doug Green's Garden Magic at www.simplegiftsfarm.com

Address: Simple Gifts Farm; 363 Lower Oak Leaf Rd.

Athens, Ont. K0E 1B0

FREE weekly newsletter that answers gardeners' questions.

Eco-Farm & Garden, Canadian Organic Growers at www.cog.ca

Address: 323 Chapel St.; OTTAWA , K1N 7Z2 E-mail: office@cog.ca

Natural Life www.life.ca

Address: 508-264 Queen's Quay W Toronto ON M5J 1B5 Canada

Phone: Toll-free (800) 215-9574 E-mail: natural@life.ca

BOOKS - PAMPHLETS

The Best Control Steve Tvedten in conjunction with the Safe2Use group

E-mail: info@safe2use.com Web site: www.safe2use.com

The Gardener's Weed Book: Earth-safe controls.

Pleasant, Barbara. 1996. Pownal, Vermont: Storey Communications.

Handbook of Successful Ecological Lawn Care. 1996.

Paul D. Sachs. Edaphic Press @ (802) 222-4277; fax: (802) 222-9661. ISBN: 0963605313

Natural Pest Control: Alternatives to chemicals for the Home and Garden. Andrew Lopez. Chelsea Green Publishing Co. 1998. ISBN 0962976849

The New City Gardener-Natural techniques & necessary skills for a successful urban garden. 1999. Judith Adam. Order through NATURAL LIFE MAGAZINE @ 1-800-215-9574 or e-mail: natural@life.ca

The Organic Gardener's Handbook of Natural Insect & Disease Control: A complete, problem-solving Guide to Keeping Your Garden & Yard Healthy without chemicals Barbara W. Ellis and Fern M. Bradley. Rodale Press. 1996. ISBN 08759675

Weed Control Without Pesticides. Charles Walters. Acres, USA. 1999. ISBN 09113112254

NATURALIZED LANDSCAPING

Natural Landscaping: Designing with native plant communities.

J. Diekelmann & R. Schuster.

The Naturalized Gardener's Handbook for Windsor & Essex County
The official handbook for the NATURALIZED HABITAT NETWORK
(formerly the Backyard Habitat Program of Windsor & Essex County)
CONTACT: Dan Bissonnette @ 259-2407.

Web site: www.naturalizedhabitat.org

PESTICIDES AND HEALTH

Designer Poisons: How to protect your Health and Home from Toxic Pesticides.

1995. Dr. Marion Moses. Published by: Pesticide Education Center. ISBN: 1-881510-15-8



· **"GO for GREEN"**

(The Active Living and Environment Program)
5480 Canotek Road, Unit #16 Ottawa, ON K1J 9H6
Tel: (613) 748-1800 Toll free: 1-888-822-2848 (in Canada)
Fax: (613) 748-0357

www.goforgreen.ca

They offer free fact sheets on the following topics:

- *The health benefits of gardening*
- *The environmental benefits of natural gardening*
- *Organic alternatives to herbicides & pesticides*
- *Water-wise gardening*
- *Gardening with native plants: General Information*
- *Gardening with native plants: Woodland Gardens*
- *Gardening with native plants: Meadow & Prairie Grasses*
- *Gardening with native plants: Wetland Gardens*
- *Internet Resources for Organic Garden*

· **REGION of WATERLOO, Water Efficiency Section**

150 Frederick Street, 7th Floor
Kitchener, Ont. N2G 4J3
CALL: (519) 575-4420

Web-site: www.region.waterloo.on.ca/water

They offer free fact sheets on the following topics:

- *Naturescaping - the practical & beautiful alternative to the traditional lawn*
- *Naturescaping Plant Guide*
- *Naturescaping Plant & Mulch Guide*
- *Info on Rain Barrels*
- *Healthy lawns & gardens with less water*

· **ONTARIO MINISTRY of the ENVIRONMENT**

CALL: 1-800-565-4923

- Free pamphlet on "Beneficial Insects"

Web site: www.ene.gov.on.ca

Sources of Free Information (Continued)

24

SOURCES OF FREE INFORMATION (cont'd)

N.I.C. - Natural Insect Control

3737 Netherby Rd Stevensville, Ont. L0S 1S0
CALL: (905) 382-2904 FAX: (905) 382-4418
Email: nic@niagara.com
www.natural-insect-control.com
- free catalogue

CANADIAN HOUSING INFORMATION CENTRE

A division of Can. Mortgage & Housing Corp.
700 Montreal Road
Ottawa, Ont.
K1A 0P7
Ph: 1-800-668-2642
www.cmhc-schl.gc.ca/cmhc.html GO TO Site Map then GO TO MAINTENING A HOME
AND THEN Landscaping

GREEN COMMUNITIES ASSOCIATION

BOX 928
Peterborough, Ont. K9J 7A5
CALL: (705) 745-7479
Web-site: www.gca.ca
-Action kit with factsheets, "Pesticide free naturally"

MINISTRY of NATURAL RESOURCES

Queen's Printer of Ontario
Public Information Centre, Room 1640, Whitney Block
99 Wellesley St. - Toronto, Ont. M7A 1W3
CALL: (416) 314-2225
-Booklet, "Landscaping for Wildlife" (1990)
Website: www.mnr.gov.on.ca

NATIONAL AUDUBON SOCIETY

700 Broadway
New York, N. Y. 10003
Phone: (212) 979-3000, Fax: (212) 979-3188
Web-site: www.audubon.org

- Pamphlet, "Guide for a Healthy Yard and Beyond" Search Healthy Yards

ONTARIO CLEAN WATER AGENCY

1 Yonge Street, Suite 1700
Toronto, Ont. M5E 1E5
CALL: 1-800-667-6292
Web-Site: www.ocwa.com
- Booklet, " Beautiful Lawns and Gardens through-WATER-EFFICIENT LANDSCAPING"
Go to Public Information, then Reports and Publications - then OCWA Publications

PEST MANAGEMENT REGULATORY AGENCY

C/O Health Canada
2720 Riverside Dr.
OTTAWA, Ont. K1A 0K9
CONTACT: Pest management Information Service
Ph: 1-800-267-6315
Web-site: www.healthylawns.net

Pamphlets entitled,

Healthy Lawn Tips
Pest Notes
Pesticide Education & Training Modules
Pest Control Legislation
Weed Control Legislation

CANADIAN WILDLIFE SERVICE

C/O Environment Canada
Ottawa, Ontario
K1A 0H3
CALL: (819) 997-1095
Web-site: www.cws-scf.ec.gc.ca

Natural & Organic Producers & Suppliers

25

BUY LOCAL...BUY IN SEASON. LOCAL FOOD IS FRESHER AND IS LESS LIKELY TO BE PRESERVED WITH CHEMICALS IN ORDER TO TRAVEL LONG DISTANCES AFTER BEING PICKED. KEEP OUR LOCAL FARM ECONOMY ALIVE AND GROWING. THIS IS GOOD FOR EVERYONE'S HEALTH.

Kerr Farms Ltd. - c/o BOB KERR

309 Indian Creek Rd. E.
Chatham, N7M 5J6
Ph: (519) 352-5567
Naturally raised, hormone & anti-biotic free beef

GREAT LAKES ORGANICS

Roger Rivest - Paul Watson
4280 Hwy 77, Staples, N0P 2J0
Ph: (519) 687-3522

A co-op effort to connect organic crops and the growers with global buyers.

MEDEL BROTHERS (MEATS)

2940 Dominion Blvd.,
Windsor, N9E 2M8
Ph: (519) 966-2670
Sells naturally raised, hormone & anti-biotic free meats (organic). Each month, you place your order by phone. Regular meats are available in the store.

Natural Earth Organics Inc. c/o LINDA WONSELL

Also operates *BASIC GREENS
Weekly, bi-weekly and monthly home deliveries of organic fruit and veggie boxes.

***Basic Greens - c/o LINDA WONSELL**

1704 County Rd. 46
Woodslee, N0R 1V0
Ph: (519) 723-2311
An assortment of healthy sprouts.

Terre - Tremblay Farm - C/O MIKE TREMBLAY

R.R. #6, Tilbury, N0P 2L0
Ph: (519) 682-3649
Certified organic soybeans, wheat, spelt, oats, ducks, geese and poultry.

RESOURCES for INFORMATION:

**Local Chapter - ESSEX - KENT CAN.
Organic Growers & Gardeners**
C/O Mike Tremblay
Ph: (519) 682-3649
Monthly meetings - Oct - April

**Directory of Organics in Canada, 2002
from the CAN. ORGANIC GROWERS
(COG) - www.cog.ca
Canadian Organic Growers
323 Chapel Street, Ottawa, Ontario
K1N 7Z2**

**Telephone: 613-216-0741
Toll-free phone: 1-888-375-7383
Fax: 613-236-0743
E-mail: office@cog.ca**

WEB SITES:

Ont. Ministry of Agriculture (OMAFRA)
<http://www.omafra.gov.on.ca>

GAIAM - A Green Marketplace

<http://www.gaiam.com/greenmarket/>

ECOMALL - www.ecomall.com

SINCE THERE IS NO DEPENDENCE ON THE USE OF SYNTHETIC CHEMICALS IN FERTILIZERS AND PESTICIDES, ORGANIC FARMING GIVES US MANY PRACTICAL AND SUCCESSFUL ALTERNATIVES FOR HOME AND/OR LARGE-SCALE, COMMERCIAL USE.

THE PRIMARY GOAL FOR SUCCESSFUL GARDENING, ON ANY SCALE, IS TO ENHANCE SOIL QUALITY.

ORGANIC FARMING HAS ESTABLISHED THE PRIMARY METHODS TO IMPROVE, MAINTAIN AND PRESERVE HEALTHY SOIL THAT IS FORTIFIED WITH MINERALS AND ALIVE WITH GOOD BACTERIA, FUNGUS AND EARTHWORMS.

*A RECENT U. OF GUELPH STUDY LOOKED AT 20 TYPES OF ORGANIC PRODUCE AND FOUND THEM NO BETTER THAN CONVENTIONALLY GROWN PRODUCE - BUT A LARGER U.S. STUDY COMPARING 1,200 ITEMS BY FOOD CONSULTANT, VIRGINIA WORTHINGTON, CONCLUDED THAT ORGANICALLY GROWN FOOD IS MORE NUTRITIOUS....AND WE HAVEN'T STARTED TO ASK ABOUT THE HEALTH AND ENVIRONMENTAL DAMAGE DONE BY MILLIONS OF TONS OF PESTICIDES AND CHEMICAL FERTILIZERS.

*GLOBE & MAIL BY DEBBIE FIELD,
JULY 19, 2002

A NATIONAL STANDARD HAS FINALLY BEEN DETERMINED. FOODS GROWN ON CERTIFIED ORGANIC FARMS CAN CARRY THE FOLLOWING LABELING -

- CERTIFIED ORGANIC -
- VERIFIED ORGANIC -

Alternatives for Insect Control

26

Integrated Pest Management (PIM)

Alternatives for Insect Control Integrated and Responsible Pest Management

For many of us gardening is a pleasant hobby but one that should remain easy and takes up a small amount of our limited leisure time during the "lazy days of summer". So we should use a method of easy lawn and garden care - "Integrated and Responsible Pest Management".

This is an approach that uses a combination of pest and plant management techniques to manage pest damage by the most economical means and with the least possible hazard to people, pets and wildlife, and the environment.

This type of management emphasizes the importance of establishing a well designed landscape by putting the right plants in the right places. This is a simple way to ensure that all of your plantings remain healthy. If pests do occur, there are a variety of ways to manage pests safely and effectively, many of which require no application of toxic chemicals.



Follow these simple steps

1.MONITOR and IDENTIFY

One of the best things you can do for your garden is - LOOK AT IT! Stand across the street and look at the lawn's overall appearance. Then walk slowly closer, looking for differences in colour and density, particularly brown or yellow patches. A variety of smaller plants like lawn daisies, clover or buttercup can look just fine from street distance. This also removes the possibility that pesticides will be used when they are not really needed.

2.PREVENTION

A. CHOOSE NATIVE PLANTS THAT THRIVE IN THE CLIMATE OF THIS REGION. They thrive because nature has provided them with a built-in resistance to the pests that are common to this region. These native plant species are accustomed to the climate conditions of the region.

B. BUILD HEALTHY SOIL - many annual weeds thrive in bare, compact soil. These weeds will often grow when water and nutrients are lacking in the soil. Eventually they will squeeze out the desired plants that require healthy soil. Using chemicals in fertilizers and pesticides eliminates all the many living organisms that keep the soil healthy for a healthy lawn and garden.

Healthy soil is the foundation that accelerates the growth rate of plant roots. Plant roots are at the heart of productivity and plant health. Roots anchor the plants, absorb water and nutrients, and produce plant hormones for growth.

Use compost material as a non-burning and slow release fertilizer and as a mulch to lower water evaporation and suppress weed growth.

Alternatives for Insect Control

Integrated Pest Management (PIM) **27**

2. PREVENTION (cont'd)

The creatures living in the soil are critical to soil quality. Basically they will

- a) provide decomposition
- b) provide a digestible form of many essential minerals
- c) store & release nutrients, such as nitrogen - the greening agent for the look of a healthy lawn
- d) degrade pollutants before they reach our drinking water supply
- e) affect soil structure and therefore soil erosion and water availability
- f) protect grass and garden plants from pests and diseases and
- g) aerate the soil and provide essential oxygen to secure plant health. The earthworm does the aerating by moving soil from lower strata up to the surface and moving organic matter from the soil surface to lower levels, at the root level.

C. (Bio) DIVERSIFY - incorporate a variety of different types of plants. Most types of plants have one or two specific enemies that feed only on that kind of grass plant or flower. Plant a mix of grass seed and/or a variety of flowering plants. Better yet have a majority of plantings that are native species- of trees, bushes and flowering plants. Check out the basic principles of companion planting

3. Set an ACTION THRESHOLD

The mere presence of a pest, weed or insect does not always indicate a problem. Even if plants develop some damage, if they are growing in healthy soil they will be fortified to outgrow the damage over the growing season and become healthy again. BE PATIENT!

4. CONTROL

Less risky types of pest controls should be chosen first. These are- a) hand removal b) barriers c) traps d) * biological control, such as beneficial insects e) commercial, natural alternative products f) companion planting and g) ONLY AS A LAST RESORT - the least toxic chemical control.

* The company NATURAL INSECT CONTROL provides information about beneficial insects in a free catalogue, with pictures of the "good, the bad and the ugly" pests. You can contact them at nic@niagara.com or (905) 382-2904. Web site: www.naturalinsectcontrol.com .

***DID YOU KNOW?** That at least 99% of the bugs and insect species we encounter in the garden are actually beneficial to the garden: they pollinate plants, eat other bugs, and provide food for birds AND that since the 1950's the number of insects known to be resistant to insecticides has grown from under 10 to approximately 450. *Go for Green"-the active living & learning Environment Program, Gardening for Life,Fact Sheet 3,pg-3

Companion Planting

28

This practice protects plants from unwanted insects by using other plants to repel harmful insects from your garden and attract the more numerous kinds of helpful bugs in a natural and pesticide-free way.

* "Attractors"*

There is seduction at work amongst the pollen and perfume. Some plants attract pollinators, bees and butterflies, and/or predators of pests. For instance, parsley attracts the helpful hoverfly that devours aphids. Parsley also feeds the larva (a green & yellow striped caterpillar) that becomes the handsome black swallowtail butterfly. Lavender and zinnias attract butterflies.

**"Deterrents"

These provide weed control. The leaves and roots of these types of plants discourage other plants from thriving in the same vicinity. For instance, sunflowers cut off the nitrogen supply to other nitrogen loving plants. The French and African marigold deter harmful nematodes. Marigolds are a multi-purpose companion plant and add a wonderful bright splash of colour to any flower or vegetable garden. Garlic deters pests that harm roses.

**"Confusers"

These plants confuse pests and mask crops by using their strong odour and using camouflage in the form of similar flowers and leaf patterns. For instance, mums have strong scents that hide the enticing scent of other plants from pests. Parsley masks carrots and onions from root flies.

* "Repellents"

These are basically smelly and scratchy, causing discomfort for the pests. For instance, onions repel rabbits and mice. Mice particularly dislike the smell of mint. Nasturtiums deter white flies from tomatoes. Slugs and wireworms do not like marigolds. Basil repels whitefly, aphids and fruit flies. A new plant called "Scaredy Cat", sold at the garden centres of Zehr's, will prevent pets from relieving themselves in your garden.

**"Enchanters"

These are the "good neighbour" plants - growing together for mutual benefit at different levels and with complementary root systems (mixing shallow with deep roots). For instance, the low growing Dutch white clover fixes nitrogen and shades the soil, keeping it cool and holding in moisture. It also deters the cabbage root fly. Basil enhances the taste and size of tomatoes.

**"Trappers"

These "Sacrificial Lambs" lure pests, surrender and then are destroyed by the pests and should be removed by the gardener. For instance, zinnias (pale colours only) lure Japanese beetles (adult stage of the White Grub) and dill attracts the tomato hornworm. Nasturtiums attract aphids.

*From an article entitled, "Companion Planting:relationships in plant communities" EcoFarm&Garden magazine, Spring, 2002 INFORMATION SOURCES on

Companion Planting: CANADIANS AGAINST PESTICIDES-

www.caps.20m.com/companion.htm or ATTRA at <http://attra.ncat.org/attra-pub/complant.html>

FEBRUARY 2003



If you toss organic material in to a pile, give it a little oxygen by mixing and turning it, and water; then wait a while, you'll end up with compost. This is the finest soil amendment, conditioner and fertilizer you can get your hands on . . .
But just how much work is it - to make your own compost? Read the following directions and you can decide for yourself.



1. When making a site for your compost pile, make it convenient. Locate it close to the source of material. If you plan on adding mostly kitchen scraps to your pile, locate it near the house.
2. A compost pile should be placed away from nearby tree roots and in a spot that gets a few hours of sun a day.
3. Do not place it on established grass - dirt is best.
4. A compost pile doesn't have to be contained within a fancy enclosure, and since turning a pile is the simplest and surest way to get a lot of compost in a hurry, the most effective and efficient setup is no enclosure at all. The ideal size for a functioning compost pile that reaches the required temperature to kill off seeds is at least 3' x 3' x 3'.
5. Decomposing materials need moisture and air in proper balance. Otherwise the compost pile will begin to smell and the heating process will slow down.
6. Use **LAYERS** of raw materials-
 - a) Brown sources of **carbon** - shredded leaves, straw, shredded newspaper and fine paper (3-4")
 - b) Green sources of **nitrogen** - grass clippings, food scraps, mature plants, (before seeding or cut off the flower heads of perennials) and manure (2-3")**NOTE: do not put vegetable oils, butter, bones, dairy products, meat, fish and diseased plants in the compost pile.**
 - c) 1" light soil or compost which is moistAll these layers should be soggy.
7. Compost material should be aerated every 2-3 days. You can use a tool called the "compost turner" that can be purchased at Canadian Tire. The more often you turn your compost pile, the faster it will compress and decompose

Overall Benefits of Composting

1. If you place compost on your flowerbeds in the fall, it will provide a protective blanket and prevent plant roots from freezing over the winter. Mulch the garden beds with shredded leaves, in the spring, since this is one material, as a mulch, that holds in the moisture and stops weed seeds from germinating. To shred fallen whole leaves that are raked in the fall - Fill a garbage can halfway with leaves and shred with the common "whipper snipper". Place in plastic bags and save to be spread over garden beds in the spring.***
2. Top dress with compost in the spring and/or fall, preferably following core aeration. This is an excellent way to improve soil structure and provide a wide range of nutrients. This gives sandy soils body to hold moisture and makes clay soils airy for better drainage.
3. Reduces water demands of plants and trees.

*** For more of this type of information contact Master Composter, ANDY PEDDEN at (519) 728-4592

INFORMATION SOURCES on Composting

ESSEX-WINDSOR SOLID WASTE AUTHORITY - www.ewswa.org

They sell prepared and clean compost usually during the month of April and May each year. General info line is (519) 776-6441 or 1-800-563-3377 (Essex County and Windsor Residents).

They offer a free publication called, "*Home Composting Made Easy*", and a short pamphlet on "*Backyard Composting*".



Why go native?

Heritage -

Plants native to our area simply belong here. This area of southwestern Ontario has the largest number of remaining and distinctive Carolinian Canada native species than in any other part of Ontario. Our native plants can define the distinct nature of where we live - here in Essex County.

Practical restoration -

Agriculture, industry and housing - all important to the economy of Essex County - have displaced large amounts of native plants over vast areas. In our home gardens we plant exotic plants that deny us one more important opportunity to restore some of the habitat for wildlife that has been lost. Attracting squirrels, frogs, butterflies and a charming variety of birds adds a very interesting and unique dimension to the otherwise predictable home landscape

Practicality -

Plants, native to our region, have typically evolved over thousands of years and have been able to easily adapt to local climate and growing conditions. Native plants are well established and do not require extra watering, fertilizer and pesticides in order to thrive. Including a mix of native plants or exclusively native plants in your home landscape is a very effective way to both beautify a home and reduce maintenance, while attracting wildlife at the same time.

SOURCE FOR ACTION

NATURALIZED HABITAT NETWORK

(Formerly the Backyard Habitat Program of Essex County & Windsor)

This community based organization provides all the information needed to establish a successful naturalized garden. Practical information on topics such as native trees, gardening as well as locating reputable suppliers is available. Through its information kits, ongoing support, newsletters, home visits and special events, this non-profit group assists over 200 households across Windsor and Essex County.

The NATURALIZED HABITAT NETWORK provides assistance through its three primary resources:

- Standard Membership includes large amounts of practical information and ongoing support. Their new 100-page handbook entitled, "The Naturalized Gardener's Handbook for Windsor & Essex County" is included. Annual Membership Fee: \$20.

continued....

NATURALIZED HABITAT NETWORK (cont'd)

- A six-week "Naturalized Landscape Course" supplies information about all aspects of landscaping, from planning and design to construction & maintenance. Call for specific times and locations. A one-day workshop designed for special groups.

CONTACT INFORMATION for the
Naturalized Habitat Network

Phone: DAN BISSONNETTE at (519) 259-2407

E-mail: byhew@wincom.net

Address: P.O. Box 292, Essex, ON N8M 2Y3

Website: <http://naturalizedhabitat.org>

LOCAL SUPPLIERS OF NATIVE SEED & PLANTS

IN ESSEX COUNTY -

OJIBWAY NATURE CENTRE

Native seeds

Mon-Fri, 10-4:30 @ 519-966-5852 or ojibway@city.windsor.on.ca

WILLIAMS NURSERIES LTD.

315 County Rd. 12, R.R.#3

Leamington, Ont.

Ph: 519-326-6911

(Native plants only - no seeds)

Turf Revolution available

LOCAL SUPPLIERS (cont'd)

PLEASANT VALLEY NATIVE PLANTS

3883 3rd Concession, R.R. #1 Harrow

Ph: 519-738-1188

**INFORMATION RESOURCES on Native Plants**

ESSEX REGION CONSERVATION AUTHORITY - www.erca.org

Ph: (519) 519-776-5209

CAROLINIAN CANADA-

www.carolinian.org

Ph: (519) 873-4631

CANADIAN WILDLIFE FEDERATION

www.wildaboutgardening.org

JULY, 2004

AgGrand - Natural Organic Products**Local distributor**

DAVE/MAUREEN VLODARCHYK
695 County Road 2, R.R. 2
Belle River, Ont. N0R 1A0
Ph: 519 728-3447 Toll Free: 1-877-375-4117

Product information:

Web site:

www.togernet.com/altrum/aggrand.htm

ENVIRONMENTAL FACTOR

133 Taunton Rd. W., Unit 8
Oshawa, Ont. L1G 3T3
Ph: TOLL FREE - 1-888-820-9992, 905-571-5047
Web site: www.environmentalfactor.com

NATURAL INSECT CONTROL

R. R. #1
Stevensville, Ont. L0S 1S0
Ph: (905) 382-2904
Web site: www.naturalinsectcontrol.com

Special product: Lawn Guardian by Safer's
(Woodstream Canada Corp.)

Provides beneficial nematodes for white grub control
FREE catalogue with pictures of specific insects.

NU-GRO CORPORATION

10 Craig St.
Brantford, Ont. N3R 7J1
Ph: TOLL FREE - customer service @
1-800-268-2806
Web site: www.greenearth.ca

Local distributors:

HOME DEPOT, HOME HARDWARE, CAN. TIRE and ZEHR'S Garden Centres

PERFECTLY NATURAL

CERES ENVIRONMENTAL SOLUTIONS INDUSTRIES INC.
208 Joseph Carrier
Vandreuil, PQ J7V 5V5
Ph: TOLL FREE - 1-877-681-SAFE (7233)
Web site: www.perfectlynatural.ca

Local distributor:

HOME DEPOT

PREMIER TECH-Biotechnologies

1, avenue Premier
Riviere-du-Loup, Quebec
G5R 6C1
Ph: (418) 867-8883
Web site: www.premiertech.com

Product names:

PRO-MIX and MYKE

Local distributors:

HOME DEPOT, RONA, ZEHR'S Garden Centres, CAN. TIRE

WOODSTREAM CANADA CORP.

(renamed from SAFER LTD.- U.S. based)
Ph: TOLL FREE - 1-800-387-5306
Web site: www.safer.com

Product names:

SAFER'S, CHEM FREE and VICTORS
HAVAHART products control pests on pets and wildlife

Local Distributors:

HOME DEPOT, HOME HARDWARE, CAN. TIRE and
ZEHR'S Garden Centres

CVF TECHNOLOGIES CORP.

Web site: www.cvfcorp.com/portfolio/folio_ecoval.html

Product names:

ECOVAL and NATURE'S GLORY
In Canada - ECO CLEAR, weed killer (herbicide)

Local distributors:

HOME DEPOT, HOME HARDWARE, CAN. TIRE and ZEHR'S Garden Centres

