


Integrated Pest Management

 **IPM strategies employ non-toxic or least toxic means available.**

Strategies in order of ecological preference:

Preventative maintenance: healthy soil and appropriate plants.

Regular monitoring: allows early detection. Identification of problems determines treatment options.

Mechanical controls: traps, barriers and hand picking.

Biological controls: natural predators, microbials (milky spore, Bt), pheromones and growth regulators.

Least toxic chemical controls: inorganics (boric acid, insecticidal soap), botanicals (neem, pyrethrum).

Treatments are applied to affected areas only and are site and pest specific. Follow label directions carefully.

Resources



Cornell Cooperative Extension, Westchester: 285-4640, Rockland: 429-7099, Putnam: 278-6738.

Gardens Alive!® Catalog. Call 812-537-5108. Free. Source for corn gluten (W.O.W.®).

Common Sense Pest Control. W. Olkowski; S. Daar, H. Olkowski/ Bio-Integral Resource Center. "Least toxic" manual for lay people.

NY Coalition For Alternatives to Pesticides. 518-426-8246.

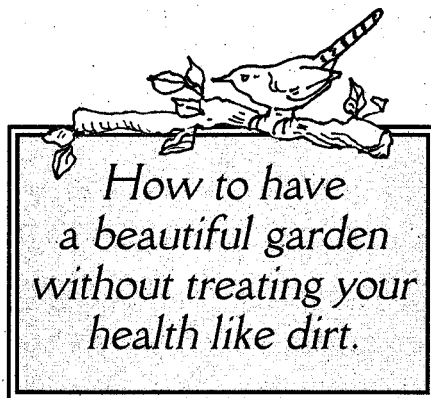
The Organic Gardener's Handbook of Natural Pest And Disease Control. Ellis, Bradley/ Rodale Garden Books. Color prints for easy identification.

Redesigning the American Lawn. Borman, Balmori, Geballe/ Yale School of Forestry/Environment. "Kicking the lawn habit".

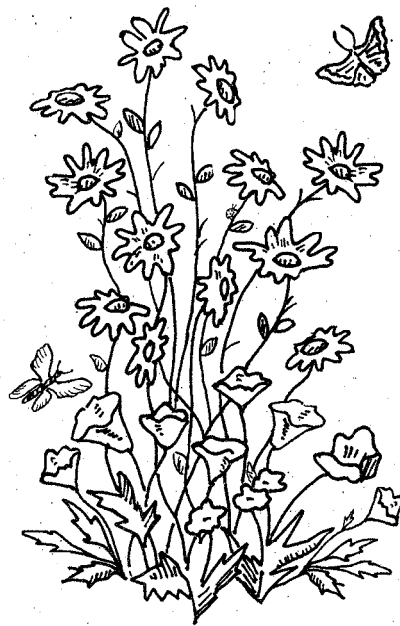
Our Stolen Future. Colburn, Dumanski, Myers/ Dutton. Scientific data on hormone disruption.

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How to have
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without treating your
health like dirt.



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**Pesticides are designed to kill
and they affect more than their targeted pest.**

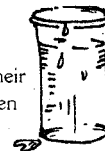


Pesticides have been linked to birth defects, developmental disorders in children, breast and other cancers. A recent study shows that **a child from a family that regularly sprays pesticides or herbicides may be six times more likely to develop leukemia**. Even your family pet can be seriously sickened by chemical sprays.

New data links pesticides to endocrine disruption, which may irreversibly impact reproductive and developmental processes.

Occupational health research clearly documents the **risks of pesticide exposure as a major factor in elevated rates of cancer**. More than 90 pesticide ingredients have been classified as potential human carcinogens.

Pesticides find their way into your drinking water. They work their way up the food chain and have been found in human fat tissue.



Pesticides kill birds, animals and helpful insects like ladybugs, beetles, lacewings, bees and butterflies (which are important for pollination). These beneficial bug populations do not bounce back as quickly as the pests they control. Most pests and weeds become resistant to toxins.

According to the EPA, **no pesticide can be considered safe**, even if used as directed. **24 hour re-entry after spraying is not proven to be risk-free**. Some organo-chlorides remain in the environment for 5-15 years.

For proper disposal of pesticides call 1-800 CLEANUP.

**Redefine your ideas
of perfection.**



Think of your lawn as a green quilt instead of a green carpet. **Clover** is drought-resistant; it fixes nitrogen from the air into the soil, reducing the need for chemical fertilizers. A healthy lawn can tolerate a few **violets** and **dandelions**. After all, a weed is just a flower in the wrong place.

One man's pest is another's guest.



Recognize the friends in your garden. Spiders, insects, raccoons, skunks, snakes and birds eat lots of bad bugs which eat your plants.

Cut out junk food.

The healthiest and least expensive fertilizer for grass is grass. **Leave those clippings on your lawn**.

Compost kitchen waste, garden clippings and leaves into black gold.

Dig organic compost into the garden. Excess chemical fertilizers just run off and pollute nearby water bodies.

The best defense is a natural offense.

Native and disease resistant plantings, a diversity of bugs, healthy soil and sound gardening practices can eliminate most problems.

It takes a while to catch your balance.

Watching your garden being devoured may tempt you to grab a chemical spray. Be patient. It takes several seasons for a garden to change from chemical dependency to an ecosystem in balance. In a season or two, you'll be fighting fewer pests and spending less money.

When to do what.

Winter Dreams

Gather your catalogs and dream.

Plan for drought tolerant (xeriscopic) plants, flowers that attract hummingbirds and butterflies, a hedgerow tangle of shrubs and vines to shelter and feed birds.

A manicured lawn gobbles water and demands excessive nutrients. Replace some of it with native ground covers, a wildflower meadow or a Zen rock garden.

Early Spring (March /April) Preparation & Anticipation

•A **vigorous raking** will wake up your garden and also remove over-wintering pests and fungi.

•**Aerate lawn** to loosen soil for better nutrient and water absorption.

•**Lime** to neutralize soil acidity for efficient assimilation of nutrients.

•**Work in compost** to enrich and condition soil.

•**Weed by hand.** Dig out onion grass and dandelions with a sharp trowel. Avoid broad applications of herbicides. Corn gluten prevents weeds from reseeding and fertilizes your lawn at the same time.

•**Plant insect repellents** such as tansy, marigolds and nasturtiums.

•**Plant bird-attracting shrubs and trees** like dogwood, hollies and other berry-producing bushes.

•**Attract beneficial bugs** with dill (let it flower), clover and yarrow.

•**Control grubs** and their damage. Try milky spore (for Japanese beetles) or beneficial nematodes for other grubs like cutworms and black vine weevils. You must follow directions precisely.

Late Spring (May/June) Mowing & Mulching

•**Mow** frequently. Grass clippings should remain on the lawn. Their decomposition provides natural fertilization, reduces water evaporation and keeps the soil cooler.

•**Keep grass high.** 3" blades crowd out weeds and create more surface for photosynthesis, which utilizes the sun's energy to produce stronger, deeper roots.

•**Mulch** trees, shrubs and garden beds to suppress weeds, conserve moisture, regulate soil temperature, halt soil compaction and to encourage earthworms and other beneficial soil organisms. Mulch should not touch tree trunks.

•**Walk around your property** to look for pest damage. Most insects can be knocked off with a strong spray of water.

Summer (July/August) Water & Pest Control

•**Conserve water.** A can to measure rain water will tell you if your lawn is getting the needed 1" per week. Water in the early morning or on overcast days. Adjust sprinklers to water lawn and garden only.

•**Continue to monitor** for pests and fungi. Remove diseased leaves and limbs, Squash egg masses, drown caterpillars and Japanese Beetles. Get to know the harmful and helpful bugs; note when they appear.

Fall (September/October) Rake, Reseed & Compost

•**Find the best grass seed** for your area and let new grass sink in roots before winter.

•**Feed lawn** with corn gluten. It prevents weeds from germinating in the spring. If you feel you must use additional fertilizer, one feeding in early September is enough for the whole year.

•**Start a compost** with raked leaves, grass cuttings and organic kitchen scraps.

Reap what you sow.

To reduce pest and disease problems, start from the ground up. Healthy soil makes strong plants. Amend your garden beds with organic compost. Send a soil sample to Cornell Cooperative Extension to

determine potential mineral deficiencies and pH. Choose native plants. They need less care and water because they are adapted to your particular area.

Assure success with good horticultural practices: proper drainage, careful site selection for plants, regular monitoring.

PLANTS	PROBLEMS	TREATMENT	NEXT TIME...
GRASS	1-WEEDS 2-GRUBS 3-FUNGUS	1-APPLY CORN GLUTEN. 2-BENEFICIAL NEMATODES 3-AERATE, TOP DRESS, WITH COMPOST.	REPLACE UNUSED LAWN WITH GROUND COVER, WILDFLOWERS, EVERGREENS.
ANDROMEDA	LACEBUGS	SPRAY DIRECTLY WITH 1 TSP. LIQUID SOAP IN 16 OZ. WATER SPRAY BOTTLE.	PLANT IN SHADE.
BIRCH	BRONZE BIRCH BORER BIRCH LEAF MINER	PRUNE LIMBS AND DISPOSE. IF ENTIRE TREE IS AFFECTED, ELIMINATE.	PLANT BORER RESISTANT TREE: HERITAGE RIVER BIRCH.
CRABAPPLE	1-SCAB 2-RUST	1-PINCH AND DESTROY AFFECTED LEAVES. CLEAN-UP FALL DEBRIS. 2-SPRAY OR DUST SULFUR. REMOVE NEARBY JUNIPERS.	PLANT RESISTANT VARIETIES: ORMISTON ROY, HENRY KOHANKIE.
HEMLOCK	WOODY ADELGID SPRUCE MITE	HORTICULTURAL OIL	SUBSTITUTE ARBORVITAE.
RHODODENDRON	1-BLACK VINE WEEVIL 2-DEER	1-BENEFICIAL NEMATODES 2-FENCES, MILORGANITE	PLANT RESISTANT VARIETIES: P.J.M. SAPHIRE OR SUBSTITUTE VIBURNUM.
ROSES	1-APHIDS 2-POWDERY MILDEW 3-BLACKSPOT 4-JAPANESE BEETLES	1-SOAP SPRAY (SEE ABOVE) 2-ULTRA-FINE OIL 3-AVOID WATERING LEAVES. 2/3-CLEAN INFECTED DEBRIS IN FALL AND SPRING. 2/3-SULFUR POWDER 4-BENEFICIAL NEMATODES	ATTRACT/RELEASE LADYBUGS, GREEN LACEWINGS, AVOID MORNING SHADE. PLANT RESISTANT VARIETIES: QUEEN ELIZABETH, MR. LINCOLN.
HOSTAS	SLUGS	DIATOMACEOUS EARTH, WOOD ASHES AROUND BASE.	MONITOR REGULARLY. APPLY TREATMENTS EARLY.
TOMATO	1-WILT 2-NEMATODES 3-CRACKING OF FRUIT	1,2-REMOVE INFECTED PLANTS. 3-REGULAR WATERING.	CHOOSE V.F.N. VARIETIES; PLANT WITH RADISH, MARIGOLD.

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