

# Sustainable Landscaping & IPM

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# Sustainability Topics

- Soil health
- Keeping carbon on site
- Reducing greenhouse gases
- Carbon sequestration & storage
- Record keeping & monitoring
- Plant diversity
- Water management & conservation



# Soil health

Increase organic matter

Limit soil disturbance

Cover crop

Dense planting

Reduce tillage

Mulch, tarping, broad fork

Leave the leaves

Chop and drop

Compost

Sequester carbon

Moisture retention

Structure and drainage

Resist erosion



# Hoard carbon

Lawn clippings

Brush piles

Dead hedge

Dead trees



# Reduce greenhouse gas emissions

**Rechargeable electric equipment**

**Scythes, push mower**

**Rakes and brooms for leaves**

**Reduce lawn**

**Plant derived mulches**

**Reuse or recycle plastic pots**

**Biodegradable seed starting pots**

**Minimize fertilizers**

**Grow your own**

**Soil test**

**LED or solar powered lighting**

**Automatic timers**

**Critically evaluate all inputs**

# Plant more trees

Sequesters carbon

Saves energy



A close-up photograph of frost-covered branches with clusters of bright red berries. The background is a clear, light blue sky. The frost is thick and white, coating the thin, dark branches and the individual berries.

# Record keeping and monitoring

**Journal: weather events, first and last frost, phenology**

**Rain gauge,  
thermometer**

**Planting dates**

**Site selection**

**Variety selection**

# Plant diversity

Native plants

Remove invasives

Pollinator-Friendly Garden Certification

Right plant, right place



# Manage and conserve water

**Raingardens or swales**

**Rain barrels**

**Pervious surfaces in  
your hard scaping**

**Less lawn**

**More natives**

**Mulch**

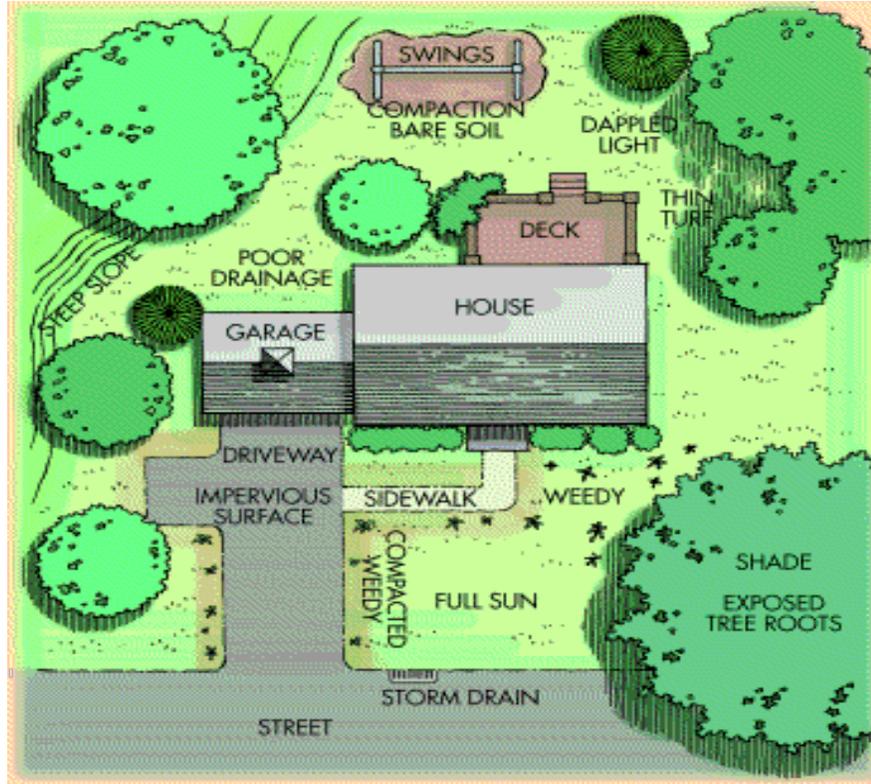
# Use IPM!

## Integrated Pest Management

- Good horticultural practices
  - Select right plants for right places
  - Choose pest-resistant, disease-resistant cultivars
  - Provide optimal fertilizer, water
- Discourage pests:
  - row covers, traps, repellents, crop rotation, plant spacing
- Encourage natural enemies
  - Spare the sprays
  - Diverse plantings, including season-long offering of plants with flat, open flowers.
- Know your enemy: identify pests and good bugs



# Look at the big picture



Make plans to manage specific problems

# Right plant, right place, right purpose

- ❖ Choose plants based on the site conditions not just for their color
- ❖ Select plants that thrive under existing conditions rather than trying to alter the conditions to meet the needs of a plant
- ❖ Minimize disturbance of the existing landscape

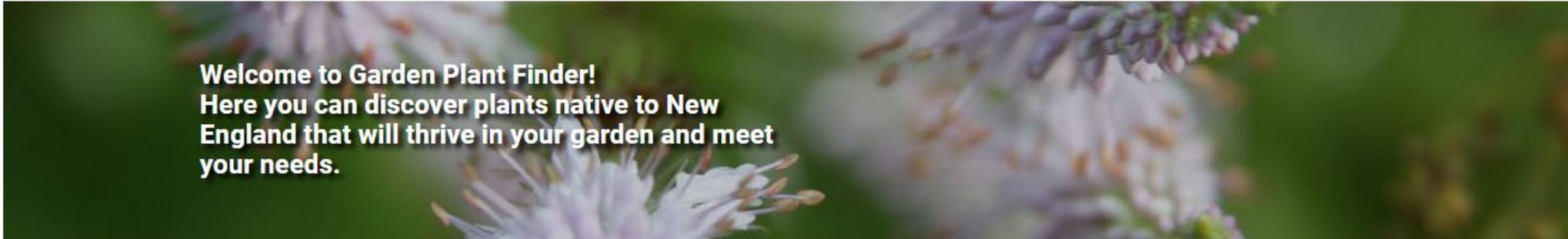


Wild Cranberry Bog

# Site conditions are key!

- ❖ light availability, intensity and duration (full sun to deep shade)
- ❖ water availability, salt water intrusion or spray
- ❖ exposure to wind and temperature extremes
- ❖ soil type, drainage, compaction
- ❖ hardiness zone
- ❖ competition from existing vegetation
- ❖ below ground conditions in urban sites





**Additional Information**

- About Ecoregions, Cultivars and More

Search for plants by name using "quick search," or narrow your results based on plant type, flower color, **New England Level 3 ecoregion**, exposure, moisture, bloom season, and even **cultivation status**. Specify whether to show results that meet *all* or *any* of your search criteria by toggling the box at the bottom of the page. You can also use our search tool to access information about the full range of plants sold at Garden in the Woods and Nasami Farm.

Check out our [Important Definitions](#) page to learn more about ecoregions, cultivation status, and why certain plants are included in this database.

<https://plantfinder.nativeplanttrust.org/Plant-Search>

Many great plant choice sources today

<https://plantfinder.nativeplanttrust.org/Plant-Search>

**Plant Type/Program:**

- ANY TYPE
- Edible
- Fern
- Grasses, Sedges, and Rushes
- Groundcover
- Ornamental Grass
- Perennial
- Shrub
- Tree
- Vine/Liana

*Ctrl-click (Mac users ⌘-click) to select multiple types to include in the search.*

**Flower Color:**

- ANY TYPE
- Blue
- Green
- Insignificant
- Maroon
- Non-Flowering
- Orange
- Pink
- Purple
- Red

*Ctrl-click (Mac users ⌘-click) to select multiple types to include in the search.*

**Height:**

  
Inches ▾

**Spread:**

  
Inches ▾

Check any box below to find only plants having the specific characteristic(s). Otherwise, leave all boxes unchecked to maximize your search results based on the criteria above.

### ***Cultivation Status***

- Cultivar
- Selection
- Species

### ***Exposure***

- Sun
- Part Shade
- Shade

### ***Soil Moisture***

- Dry
- Average
- Wet

### ***Ecoregion***

- (58) Northeastern Highlands
- (59) Northeastern Coastal Zone
- (82) Acadian Plains and Hills
- (83) Eastern Great Lakes Lowlands
- (84) Atlantic Coastal Pine Barrens
- Not Ecotypic in New England

### ***Ornamental Interest***

- Spring Bloom
- Summer Bloom
- Fall Bloom
- Summer Fruit
- Fall/Winter Fruit
- Fall Foliage
- Winter Interest and/or Evergreen

### ***Attracts Wildlife***

- Attracts Bees
- Pollinator Powerhouse Plant
- Attracts Butterflies
- Host Plant
- Attracts Songbirds
- Attracts Hummingbirds
- Other Pollinators/Wildlife

### ***Tolerance***

- Deer/Rabbit Resistant
- Drought Tolerant
- Salt Tolerant
- Urban Environment
- Compaction Tolerant

### ***Additional Attributes***

- Edible
- Low Maintenance
- Spring Ephemeral
- Dioecious (fruits only on female plants)
- Fragrant
- Erosion Control/Soil Stabilization

<https://plantfinder.nativeplanttrust.org/Plant-Search>

### ***Landscape Use***

- Groundcover
- Hedge/screening
- Massing
- Specimen
- Rain Garden
- Meadow garden
- Naturalize
- Rock garden

### ***Attractive Fall Foliage and/or Ornamental Fruit***

- Red Fruit
- Red to Purple Fall Foliage
- Orange to Brown Fall Foliage
- Bright Yellow to Bronze Fall Foliage
- Blue Fruit
- Multi Color Fall Foliage
- Purple to Black Fruit
- White Fruit
- Orange to Yellow Fruit

<https://plantfinder.nativeplanttrust.org/Plant-Search>

### Growth Habit

- Compact/Clumping
- Spreading/Suckering
- Show only plants having **ALL** checked characteristics above
- Show plants having **ANY** checked characteristics above

BEGIN SEARCH

## Native Plant Trust

Conserving and promoting New England's native plants to ensure healthy, biologically diverse landscapes

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https://wildseedproject.net/blog/where-to-buy-native-plants/

The screenshot shows a web browser displaying the Wild Seed Project website. The address bar shows the URL <https://wildseedproject.net/blog/where-to-buy-native-plants/>. The website header includes the Wild Seed Project logo and navigation links for About, Learn, Support, Events, Shop, and a DONATE button. The main content area features the article title "Where to Buy Native Plants" and a sub-heading "How To Guide". The text of the article reads: "Welcome to our native plants nursery directory. The nurseries listed in our directory meet the requirements below. We recommend doing your own research to find out what native plants are in stock, whether or not plants are seed-grown, and if nurseries use organic growing practices. See our [Navigating the Nurseries resource guide](#) for a comprehensive list of questions and additional resources for when you shop." Below this, a "Required:" section lists: "– Focus on native plants or have a selection of native plants available". At the bottom of the page, there is a cookie consent banner with options for "Manage cookies", "Decline all", and "Accept all".

Where to buy native plants



*Rubus idaeus*  
red raspberry



*Rubus occidentalis*  
black raspberry



*Rubus odoratus*  
flowering raspberry



*Salix discolor*  
pussy willow



*Spiraea alba* var. *latifolia*  
white meadowsweet



*Spiraea tomentosa*  
steeplebush



*Swida alternifolia*  
pagoda dogwood



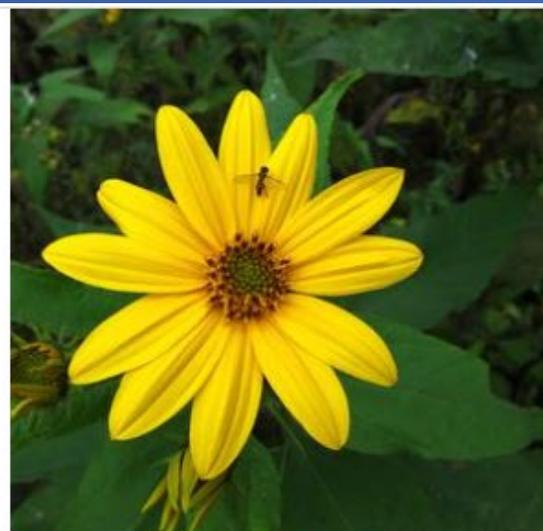
*Swida anomum*  
silky dogwood



*Geranium maculatum*  
wild geranium



*Helianthus divaricatus*  
woodland sunflower



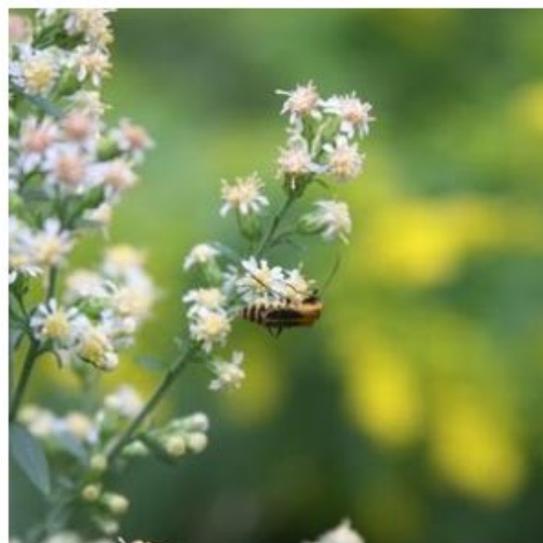
*Helianthus tuberosus*  
sunchoke



*Ionactis linariifolia*  
stiff aster



*Lupinus perennis*  
sundial lupine



*Solidago bicolor*  
white goldenrod



*Solidago caesia*  
wreath goldenrod



*Solidago nemoralis*  
gray goldenrod



*Aquilegia canadensis*  
red columbine



*Asclepias exaltata*  
poke milkweed



*Asclepias incarnata*  
swamp milkweed



*Asclepias purpurascens*  
purple milkweed



*Asclepias syriaca*  
common milkweed



*Asclepias tuberosa*  
butterfly milkweed



*Baptisia tinctoria*  
yellow wild indigo



*Caltha palustris*  
marsh marigold

# Pretty ornamentals? Or Pests?

[http://www.maine.gov/dacf/mnap/features/invasive\\_plants/invasives\\_gallery.htm](http://www.maine.gov/dacf/mnap/features/invasive_plants/invasives_gallery.htm)



Purple Loosestrife



Burning Bush



Glossy Buckthorn



Japanese Barberry



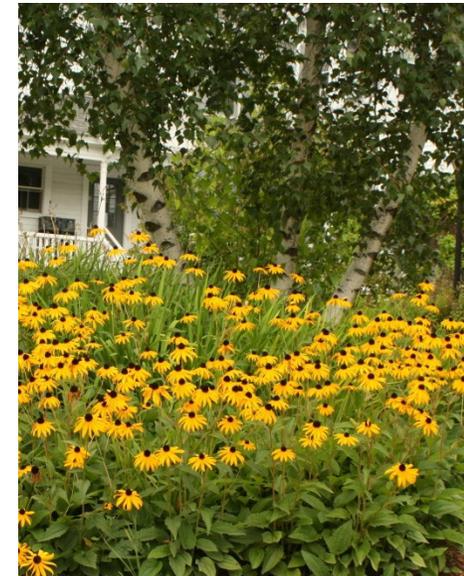
Oriental Bittersweet

# Use site appropriate, non-invasive plants

- ❖ Native plants are often well adapted
  - Fewer problems, less work, more rewards, **but all are NOT problem free**, e.g., viburnums, birches
- ❖ Invasive plants are easy to grow but crowd out native vegetation
  - Our local forest habitats are changing rapidly
  - Invasive plants can ruin wildlife habitat
  - Invasive plants harbor more infected deer ticks



Wild Columbine



Paper Birch



5% of our native  
plants make 75%  
of the food that  
drives food webs

Keystone plants



i.e. some native plants are  
much better at supporting  
food webs than others

The question is not  
whether natives are better  
than nonnatives.

It's whether ecologically  
productive plants are better  
for our ecosystems than  
unproductive plants.



Ginkgo = 0 species of caterpillars

Oaks = 424 species of caterpillars in southern Maine





Native *Prunus* = 405  
species of caterpillars



Zelkova  
supports  
no caterpillars

*Pieris japonica*; 2 spp



Blueberries; 289 spp





English Ivy supports nothing

# Best Bets: What to Plant

## Woody Plants

Common Name	Plant Genus	Butterfly/moth species supported
Oak	Quercus	534
Black cherry	Prunus	456
Willow	Salix	455
Birch	Betula	413
Poplar	Populus	368
Crabapple	Malus	311
Blueberry	Vaccinium	288
Maple	Acer	285
Elm	Ulmus	213
Pine	Pinus	203
Hickory	Carya	200
Hawthorn	Crataegus	159
Spruce	Picea	156
Alder	Alnus	156
Basswood	Tilia	150
Ash	Fraxinus	150
Rose	Rosa	139
Filbert	Corylus	131
Walnut	Juglans	130
Beech	Fagus	126
Chestnut	Castanea	125

## Herbaceous Plants

Common Name	Plant Genus	Butterfly/moth species supported
Goldenrod	Solidago	115
Asters	Aster	112
Sunflower	Helianthus	73
Joe pye, Boneset	Eupatorium	42
Morning glory	Ipomoea	39
Sedges	Carex	36
Honeysuckle	Lonicera	36
Lupine	Lupinus	33
Violets	Viola	29
Geraniums	Geranium	23
Black-eyed susan	Rudbeckia	17
Iris	Iris	17
Evening primrose	Oenothera	16
Milkweed	Asclepias	12
Verbena	Verbena	11
Beardtongue	Penstemon	8
Phlox	Phlox	8
Bee balm	Monarda	7
Veronica	Veronica	6
Little bluestem	Schizachyrium	6
Cardinal flower	Lobelia	4

[www.bringingnaturehome.net/what-to-plant.html](http://www.bringingnaturehome.net/what-to-plant.html)

# Some native plants have pest problems too

## Viburnum leaf beetle

- Over-winters as egg deposited into holes chewed into twigs, then capped. Twig has rough appearance.
- Eggs hatch in May, larvae feed together in groups on leaves.
- Adults found mid-July to first frost.



# Viburnum Leaf Beetle

- Resistant cultivars

([www.hort.cornell.edu/vlb/suscept.html](http://www.hort.cornell.edu/vlb/suscept.html))

- **Some 'resistant' cultivars:**

- *V. cassinoides*, (*witherod viburnum*) - native
    - *V. plicatum* var. *tomentosum* (doublefile viburnum),
    - *V. carlesii* (Koreanspice viburnum),
    - *V. burkwoodii* (Burkwood viburnum),
    - *V. × juddii* (Judd viburnum),
    - *V. lantanoides* (*alnifolium*) (Hobblebush) - native
    - *V. lentago* (Nannyberry) - native



# Some native plants have pest problems too

- In many landscapes, birch trees begin to decline within a few years, and many trees die well before reaching maturity - Grow and Maintain a Healthy Birch Tree – USDA, FS
- Birch leaf miner, bronze birch borer, root scald



# Individual plant selection is key

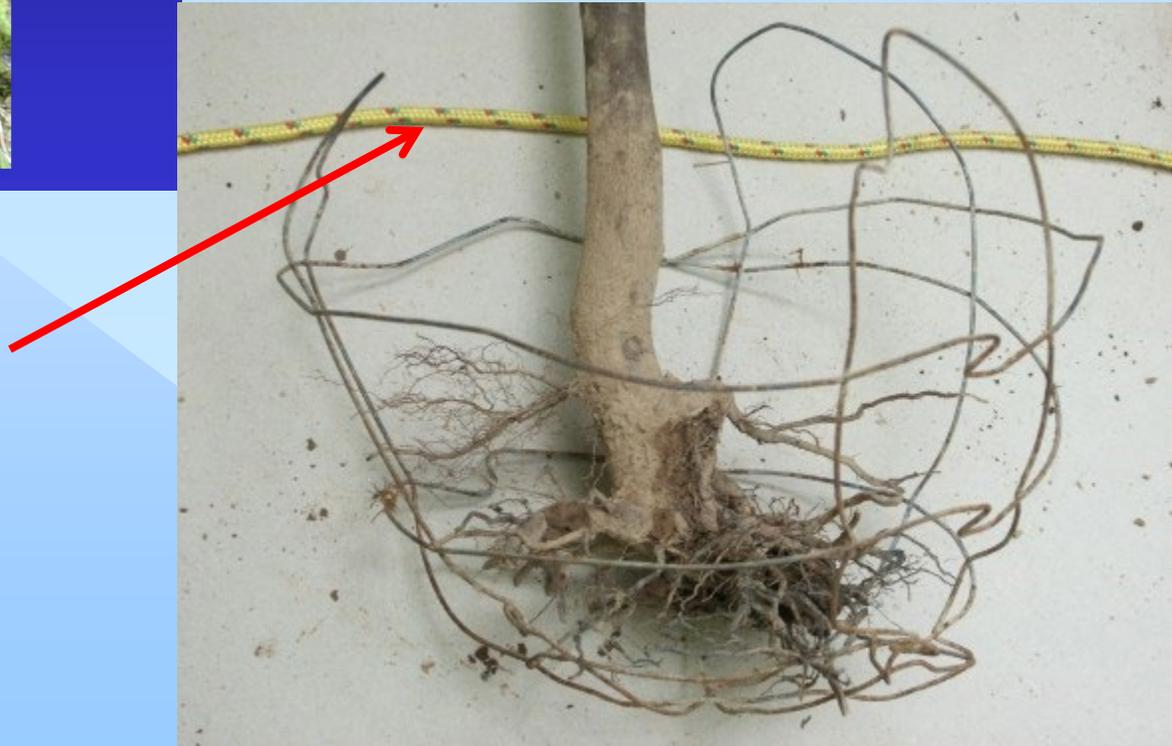
## Proper Planting – starts with selection

Select high quality plant material

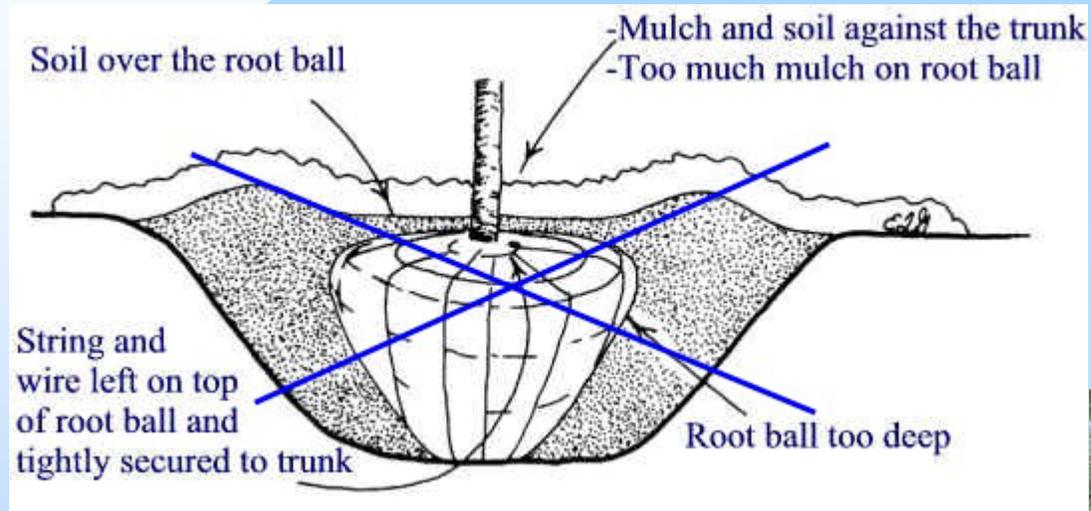


## Root ball problems!

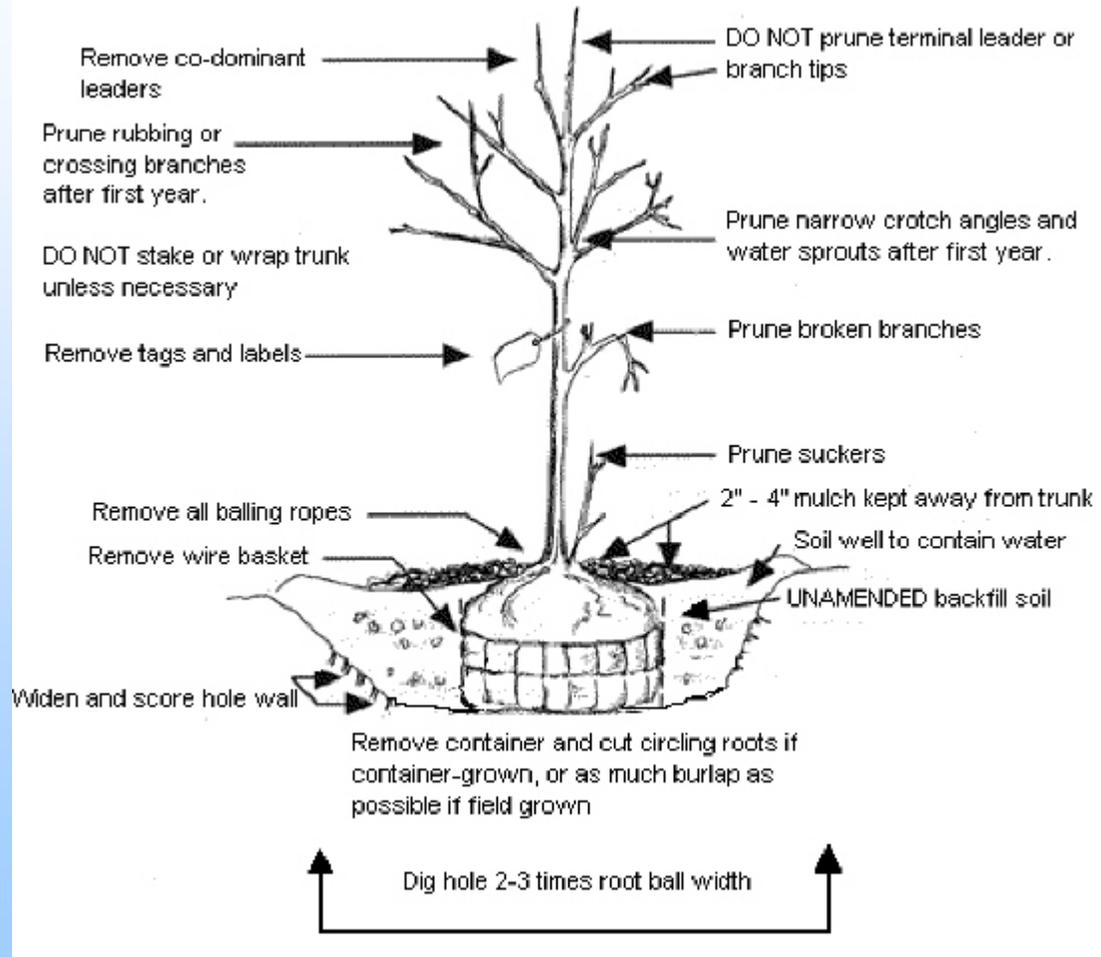
Original soil level in  
root ball



# Start them out right



# Start them out right



# Mulch volcanoes kill...

- **Mulching**

- can suppress weeds, conserve moisture, provide habitat for natural enemies
- pull mulch away from the trunk to decrease pest/ disease potential
- keep under 3 – 4 inches



# Water during establishment

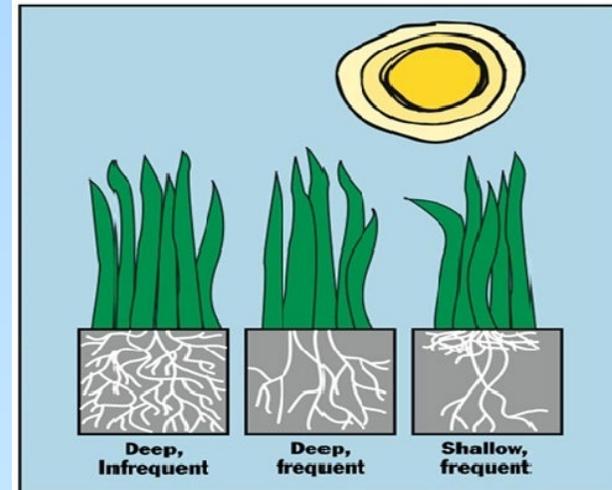
## Proper Aftercare

Treegator Drip Irrigation Bag



# Water management is crucial

- **proper irrigation**
  - **water deeply and infrequently**
  - **only water the root system**
  - **water early in the morning**



# #1 Killer of house plants

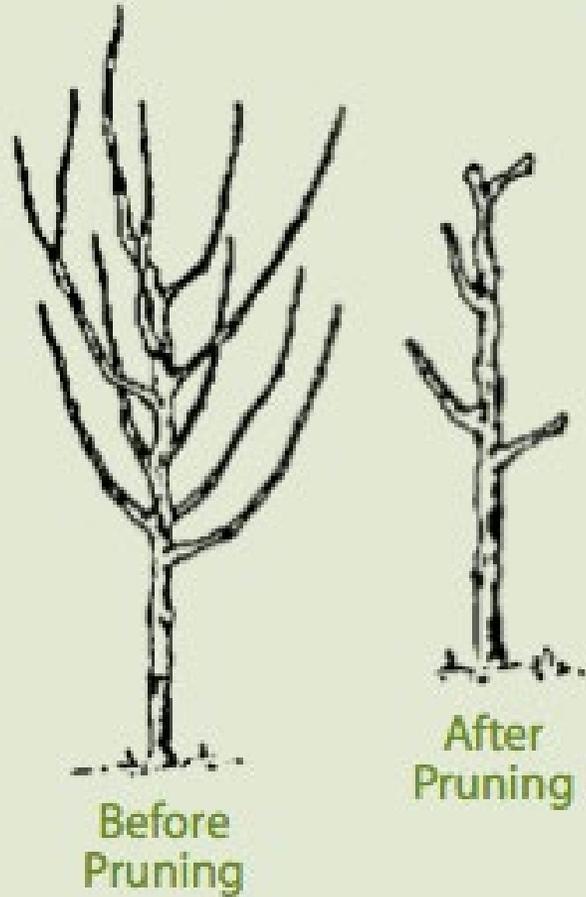
- OVER Watering
  - Plant wilts even though soil is wet
  - Leaf tips turn brown
  - Whole leaves turn brown and wilt
  - Leaf cells rupture (Edema)
  - Leaves turn yellow
  - Leaves start falling off



[simplescaping.wordpress.com/](https://simplescaping.wordpress.com/)

# Air circulation is essential

Vase-Shaped Tree Training



Central Leader Tree Training



# Cultural controls

- ❖ **Landscape design**
  - replace “susceptible” or chronically pest-prone plants with resistant or non-susceptible plants
  - increased plant diversity and habitat complexity can increase natural enemies present (Shrewsbury 1996)



Cranberry Viburnum



Siebold viburnum

## Apple scab



**susceptible**



**resistant**

# Cultural controls

## ❖ Fertilizer

- over fertilization can cause the “aphid effect”
- high nitrogen fertilizers may help the pest more than the plant



No endorsement intended or implied

# Select slow release fertilizers

<u>GUARANTEED ANALYSIS</u>	
Nitrogen	8%
Phosphate	0%
Soluble Potash	1%
Sulfur	2%
Iron	2%
<i>Nutrients derived from other sources</i>	

**Derived from corn gluten,  
steamed bone meal & sulfate  
of potash**

- **GUARANTEED ANALYSIS**

- Total Nitrogen (N).....8.00%
  - 1.0 % Water Soluble Nitrogen
  - 7.5 % Water Insoluble Nitrogen
- Available Phosphate (P205).....0.0 %
- Soluble Potash (K20).....1.0 %

- **NON PLANT FOOD INGREDIENTS**  
Bacillus subtilis, Bacillus licheniformis, Bacillus pumulis, Bacillus megaterium, Paenibacillus polymyxa, Paenibacillus durum each @ 275,000 CFU per gram of finished product

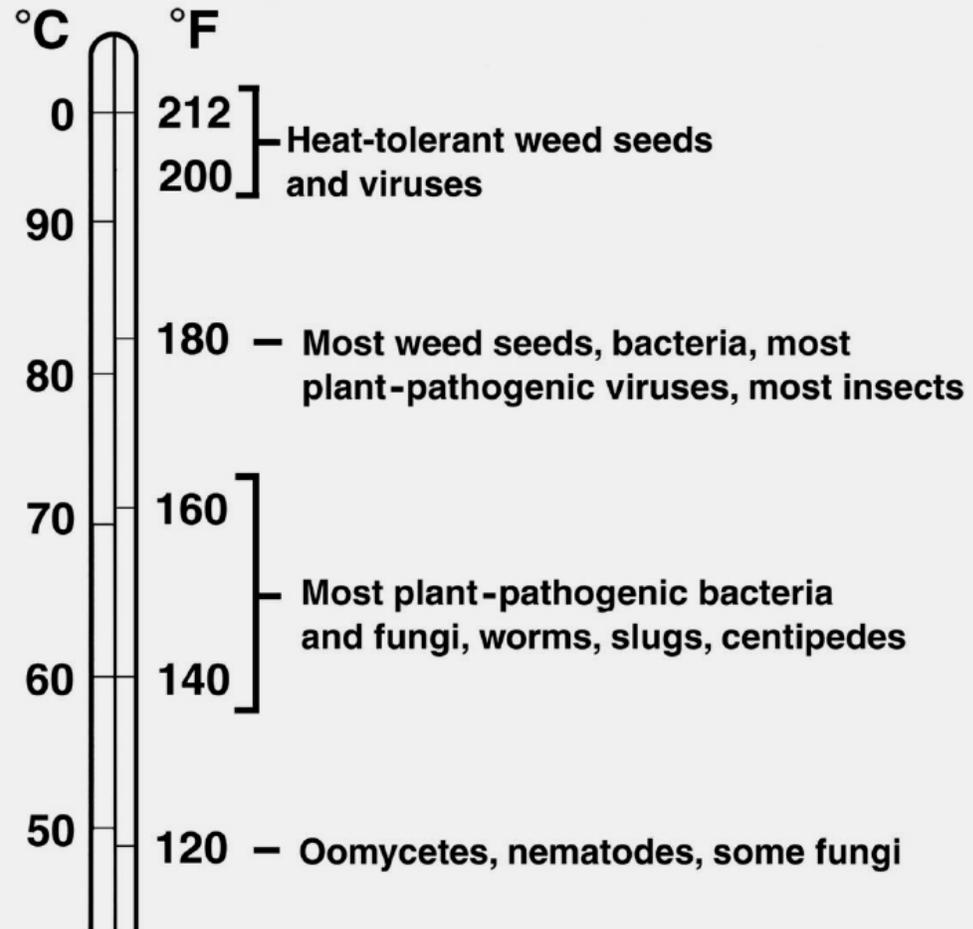
Look for Water Insoluble Nitrogen (WIN)

# Physical Methods

- Exclusion by screens, barriers (example: bird netting, row covers)
- Pruning infested/infected plants
  - hand-pick,
  - shake and capture
  - rake or remove infested tissue



## Temperatures needed to kill plant pests:

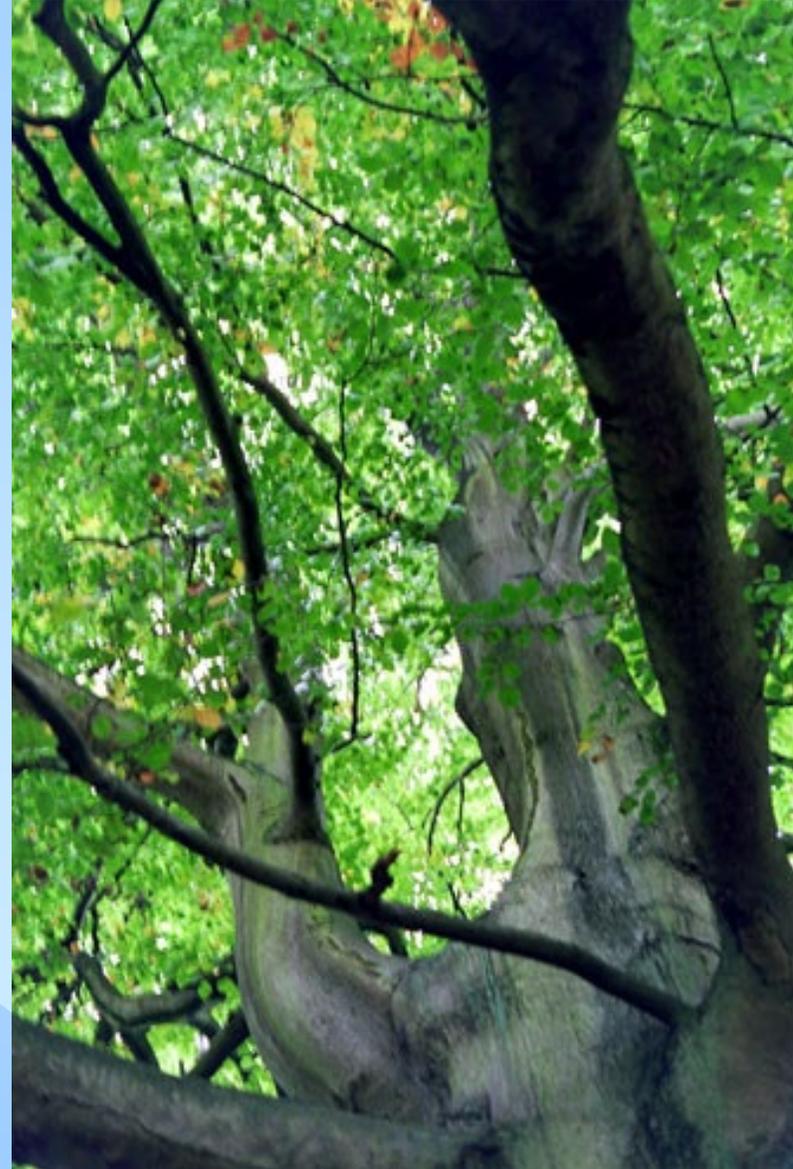


# Weed Management



What is a weed? Is this plant a weed?

**#1 Killer of grass**



## Introduction and Instruction

Grass-like



Broadleaf



# First rule of weed management

- Exclusion!
  - Dense plantings, ground cover plants, taller vegetation
  - Inspect plants before installation
  - Mulch
    - six inches if no plants
    - three – four inches with plants



4

## Got weeds?

- ◆ Liberally apply perennial ryegrass seed all season long.

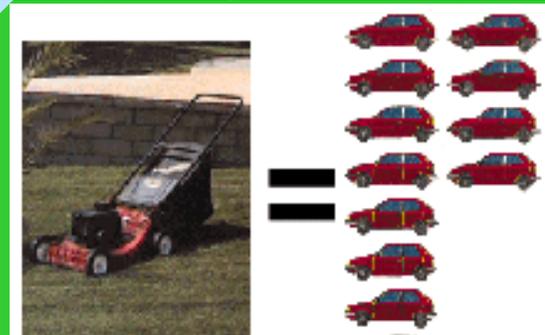


## Weed & Seed



# Mechanical methods

- Mow properly
  - Mow high—at least 3 inches
  - Higher is better
  - Mow regularly
  - Keep mower sharp
  - Vary mowing pattern



Mower exhaust = 11 cars' exhaust

One hour of mowing = driving 400 miles

Mowers spew 87 lbs of greenhouse gases and 40 pounds of other pollutants annually

# Pulling or weed whacking

- Pull weeds when they are small
- Weed whack or mow before flowering or reproduction
- Know the weeds – Do not fragment stoloniferous or rhizomatous weeds like Japanese knotweed, quackgrass or bentgrass



Quackgrass



Japanese knotweed

2

## Let the clippings lie.

- ◆ Clippings are high-quality, low-cost fertilizer.



## **Most insects are not pests**

- **Beneficial insects: predators and parasites**
  - **Pollinators**
  - **Decomposers**
  - **Aesthetics**
- 
- **Plant diversity in the landscape enhances diversity and abundance of “good guys”**



# Know your beneficials



The screenshot shows the 'Got Pests?' website page for Beneficial Organisms. The page includes a navigation menu with links for Home, Contact Us, Site Index, and a search bar. The main content area is titled 'Beneficial Organisms' and contains the following text:

**Beneficial Organisms**

The concepts of "beneficial" and "pest" are strictly human defined. All organisms serve a useful purpose in the ecosystem, and are therefore, by default, beneficial. As the term is applied here, however, it means any living thing that benefits the environment around us (humans), including insects, spiders, mites, nematodes, birds, reptiles, mammals, plants, bacteria, fungi, and viruses. The benefits they provide include pest management, pollination, and maintenance of soil health.

The opposite of beneficial organisms are pests. Any organism can be considered a pest, by humans, if it negatively affects those humans (see [Is It Really a Pest?](#) for more). These living things can be detrimental to human needs and may damage plants, sting, bite or spread diseases.

[More About Beneficial Organisms](#)

Below are pictures of some beneficial bugs that you might see in Maine. Adults are usually pictured, because that is what is most often seen by homeowners; keep in mind, however, that other stages of the insects may be providing the benefit.

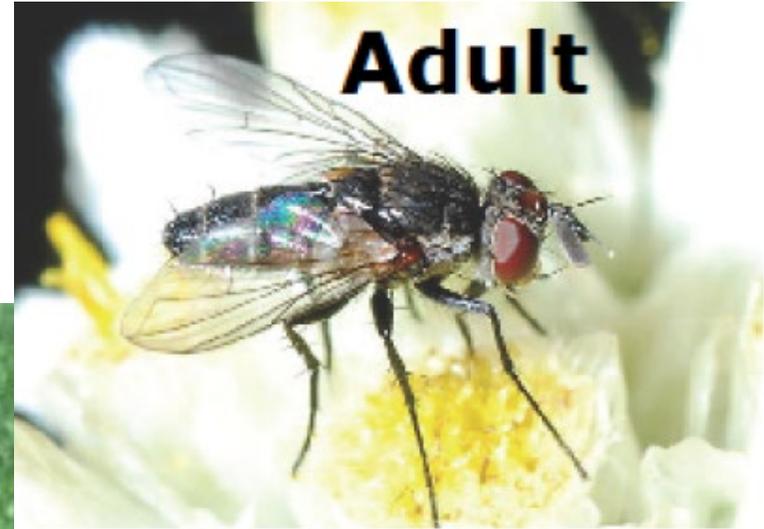
**Predators**  
Bugs that feed on nuisance insect or plant species

The page features three images of predators:

- Assassin Bugs**: [Info at Univ. of Kentucky](#)
- Big-eyed Bugs**: [\[PDF\] Beneficial Insects: True Bugs](#)
- Brown Lacewings**: [Info at Univ. of Kentucky](#)

# Welcome or Unwelcome?

1. Welcome
2. Unwelcome



# Tachinid fly (the so-called “winsome fly”) laying an egg on a Japanese beetle adult

*Istocheta (=Hyperecteina) aldrichi*

Introduced into US from Japan  
in 1922

Adults emerge Late June/July,  
feed on honeydew, nectar

Lay up 100 eggs in two weeks

Eggs hatch 1 day later, dig  
into beetle

Kills beetle in 5-6 days

Just before death, beetle digs  
into ground where fly spend  
winter as pupa



Joshua P. Basham  
T.S.U. Otis L. Floyd Nursery Research Center  
McMinnville, TN 37110-1367  
From Point Sebago Golf Course, Casco, Maine

We love the good “bugs!”



# Welcome or Unwelcome?

1. Welcome
2. Unwelcome



# Good bug in action



# Welcome or Unwelcome?

1. Welcome
2. Unwelcome



# Flower fly larvae eat aphids!



# Ants are beneficial too, but can also be a problem



## More Beneficial Insects



**Flower Flies**  
(aka Hover Fly or  
Syrphid Fly)

Larvae are  
predators of  
small insects



# Spiders

Predators of Insects

Yellow Garden Spider



Daddy Long Legs aka Harvestmen



Crab Spiders

# Ground Beetles



*Harpalus rufipes* (eats weed seeds and small insects)

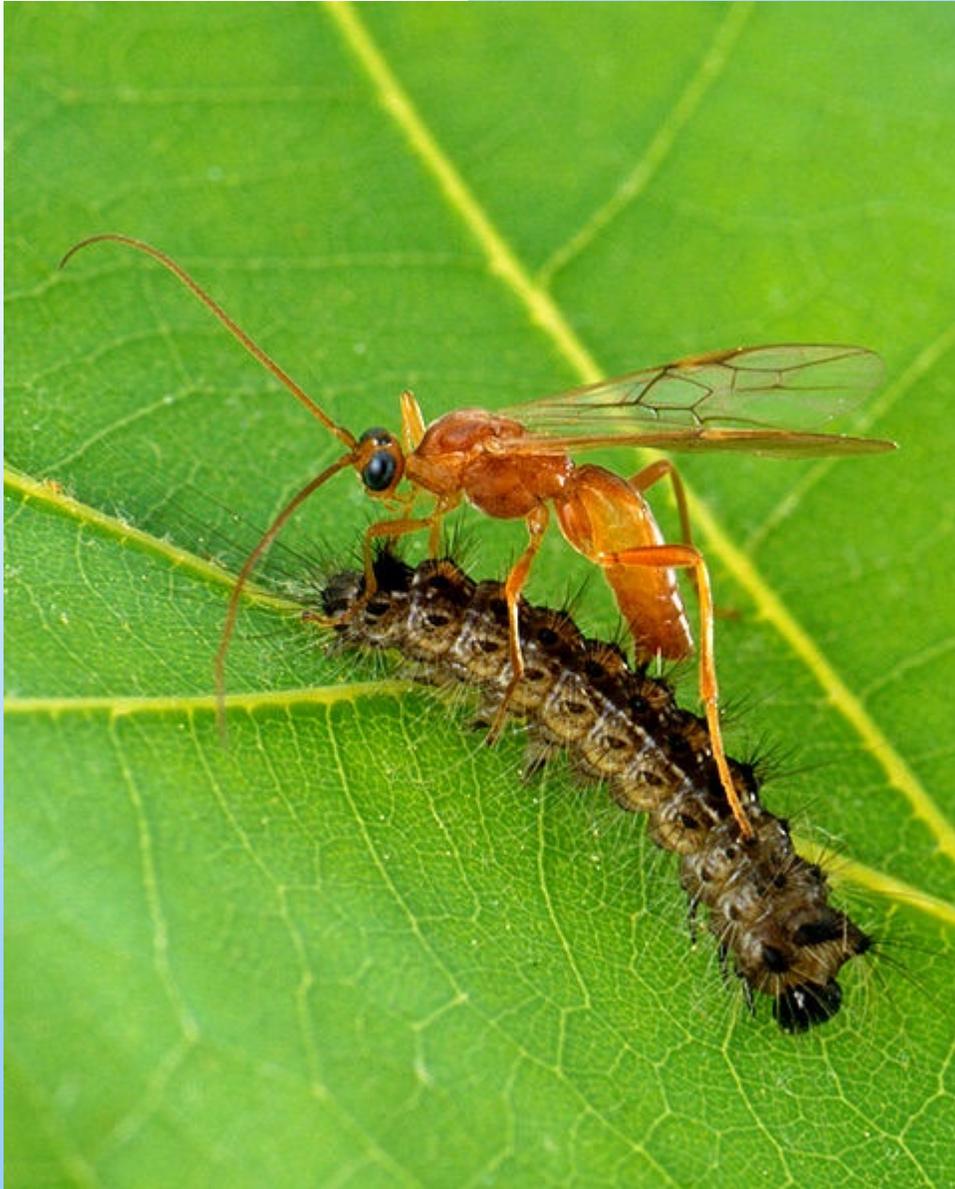


UGA2154078



IOWA STATE UNIVERSITY  
University Extension

# Beneficial Wasps



Parasitized  
aphids =  
'mummies'



# Braconid wasps on tomato hornworm



# Types of Natural Enemies

- **Predators**
  - Kills many prey during its lifetime.
  - Both larvae and adults feed on pest insects & mites.
  - May have to control ants if they are interfering with useful beneficials.





**Lady beetle adult**



**Lady beetle pupa**



**Lady beetle larva**

Photo: JHC

# Spare the Sprays to Protect Beneficial Insects



- Dragonflies
- Spiders
- Small parasitic wasps
- Predatory mites
- Syrphid flies
- Ground beetles



# Toxicity of Common Organic-Approved Pesticides to Pollinators

Toxicity of Common Organic-Approved Pesticides to Pollinators

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

Soaps and Oils,  
only when directly  
sprayed upon the  
pollinator

# Habitat enhancement for beneficials



Many beneficials, as adults, larvae, or both, require pollen and/or nectar as dietary supplements

Key is to provide a series of plants that, collectively, provide continuous nectar/pollen supply

Many of the same plants that provide food and habitat for natural enemies also provide resources for pollinators

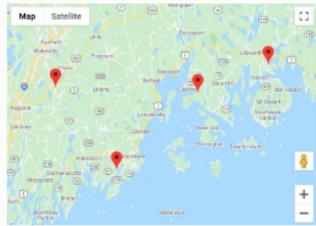




## Pollinator-Friendly Garden Certification

- [Home](#)
- [Step 1: Provide Food for Pollinators](#)
- [Step 2: Provide Water Sources for Pollinators](#)
- [Step 3: Provide Shelter for Pollinators](#)
- [Step 4: Safeguarding Pollinator Habitat](#)
- [Application for Certification](#)
- [Request Educational Programming](#)

### Certified Pollinator-Friendly Gardens Locations



### Pollinator-Friendly Garden Certification

Follow steps 1-4 to certify your pollinator-friendly garden.

#### What do pollinators do?

Pollination, the transfer of pollen from the anthers of a flower to the stigma of the same flower or another flower, is vital to our food supply. Insects and other animals are a key element in this transfer. In fact, one of every three bites of food depends on the work of pollinators!



New to pollinator-friendly gardening? Check out our introductory course!

#### UMaine and UNH Extension Master Gardener Volunteers take action to help pollinators

In Maine and New Hampshire, we have many different kinds of pollinators, such as bees, wasps, flies, beetles, butterflies, moths, and hummingbirds, all of which need our help! Both native and domestic pollinator populations are declining, affected by habitat loss, climate change, and contact with pesticides. UMaine and UNH Extension Master Gardener Volunteers are taking action to protect pollinators by educating the gardening public and reviewing applications to certify gardens as pollinator-friendly. You can join this effort by providing food and habitat for native insects and animals. Pollinators will, in turn, provide the pollination needed to protect our plant diversity and food sources. Certifying your property or garden as "Pollinator-Friendly" will help support a healthy ecosystem for our community and our future, and will help to spread the word about the importance of pollinators.

#### Certifying your Garden

In order to apply for this garden certification, the applicant must first spend some time carefully reviewing and preparing for the requirements outlined in steps 1 to 4:

- [Step 1: Provide Food for Pollinators](#)
- [Step 2: Provide Water Sources for Pollinators](#)
- [Step 3: Provide Shelter for Pollinators](#)



<https://extension.umaine.edu/gardening/pollinator-garden-certification/>



## Choose the Perfect Plant

Maine native plants provide the greatest benefit to wildlife. Click on any of the boxes below to filter plants based on different criteria (Bloom Month, Sunlight, Soil Conditions, Size/Plant Height, Caterpillars Hosted, and Wildlife Benefited). Combine your filters to find the perfect plants for you!

You can choose multiple criteria and the results will automatically update. You can remove filters too, by clicking on any of your filter items.

Find out more about Maine Audubon's "Bringing Nature Home" project

Bloom Month

All Months

Sun/Shade

All Types of Sunlight

Soil

All Types of Soil

Size

All Sizes

Caterpillars Hosted

All Counts

Wildlife Benefited

All Wildlife



# Do you need a pesticide?

- ❖ First identify the pest
- ❖ Is it *really a problem*
- ❖ Try cultural or sanitary controls
- ❖ Encourage the “Good bugs”
- ❖ Replace with resistant varieties



# Sustainable landscapes cost less long term

## Garden/Garden — A Comparison in Santa Monica Santa Monica, California, U.S.A.



### Project Facts

- Santa Monica imports more than 90 percent of its water from Northern California and the Colorado River, more than 400 miles away.
- In 2004, the city of Santa Monica constructed two 1,900-square-foot demonstration gardens on two adjacent front yards to demonstrate the many benefits of sustainable gardens. The "Traditional Garden" incorporates commonly used exotic species and lawn while the "Native Garden," the sustainable alternative, uses exclusively native California plants.
- The native garden cost \$16,700 to install compared \$12,400 for the traditional garden. Despite its higher initial cost, the native garden's lower maintenance requirements translate into \$2,200 per year in cost savings.
- The native garden uses 77 percent less water, produces 66 percent less waste, and requires 68 percent less labor than the traditional garden.

maine.gov/dacf/php/gotpests/index.shtml

USDA APHIS Applic... |FS| assystNET - Services | DACF Apps | Division of Animal a... | Office of Informatio... | Hemp Database | Current Forms | MaineIT - Third-Part... | Office of Informatio... | All Bookmark

Maine.gov | Agencies | Online Services | Help | Search Maine.gov | Select Language |

# Got Pests?

About Us | Ask the Experts | Sitemap

Search Got Pests

Find a Pest ▾ | Is it a Pest? ▾ | Solutions | Pesticides | Resources | Ask the Experts

## Got Pests?

Pests can be insects, weeds, fungi, mice and other animals, or microorganisms, like bacteria and viruses. Before you swat, stamp, or spray, know your enemy and, **most importantly, know that it is an enemy, and not a [beneficial](#) or harmless plant or animal.**

### Do you know the name of your pest?

Search by name of your pest:

If not, select from the options below.

### Where is it found?



What kind of pest is it?

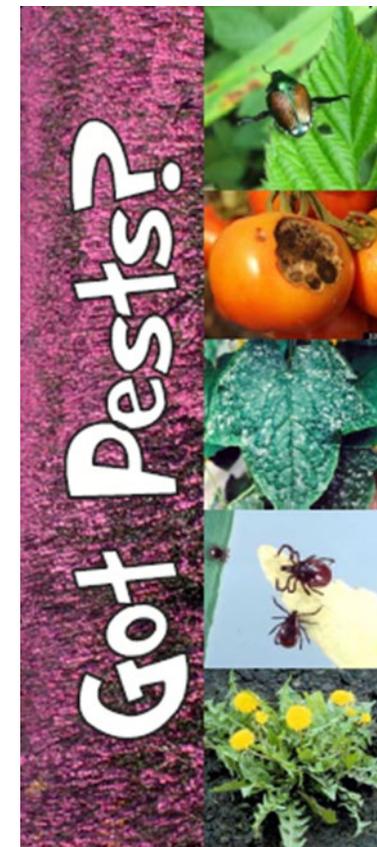
Teaching kids to identify and manage pests?

[K-12 IPM Curricula](#)



### Featured Links

- [Maine Integrated Pest Management Council](#)
- [Maine Board of Pesticides Control](#)
- [Maine Natural Areas Invasive Plants](#)
- [Maine Center for Disease Control & Prevention](#)
- [Maine Department of Agriculture, Conservation and Forestry](#)
- [Maine YardScaping](#)
- [University of Maine Cooperative Extension IPM for Maine Homeowners](#)
  - [Have Your Pest Identified](#) (Diagnostic Lab)
- [USDA APHIS Wildlife Services](#)



Bugs? Plant Diseases?  
Weeds? Critters?  
In Your Garden?  
Yard? Home?

[www.GotPests.org](http://www.GotPests.org)

Maine Integrated Pest  
Management Council

[www.gotpests.org](http://www.gotpests.org)

# Maine Integrated Pest Management Council



Protecting Maine's Future through Reduced Reliance on Pesticides

- **Established by state legislature in 2002** to 'promote and enhance implementation of IPM practices that reduce or minimize harmful environmental and human health risks.'
  - **Promotes public education** about the need, benefit, and practices of IPM.
  - **Identifies priorities** for integrated pest management research, education, demonstration and implementation;
  - Serves as a **communication** link among researchers, educators, regulators, policymakers and integrated pest management users;
  - **Sets goals** for expanding, advancing and implementing integrated pest management;
  - Establishes protocols for **measuring and documenting** IPM adoption.
- Membership:**  
The 11 members plus 2 coordinators represent a broad range of IPM and environmental interests



Find out more at  
[www.maine.gov/IPMCouncil](http://www.maine.gov/IPMCouncil)



## Smarter Ways to Deal with Pests

From mice to mildew, crabgrass to cockroaches – whenever nature becomes a pest, Integrated Pest Management (IPM) offers least-risk solutions.

## What is Integrated Pest Management?

- IPM is a **common sense and sustainable method** anyone can use to protect against pests. Every time you swat a fly, pull a weed, or select disease-resistant plants for your garden, you're using IPM tactics that reduce the need for pesticides.
- IPM methods include:
  - **Cultural practices** such as mowing higher to favor grass instead of weeds
  - **Physical methods** such as pruning or installing deer fencing)
  - **Biological controls** such as attracting or conserving beneficial insects and spiders
  - **Chemical methods** such as selective and careful use of organic, natural and/or conventional **pesticides only as needed.**

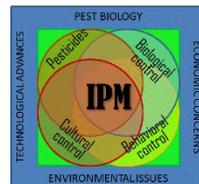


## On the Farm...

Maine farmers use IPM to produce healthy crops, protect the environment and save money. Shop for Maine-grown food and ask your farmer-neighbors about their IPM practices.



Find IPM answers to common pest issues at  
[www.gotpests.org](http://www.gotpests.org)



## Our Mission

The Integrated Pest Management Council will define, promote and enhance implementation of IPM practices that reduce or minimize harmful environmental and human health impacts of pesticides and other pest management practices. The Council will promote the education of the public regarding the need, benefit, and practices of IPM.

Specifically, the council is directed to:

- Identify long-term and short-term priorities for integrated pest management research, education, demonstration and implementation; [Priority Needs for IPM](#) (updated 2017)
- Serve as a communication link for the development of coordinated multidisciplinary partnerships among researchers, educators, regulators, policymakers and integrated pest management users;
- Identify funding sources and cooperate on obtaining new funding for on-site trials, education and training programs and other efforts to meet identified goals for expanding, advancing and implementing integrated pest management;
- Establish measurable goals for expansion of integrated pest management into new sectors and advancing the level of integrated pest management adoption in sectors where integrated pest management is already practiced; and
- Cooperate with appropriate organizations to establish protocols for measuring and documenting integrated pest management adoption in the State.

# Maine Board of Pesticides Control



DACF Home → Bureaus & Programs → Bureau of Agriculture → Division of Animal and Plant Health → Board of Pesticides Control

Division of Animal and Plant Health

Board of Pesticides Control

About Us

Information for the Public

Public Meetings

Pest Management Resources

Licensing, Applicators and Distributors

Applicator Resources

Pesticide Registration

Water Quality Program

Pesticide Laws, Regulations & Policies

Publications & Forms

Contact Us



## Board of Pesticides Control

### 2024 Registered Pesticides List

[2024 Registered Pesticides List \(XLSX\)](#) - This list was generated June 6, 2024 at 10:00 AM . Please recognize that registrations are being submitted continuously and this list will become out of date almost immediately. Check back for an updated list.

**Trending Topics:** [COVID-19 & Disinfectants](#) / [Browntail Moth](#) / [Cannabis](#) / [Pollinators](#) / [Neonicotinoids](#) / [Aquatic Herbicides](#) / [Obsolete Pesticides Collections](#)

### Public Meetings

- [BOARD MEETING DATE JULY 19, 2024](#)
- [BPC Meetings, Schedules, Agendas, and Minutes](#)

### Events & News

- [\\*NEW\\* Postive Identification of Treatment Sites Submission Form](#)

[More Events & News](#) +

### ONLINE SERVICES

[BPC Portal Login](#)

[Need Credits?](#)

[Search Maine Registered Products](#)

[Complaints](#)

[Subscribe for News](#)

www.thinkfirstspraylast.org

# Resources

- ▶ **Maine Department of Agriculture, Conservation and Forestry Plant Health Division**
  - ▶ **Apiary • Arborist • Ginseng • Horticulture • Hemp • IPM - Programs**  
207-287-3891
  - ▶ <https://www.maine.gov/dacf/php/index.shtml>
  - ▶ **Cooperative Extension: Insect Pests, Ticks, and Plant Diseases**
  - ▶ 207.581.3880 or 800.287.0279 (in Maine)
  - ▶ [extension.diagnosticlab@maine.edu](mailto:extension.diagnosticlab@maine.edu)



# Who you gonna call?



**BOARD OF PESTICIDES CONTROL**  
**Think First...**  
**Spray Last!**  
**STATE OF MAINE**

[www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org) • [www.gotpests.org](http://www.gotpests.org) • [www.yardscaping.org](http://www.yardscaping.org)

**PESTICIDE REGULATIONS**

- Board of Pesticides Control  
207-287-2731

**PEST PROBLEMS**

- Cooperative Extension  
800-287-0279
- Maine Forest Service  
207-287-2431

**PESTICIDE POISONING**

- Northern New England  
Poison Center  
800-222-1222

Linda Chalker-Scott | Washington State University Extension

https://puyallup.wsu.edu/lcs/

Apps EPA: Pesticides - Prop USDA APHIS Applicat Division of Animal and MS-TAMS Logon System Dashboard - C ePermits (APHIS) Board of Pesticides Control Order Now | Custom



WASHINGTON STATE UNIVERSITY  
EXTENSION

🔍 ✉️ 📄

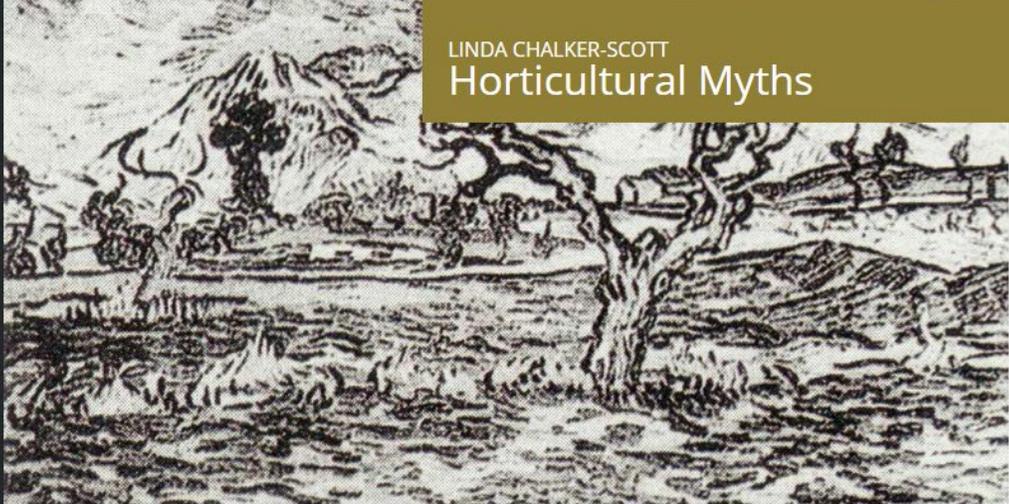
🏠 Horticultural Myths

- The Informed Gardener
- Fact Sheets & Case Studies
- Landscape Rehab Projects
- Seminar Schedule
- Curriculum Vitae

Puyallup Research & Extension Center

Gardening in Washington State ↗

The Garden Professors Blog ↗



LINDA CHALKER-SCOTT  
Horticultural Myths

## Horticultural Myths

Looking for the newest myth-information? Check out our blog [The Garden Professors](#). You'll find science-based information from four horticultural professors from around the country.

### Fertilizers

- [The Myth of Beneficial Bone Meal](#)
- [The Myth of Vitamin Shots](#)
- [The Myth of Foliar Feeding](#)

### Phosphate

- [The Myth of Phosphate Fertilizer](#)
- [The Myth of Phosphate Part II](#)
- [The Myth of Red Leaves](#)

### Maintaining Trees and Shrubs

- [The Myth of Curative Kelp](#)
- [The Myth of Antitranspirants](#)

### Mulches

- [The Myth of Chloroxed Clippers](#)

### How Plants Work

- [The Color Conundrum](#)
- [The Myth of Mineral Magic](#)
- [The Myth of Xeriscaping](#)
- [The Myth of Well-Behaved Ornamentals](#)
- [The Myth of Wilting Leaves](#)
- [The Myth of Night Light](#)
- [Mycorrhizae: So, What the Heck Are They, Anyway?](#)
- [The Myth of Uniform Plant Performance](#)
- [The Myth of Stoic Trees](#)
- [The Myth of Tree Topping Part II](#)

myWSU ACCESS POLICIES

<http://www.theinformedgardener.com>.

**It's just vinegar... OR IS IT???**

**Learn about concentrated vinegar as a weed killer.**



**DID YOU KNOW:**  
Acetic acid at concentrations commonly found in weed killers can cause PERMANENT EYE DAMAGE!



Acetic acid vapors can irritate the nose and throat

**"NATURAL" does NOT mean "SAFE!"**

Chat now 

Questions?

