

The Eastern Gardening Guide

THE BIOLOGY DEPARTMENT is home to several faculty biologists who are experts in plant-related science. This guide provides gardening tips by professors Bryan Connolly (organic gardening and horticulture),

Elizabeth Cowles (insects and entomology), Jonathan Hulvey (fungal diseases and plant pathology) and Brett Mattingly (invasive species and ecology).

WATER THE ROOTS

(advice by Professor Connolly)

Roots are the only parts of the plant that effectively take up water.

- Avoid wetting the plant leaves, as moisture can encourage fungal spores to germinate and cause disease.
- Water during the cooler parts of the day. This allows the water to soak into the soil and not just evaporate.
- Water less frequently and deeper. This encourages the roots to grow deep, making them more drought resistant.

FEED THE SOIL

(advice by Professor Connolly)

Organic matter in the form of compost benefits the soil by increasing water-holding capacity and biological diversity, which can help decrease root diseases. It also adds micronutrients for plants to use.

NATIVE VS. NON-NATIVE

(advice by Professor Mattingly)

Although the exotic flowers of non-native plants may be appealing, they can be a risky choice.

When planted in your yard, non-native plant species can become invasive as they grow rapidly and spread throughout the landscape. They won't stop at your yard; they can spread into surrounding natural areas and crowd out other plants, reducing diversity and degrading the habitat.

Native plants, on the other hand, are adapted to our climate and can tolerate

our seasonal changes in temperature and precipitation. Since they're acclimated, they often require less water and fertilizer.

"By choosing native plants, you are getting benefits beyond the blooms. You'll contribute to the sustainability of the local habitat, attract wildlife and prevent the spread of destructive invasive species."

Brett Mattingly

AVOIDING DISEASE

(advice by Professor Hulvey)

Vegetable plants are susceptible to many diseases that may adversely impact fruit production and the plant's overall health, as well as spread throughout the garden.

- Rotate plantings so you're not planting the same vegetable in the same location year after year, which can increase the odds of disease outbreaks.
- Promptly remove plants with heavy disease symptoms.
- Avoid transplanting seedlings that have spots or blights, as this is a common way to accidentally bring new diseases into your garden.

- Remove plant debris before turning the soil over in your garden plot — some disease microbes can leave resistant spores in the soil that can persist for years.
- Place mulch around your plants, which will help hold moisture and prevent plants from making direct contact with the soil, where disease organisms are found.



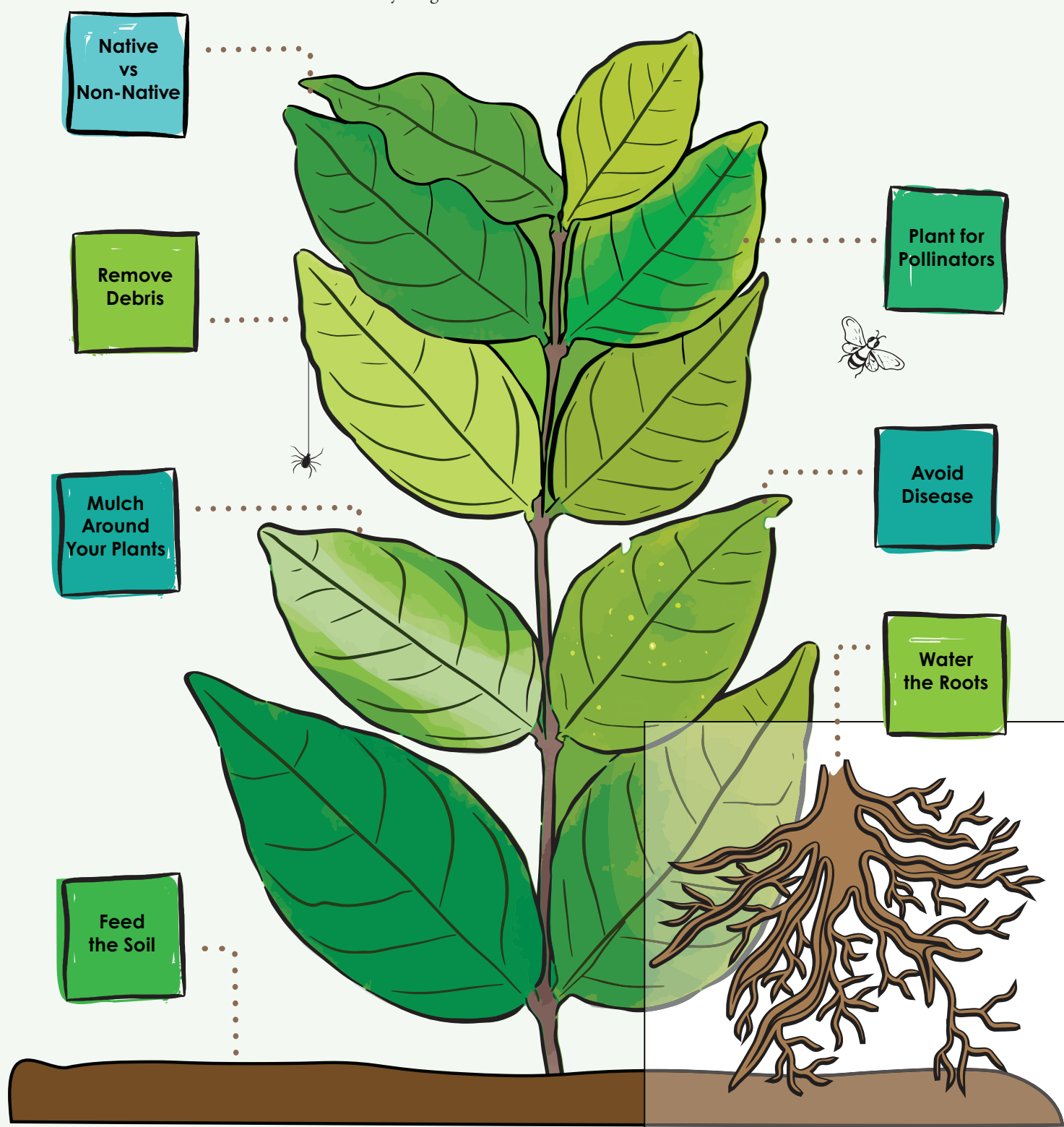
FOR THE POLLINATORS

(advice by Professor Cowles)

A pollinator is anything that helps carry pollen from the male part of the flower to the female part of the same or another flower, enabling the plant to become fertilized and produce fruit.

Did you know that honeybees are not native to the Americas? Honeybees were introduced from Europe by colonists. Other bee pollinators include bumblebees and solitary nest bees, such as mason, leaf-cutting and carpenter bees.

- Augment your garden with bee nesting sites to further assist these insects.
- Don't forget non-bee pollinators, such as moths, butterflies, beetles, hummingbirds and flies.



UNDER-APPRECIATED BUT FABULOUS NATIVE POLLINATOR PLANTS

Hemp dogbane attracts an extraordinary variety of pollinators. One insect that feeds on this plant, the dogbane beetle, is arguably the most beautiful beetle found in North America. The top of the list for sheer quantity of nectar produced is mountain mint (*Pycnanthemum* spp.), which blooms mid- to late-summer when

there is often a shortage of nectar from other plants.

All three species of milkweed native to New England (common, butterfly and swamp) provide copious quantities of nectar and feed endangered monarch butterfly caterpillars.

