

# Think IPM

## for pollinator conservation

### Integrated Pest Management

#### BIOLOGICAL CONTROL

is the use of natural enemies to control insect pest populations. Natural enemies include insect predators and parasitoids (such as lady beetles and braconid wasps) plus pathogens including bacteria, fungi and viruses.

#### PLANT NATIVE & HEIRLOOM

plants that provide pollen and nectar to attract natural predators. Many are attracted to flowering plants and also contribute to pollination services.

#### INTEGRATED PEST MANAGEMENT

is an ecosystem-based approach that employs long-term prevention of pests through inspection, monitoring, forecasting, thresholds, education and recordkeeping. While pesticides simply respond to the pest, IPM addresses the source of pest problems.

#### LAWN CARE

Limit insecticide/herbicide use, aerate, mow less often, less grasses grow to 4" or more, add nutrient-rich compost, and plant low growing perennials such as self-heal, clover, creeping thyme, blanket flowers, and pussy toes.

#### MONITORING

Long term prevention through regular monitoring of plants, pests and weather helps to project ahead and plan. Track and compare year to year to determine what works best.

#### CHEMICAL CONTROLS

Biorational insecticides are less harmful than conventional insecticides, as they target pests and conserve good bugs (eg. horticultural soaps and oils, corn gluten, spinosad and *Bacillus thuringiensis*).

#### CONSERVE POLLINATORS

Bees, flies, wasps, beetles and other pollinators are crucial for crops, landscapes, and natural areas. Avoid pesticides, provide nesting areas, and plant pollinator habitat for food sources.



Mining bee

Spider wasp

Dakota skipper

Black & yellow mud dauber

Monarch butterfly

Cicada killer wasp

Variegated Fritillary

Rusty patched bumble bee

Monarch butterfly

Black swallowtail

Yellow banded bumble bee

polyphemus moth

[ncipmhort.dl.umn.edu](http://ncipmhort.dl.umn.edu)

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**LACEWING**  
Predator of aphids.  
Known as aphid lions.



**PIRATE BUG**  
Adults and nymphs are predators of small insects.



**SYRPHID FLY or HOVER FLY**  
Adults feed on pollen and nectar. Larvae are predators on small insects.



Pollinator Friendly Alliance

Legislative Citizen Commission on Minnesota Resources (LCCMR)  
Conservation Biocontrol 2017 - 2020



**LADY BEETLES**  
Larvae and adults are predators of small insects.

