Japanese Beetle

*Popillia japonica*
Japanese beetle adults chew on leaves and flowers of many plants.
Japanese beetle larvae (grubs) – Among most damaging turfgrass insects in the US
Japanese Beetle Life Cycle
Adults burrow into the ground to lay eggs. Eggs are only laid in soil that is suitably moist.
Early stages of Japanese beetle grubs are highly sensitive to soil drying.
As grubs get older, more root pruning occurs.
Skunk digging damage associated with white grub infestations
Japanese beetle traps are excellent for detecting presence of the insect in an area.
Japanese Beetle is:

- Established and reproducing in parts of Front Range Colorado
- Exists in high populations in limited areas
  - Overall, populations remain low at most all sites where detected
  - Areas near large areas of intensively irrigated turfgrass can be expected to have highest populations
Japanese beetle in Colorado
Japanese beetle traps are not useful for control of existing Japanese beetle infestations!
They can lure high populations of both male and female beetles into the area and cause more problems than they solve!

Shhh…If you’re going to talk please do so quietly!
Japanese beetle traps are not useful for control of existing Japanese beetle infestations!
Skeletonizing injuries produced by Japanese beetle adults
Some Plants most favored by Japanese Beetle adults

- Virginia Creeper
- Grapes
- Roses
- Fruit Trees
  - Includes crabapple
- American Linden
- American Elm
Japanese beetle controls

Hand Picking
Insecticide Sprays Useful for Control of Japanese Beetle on Ornamental Plants

• Neem products *that contain azadirachtin*
• Most pyrethroids (e.g., cyfluthrin, permethrin, bifenthrin)
• Acetamiprid

Do not treat plants with flowers in bloom!
Neem

- Extracted from seeds of the neem tree, *Azadirachta indica*
- **Active Ingredients:** *Azadirachtin* primarily; oil fractions have some uses.
- **Mode of Action:** Various – insect growth regulator, feeding deterrent, repellent
- **Current Status:** Broadly labeled for food crop and ornamental plant protection
Neem

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• Active Ingredients: *Azadirachtin* primarily, oil fractions have some uses.
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Grasses with larger root mass are better able to tolerate effects of root pruning insects.

Mowing height greatly affects root mass of turfgrasses!
Recommendations for Japanese Beetle Larval Control

• Insect parasitic nematodes (*Heterorhabditis* species)
• Imidacloprid (Bayer Insect Control for Soil and Turf, Hi-Yield Systemic Insect Granules, etc.)
• Chlorantraniliprole (Scott’s Grub-ex)
Chlorantraniliprole

- New insecticide class (based on natural product – ryania)
- Low hazard to pollinators
- Low mammalian hazard (Toxicity Class 4)
Insect Parasitic Nematodes ("Beneficial Nematodes", "Predator Nematodes")

Photograph courtesy of Peggy Greb
Nematodes enter insects through natural openings.

*Heterorhabditis* spp. nematodes can penetrate directly through the body wall.
Insect Parasitic Nematodes Can Control Many Turf Insects

- White grubs
- Billbugs
- Cutworms and sod webworms
- Mole crickets
Grubs turn a reddish color when killed by *Heterorhabditis* nematodes
Japanese Beetle Fact Sheet 5.601

2013 Fact Sheet includes recommendations on controls
Lawn Aerator Sandals (aka, “Spikes O’ Death”)
Spikes O’ Death In Action
SPIKES OF DEATH

Oh dear... could you check on the kids. I think I hear them squabbling again!
GRUB-SKWER SANDALS
THE ORGANIC WAY TO KILL GRUBS