

Vegetable Garden – “Bad Bugs” Reference Document

“Bad Bug”	Characteristics	Management
Aphids 	- Come in many colors (green, brown, black, etc.) - Attack plants & vegetables; suck juices from leaves & buds - Sooty mold may develop - Carrier of viral disease - Population declines w/ heat	- Beneficial insects: lady bugs, lacewings, syrphid (hover) flies - Insecticidal Soap - High pressure hose
Army cut worms 	- Tan or grayish larvae of miller moths - Large numbers can be found crawling on concrete on walls - Live in ground and feed on tender plants at night	- Put collars around seedlings - Bt (e.g. Dipel) on seriously affected perennials
Beet Leaf Hoppers 	- Suck undersides of leaves which become mottled looking - Transmits curly top virus	- Often lay eggs in nearby fields, so keep weeds cut - No cure for curly top virus – discard plants

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Blister Beetles 	- Usually arrive in mid-to-late summer in large numbers and all feed on the same plant - Plant leaves devoured quickly, but plant usually recovers - Larvae feed on grasshopper eggs	- Spray carbaryl on beetles and host plants - Shop vac - Shake off and step on them (wear protection) - Call Vet immediately if ingested by horse; can die in 2 days (horses usually won't eat live beetle)
Cabbage Loopers 	- Occasionally damage seedlings, mostly bores through heads and contaminates with body and excrement - Ragged holes in leaves (broccoli, cabbage, turnip, radish)	- Hand pick - Bt
Caterpillars	- Holes appear in leaves & buds; flowers may be sheared off - Moths & butterflies lay eggs on leaves; they hatch & feed on leaves, etc.	- Tolerate some of them - Bt (<i>Bacillus thuringiensis</i>), Neem, carbaryl

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Corn earworms  	- Moths active at night - Full grown larvae up to 1 ½” long; hatch from eggs laid on fresh corn silks; feed on leaves, tassels, whorl within ear, and ear - Developing kernels within ears are eaten; extensive excrement at ear tip	- Plant early - Bt - 5% carbaryl dust by hand brush to individual ear silks starting when new silks first appear and continuing at 2 to 3 day intervals until silks stop growing - Lacewings; minute pirate bugs, damsel bugs
Cucumber Beetle  	- Striped beetles feed on cucumbers, squash, pumpkin & watermelon; spotted beetles feed on those cucurbits and on other plants - Signs are stems of seedlings are eaten off, leaves are yellowing and wilting, and holes are appearing - Larva can feed on host plant roots - Can carry bacterial diseases and viruses from plant to plant, such as bacterial wilt and mosaic virus	• Yellow sticky traps • Knock beetles to the ground and catch them with a piece of cardboard placed under the plant • Vacuum • Cover seedlings with row covers; remove during blossoming time several hours each day to allow for pollination • Few insecticides can be used on cucurbit plants because they are very sensitive. They would need to be used when plants are just beginning to emerge through the soil.

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Earwigs 	- ½” - 1” long; brown to black color; winged or wingless - Nocturnal - Feed on live or dead insects (e.g. chinch bugs, mole crickets, etc.) and decaying or live vegetation	- Lay out rolls of newspaper in evening; collect bugs in morning - Carbaryl
Flea Beetles 	- Small black insects chew tiny holes in leaves, which slows growth and production - They like eggplant, tomato, potato	- Parasitic wasps - Manage weeds - Cover plants - Surround (kaolinitic clay) – spray coats leaves - Carbaryl
Grape Leaf Hoppers 	Leaves stippled, turn yellow	Pyrethrins, pyrethroids, home orchard spray

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Grape Leaf Skeletonizers 	- Yellow caterpillar with purple or black stripes; may be covered with black spines - Chews upper and lower leaf, all but veins	- Bt (Bacillus thuringiensis) - (1st choice) - Pyrethrum dust; carbaryl spray
Grasshoppers 	May/June	- Neem; Nosema Locustae (e.g. Nolo bait) - Spray early AM with carbaryl; check again in evening - Look for their resting place and then vacuum or crush - Cover crops with row covers, etc. - Refrain from mowing weeds/grasses during grasshopper season
Leaf Miners  Damage	- Light colored trails in leaves - Maggots that hatch from eggs live in leaves - Vegetables: cantaloupe, lettuce, tomato, pepper, eggplant, bean	- Yellow sticky strips - Neem; extra fine oil

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Sphinx Moth (aka Hawk Wasp or Moth) 	- Summer - Larva is hornworm - Larva does the damage - Many species w/ diverse appearances; some become tomato hornworms (green & white striped) - Long proboscis to feed on flowers	- No management for moth; see Tomato Hornworm
Squash Bugs 	- Suck and inject toxic substance - Symptoms: yellow specks on leaves, then wilting leaves, and ultimately black or dried out leaves	- Collect/destroy egg clusters on underside of leaves - Difficult to kill adults (trap under board or burlap at night & destroy in AM) - Insecticidal soap - Neem or permethrin when insects small
Stink Bugs 	- 1/4"-3/4" long; oval or shield shaped; brown, green or gray; many are brightly colored - Predacious: beneficial species have spines eat caterpillars - Plant feeders stipple leaves, black excrement; cosmetic scars on fruit	- Hand pick; remove debris; manage weeds; vacuum - Insecticidal soap - Surround (kaolin clay mineral leaves protective powdery film); carbaryl - Carbaryl; malathion (all effective but seldom needed) because not usually a serious problem

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Thrips 	- Overwinter as adults or pupae under litter on ground - Young leaves distorted; foliage may be flecked with yellow; black specks of excrement; deformed buds - Pull flower apart & shake over white paper; tiny yellow or brown insects fall out - Some thrips pollinate (beneficial)	- Sticky tapes or hang yellow Dixie cups, with Vaseline or other sticky substance inside, upside down in garden - Lady bugs - Neem, malathion - Destroy infected buds & blooms - Avoid insecticidal sprays if possible; they kill beneficial insects.
Tomato Hornworms 	- Sphinx moth deposits eggs on upper and lower leaf surface in spring; look for dark green or black excrement from larva (tomato hornworm) - Chewed leaves and stems - Tomato, pepper, eggplant, potato	- Hand pick - Lady beetles & lacewings eat eggs - Bt; carbaryl - Tilling soil after harvest causes up to 90% mortality