

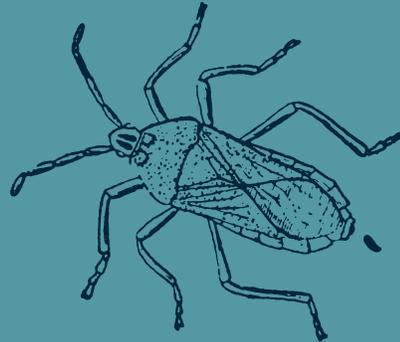
SQUASH BUG

INTEGRATED PEST MANAGEMENT



EXTENSION 
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CULTURAL CONTROL



SANITATION

Minimize populations of overwintering adults. After harvest, till or remove cucurbit crop debris (including vines and fruits). Remove woodpiles, plastic mulch (or other synthetic ground covers, and ground debris near fields where insects may seek protection for the winter.

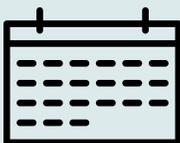
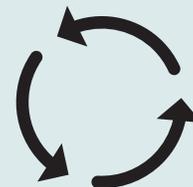


VARIETY RESISTANCE

Plant squash varieties that are more tolerant of squash bug feeding than others. Resistant: *Butternut*, *Royal Acorn*. Moderately Resistant: *Sweet Cheese*, *Green Striped Cushaw*. Susceptible: *Pink Banana*, *Black Zucchini*. Highly Susceptible: *Yellow Squash*, *Hubbard*, *Pumpkins*

CROP ROTATION

Rotation to non-cucurbit crops in alternating years can reduce the number of immigrating adult squash bugs. Rotation will be most effective in larger fields.



TIMING OF PLANTING

Peak egg-laying by adult squash bugs typically occurs in late May in northern Utah and in late April to early May in southern Utah. Seed or transplant before or after this timing to laying to reduce potential injury.

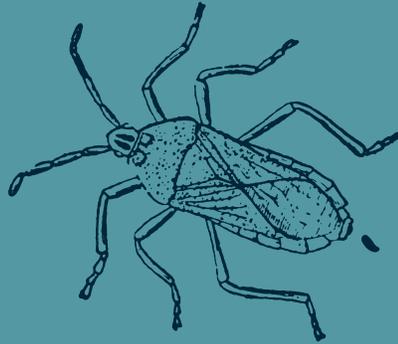
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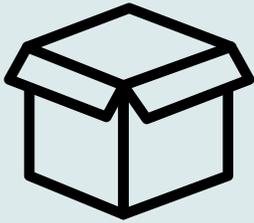


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MECHANICAL CONTROL



HOME-MADE TRAPS



Attract adults and nymphs seeking protection by using wooden boards, shingles, and heavy cardboard placed on the ground. Place the traps next to host crops. Squash bugs will tend to aggregate under the traps at night. In the morning, turn the boards over and destroy the bugs.

MULCHES

In general, mulches can harbor squash bugs and are not recommended. However, mulches (straw, wood chips, paper, etc.) can suppress weeds, attract beneficial insects, and reduce soil moisture loss; thus, the numerous benefits may outweigh the negatives



MECHANICAL DESTRUCTION

Hand-picking adults and nymphs, and smashing egg clusters on leaves can reduce squash bug populations. Other options include cutting off the egg part of the leaf, rolled duct tape around fingers, or applying oil or petroleum jelly directly to the eggs. This technique will be most successful if started early in the season and done every 2 to 3 days to keep numbers low.



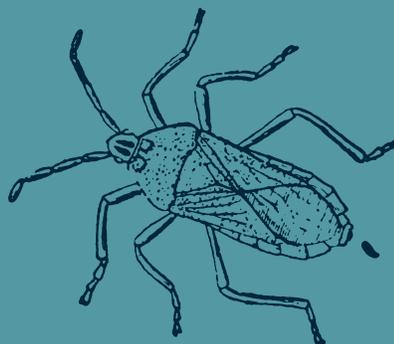
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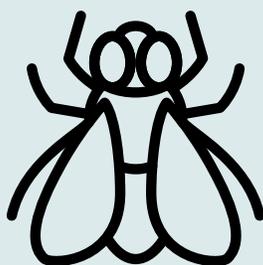
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BIOLOGICAL CONTROL



TRAP CROPS

Trap crops should include cucurbit cultivars that are attractive to adult squash bugs and grow quickly in the early season. Plant the trap crop along field borders or interspersed as clumps throughout the field. Apply an insecticide or mechanically destroy the trap crop before eggs begin to hatch to reduce squash bug populations that would attack the later maturing main crop. Hubbard squash is a common trap crop used.



NATURAL ENEMIES

The most common natural enemies of squash bugs are parasitoids. These include a tachinid fly, *Trichopoda pennipes* whose larvae attack older nymphs and adults, and several wasps that parasitize eggs in the family Encyrtidae and Scelionidae.

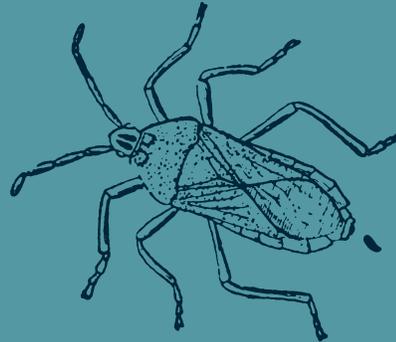
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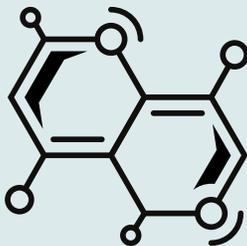
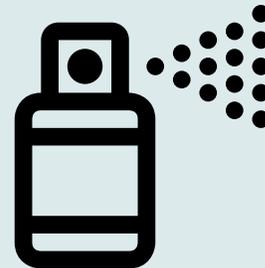
CHEMICAL CONTROL



To be effective, insecticide sprays must penetrate the plant canopy and thoroughly cover the top and underside of leaves, fruits, and vines. Apply insecticides in the early morning or late evening when sprays will dry more slowly and result in better coverage of the vegetation. In the morning hours, leaf position may be more upright and allow for better coverage of leaf undersides. Don't spray during the day when plants are blossoming to avoid harming pollinators.

ORGANIC/BIOLOGICAL INSECTICIDES

- pyrethrins (Monterey® Bug Buster-O,
- GardenTech® Worry-Free)
- pyrethrins + sulfur (Bonide® Tomato and Vegetable 3 in 1, Ortho® Insect Mite & Disease 3 in 1)



SYNTHETIC INSECTICIDES

- zeta-cypermethrin (GardenTech® Sevin)
- permethrin (Bonide® Eight Garden Dust)