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Insect Pest Management in the Home Vegetable Garden

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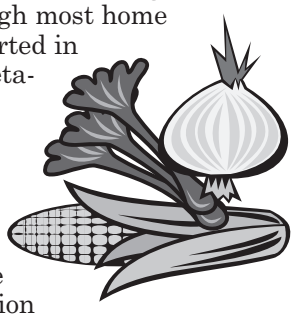
Arkansas home gardeners produce a wide array of vegetables, ranging from warm-season tomato and watermelon to spinach and greens, that often can be produced throughout mild winters. Although most home gardens are started in the spring, vegetables can be produced in Arkansas throughout the year.



Perhaps the greatest limitation to vegetable production in home gardens is the pest complex, including insects, weeds and plant diseases. Insects damage home gardens in many ways, such as direct feeding on edible parts, feeding that decreases plant vigor, transmitting plant diseases and contaminating harvested vegetables.

As diverse as the insect threat to home gardens is, the home gardener also has an array of methods to manage these threats. Home gardeners have two advantages for management of insects that are unavailable to commercial vegetable producers. **First** is the ability to plant more than is needed. Most home gardeners seem to always be giving neighbors surplus from their gardens, and this is one advantage for home gardeners. Plant more than you need and simply tolerate loss from insects and other pests. **Secondly**, quality standards for home garden vegetables can be much lower than for the commercial producer. For example, the home gardener can simply cut off damaged parts of sweet corn, whereas the same level of damage in commercial sweet corn will result in the entire field being rejected by the food industry.

Insect management in home gardens should be based on a combination of tactics that are environmentally friendly, are safe to the producer and consumer and are economically practical – a concept labeled **integrated pest management or IPM**. Pest management tools used in IPM programs are generally categorized into the following groups.

- **Host Plant Resistance** – utilizing cultivars that resist insect feeding or are more tolerant to insect damage.
- **Biological Control** – the use of naturally occurring organisms that control pest insects and include insect predators, parasites and pathogens.
- **Cultural Control** – the use of insect screens to limit exposure of plants to insect attack, hand removal of insects, planting date adjustments and many others.
- **Chemical Control**. Specific examples follow.

Location of gardens in areas having low insect numbers should be attempted. For example, most cotton production areas in Arkansas harbor large populations of the cotton bollworm, also called the corn earworm. Snap bean and sweet corn production in these areas will likely be much more difficult than in non-cotton areas.

Removal of alternate host plants several weeks prior to garden planting will reduce the likelihood of high insect numbers at transplanting. This is particularly important with host-specific insects, e.g., many insect pests of *Brassica* crops. These alternate hosts include cultivated vegetables as well as weeds.

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Use of transplants free of insects should be the gardener's goal. Row covers, application of insecticides to nursery beds and location of nursery beds away from old production fields can reduce insect occurrence on transplants.

Use of vegetable cultivars that are resistant or tolerant to insects may be available. Often host plant resistance (HPR) is most effective with host-specific insects.

Practices that promote rapid plant growth often will aid the vegetable plant to better tolerate low levels of insect damage. These include proper fertilization and irrigation and delaying planting until an optimal soil temperature is reached.

Scouting for insects throughout the production season can often detect low pest numbers while management is still practical. This is especially important with whiteflies, as large whitefly populations are very difficult to manage.

Use of "soft" insecticides that are less toxic to beneficial organisms will preserve the beneficials that may provide sufficient suppression of the pest insect. These insecticides are often most useful early in the production season.

Use of surfactants often increases insecticide effectiveness, particularly with small insects like aphids, thrips and whiteflies.

Sanitation, including destruction of crops immediately following the last harvest, will likely reduce damage in subsequent plantings.

Crop rotation not only can be used to improve plant production but also can often reduce the impact of insect pests on later plantings.

Tilling that exposes soil insects to beneficials and to the harmful effects of the environment can prove beneficial in vegetable production.

Newer insecticides are often more effective and less hazardous than older traditional insecticides. However, insects have short life cycles, and many insect species have numerous generations each year. Thus, insects have great potential for development of resistance to both new and older insecticides. Insecticide use may offer numerous benefits, but insecticides should be used wisely and cautiously.

Proper sprayer calibration and correct mixing of insecticides not only reduces costs but also may prolong the useful life of insecticides. Before purchasing or using any pesticide, always read and carefully follow the directions on the container label. Be sure the insecticide is labeled for use on the vegetable to be treated.

Few insecticides are labeled for use on every vegetable crop grown in the garden. In addition to the specific instructions on the label, the following will aid in reducing exposure to insecticides.

- Chemical-resistant gloves – Use is very important because the most common route of applicator exposure is through the hands.
- Maintain your sprayer without leaks.
- Spray down-wind and start on the down-wind side of the garden.
- Wash your body and clothing after spraying.
- Allow time for residue to dry and dissipate before reentering the garden – check reentry times on the insecticide label.
- Do not store pesticides in food or drink containers.
- Do not permit children to spray or have access to pesticides.
- Read and follow pesticide labels.

Descriptions and photographs of vegetable insect pests as well as beneficial insects can be found through the following link: http://comp.uark.edu/~pjmcleod/arkveginsects/.

Insecticide labels are constantly being changed and adjusted by the manufacturers and, as such, no attempt will be made to list those recommendations in this publication. Recommended insecticides for insect pest control in the home vegetable garden are updated annually in MP144, *Insecticide Recommendations for Arkansas*. Those recommendations can be found through the following link: http://www.uaex.uada.edu/publications/pdf/mp144/e-vegetables-home-garden.pdf.

The complete Organic Materials Review Institute (OMRI) products list can be viewed by visiting this link: http://www.omri.org/OMRI_products_list.php.

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