Introduction

A key element in establishing and maintaining a successful urban garden is a well-planned pest control program. The aim of DC Agricultural Experiment Station’s Sustainable Agricultural Research and Education (SARE) Program is to help urban gardeners grow safe, fresh, healthy foods to meet dietary needs. The best way to achieve this is to use sustainable pest management techniques which avoid the use of toxic chemicals to control insects and diseases. To accomplish this aim, we recommend an integrated sustainable pest management program which focuses on the long term prevention and suppression of pests. The integrated pest management system involves the following methods:

a) Cultural methods – crop rotation, intercropping and restart varieties
b) Mechanical – using traps and hand picking
c) Organic substances – available on a limited basis
Basic Insect Control for the Average Garden

Based on observations by the DC-AES Sustainable Agriculture Research and Education Program, the average size of a vegetable garden in the District is 100 square feet (10’ x 10’). For these gardens, we recommend a combination of cultural and mechanical methods for controlling harmful insects. For example, in field observations at the university’s Muirkirk Research Farm, we found that intercropping marigold plants with hot peppers and amaranth (Fig I) significantly reduced the level of insect infestation in urban gardens. The marigold plants managed to reduce insect infestation by breaking up the cycle of insect movement in the plot. Research showed that the insects were attracted to amaranth and pepper plants but not to marigold plants. Additionally, bowls which contained germicidal soap at a concentration of 3.5 ounces per gallon and placed throughout the crops reduced the insect population by trapping them in the soap solution where they eventually died. Insects controlled in this manner included stink bugs, blister beetles, cucumber beetles and flea beetles.

The bowls are in trapping the insects and may be easily placed in garden plots. They can vary in size from two to five quarts and can be placed anywhere in the garden (Fig II.). The colors of the bowls do not seem to be a major factor in entrapment, with one exception. The cucumber beetle which appeared to be more attracted to yellow bowls.
When implementing the recommended insect controls, it should be noted that the harmful insects are more active during warmer temperatures; therefore, the garden bowl traps (Fig I. and Fig II.) should be in place by the middle of May when temperatures begin to peak in the 70’s and 80’s.

It is also important to note that insects destroy plants by devouring the vegetative section (Fig III.). Thus, early maturing cool season crop varieties such as broccoli, lettuce, and cabbage can provide a good harvest before insect infestation becomes a problem. Insects such as stink bugs (Fig IV.), blister beetles and cucumber beetles are large enough to be removed by hand. Therefore, this mechanical control can be achieved by hand removal during garden maintenance such as watering and weeding. However, to ensure that re-infestation does not occur, hand removal should be done at least three times per week.
Because the land areas available for District of Columbia gardens is limited, it may be difficult to use a crop rotation system to control insects and diseases in District urban gardens. However, it is advisable not to plant a crop variety in the same spot every growing season. If the garden plot is located at the same spot each season, keep a record of where each variety was planted the previous season so that plans can be made to locate the variety to a different area in the garden. Also, try to grow resistant varieties, those that tend to be less threatened from pests and disease (beans, beets, cucumbers, and squash), if they are available. Mindful of the environment and sustainability, an organic pesticide is preferable.
Using Sustainable Integrated Pest Management ...

Fig IV. Gardener removing stink bug from turnip greens plot.

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About the DC Agricultural Experiment Station

The DC Agricultural Experiment Station (AES) is mandated to formulate a research program that leads to the enhancement of the quality of life for all citizens of the District of Columbia. While the Station conducts research, investigations, and experiments to address issues unique to an urban environment, AES also focuses on national issues as outlined by the U.S. Department of Agriculture. As AES is committed to serving all citizens regardless of race and economic status, special efforts are made to address problems affecting a large minority segment of economically depressed residents. AES emphasizes research in the areas of health, nutrition, sustainable agriculture, specialty crops, and sustainable energy. Also, through the use of its farm facility, the station provides "Agri-Edu-tainment" activities, promoting environmental studies, stewardship and urban agriculture awareness for elementary and middle school students. The Agricultural Experiment Station is prepared to re-chart its research emphasis to accommodate other areas of concern as required by the District of Columbia.

“A Spirit of Commitment and Diligence”

The Agricultural Experiment Station, an integral part of the University's land-grant structure, is responsible for conducting research, investigations, and experiments relative to issues in the District of Columbia. Thus, we are "committed" to formulating a research program that adequately addresses critical issues for city residents and we do so with "diligence" to ensure that we are contributing to the enhancement of the quality of life for the residents of our great capital city.

(Pictured: Dr. Gloria Wyche-Moore, Dean of CAUSES and Director of the UDC Agricultural Experiment Station and Ms. Diane Hyman, Executive Operations Officer for CAUSES and Associate Director of the UDC Agricultural Experiment Station)