Natural Solutions for Your Gardening Life

GARY K. ENGLAND*

University of Florida, IFAS, Sumter County Extension, 7620 SR 471, Suite 2, Bushnell, FL 33513

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There are a number of tactics available to enable homeowners to manage pests in the landscape with minimal use of synthetic pesticides. Utilization of this concept can result in a healthy landscape while reducing the potential to harm oneself and the environment that is associated with some synthetic pesticides available to homeowners. Taking all the measures possible to grow healthy landscape plants is the first step. Putting the right plant in the right place and following good horticultural practices help to achieve the goal of healthy and pest free plants. Taking steps to identify and eliminate pests will help keep populations low. To do this it is necessary to learn the key pests to expect with the plants you are growing. If pest populations begin to expand in the landscape, there is an array of tactics that may be employed. Pests can be managed by mechanical means such as picking, washing and trapping. Enhancing and augmenting natural pest managing organisms, such as insect predators and parasites, help to maintain pest populations within an acceptable range. There are some non-synthetic products available to homeowners that may assist in managing damaging pests of the landscape.

Homeowners who utilize natural tactics to manage pest infestations in their landscape can reduce the potential harm to themselves and the environment generally associated with the utilization of synthetic pesticides. Those adapting natural methods of pest management will require additional training to become proficient in this endeavor. Extension programming designed to deliver the type of information noted in the subsequent sections of this document to a general public audience should be helpful to enhance the acceptance and implementation of these practices.

Right Plant—Right Place

A good way to avoid potential pest populations in the landscape is to choose plants with similar shade and moisture requirements. In addition, plants from diverse families adapted to the climate zone of the area should grow well and have more resistance to plant pests. Increased biodiversity in these plantings should assist in reducing the pest influx into the section of the landscape and possibly enhance populations of beneficial insects.

Healthy Soil = Healthy Plants

Maintaining optimum soil conditions in the landscape will also affect the overall health of the plants growing within. Maintaining appropriate soil reaction (pH) values and moisture content are the two main steps in this process. Amendments may be applied to alter pH. Often providing adequate drainage and supplemental irrigation to maintain appropriate moisture is a necessary step to enhance plant growth. Utilizing compost can have positive effects on soil organic matter content and biological activity that may assist with nutrient availability to plants.

Sanitation to Reduce Pest Populations

Maintaining proper sanitation in the landscape can help prevent pest populations from becoming established in desirable plants.

Elimination of weeds before they go to seed will help reduce the soil weed seed reservoir. Since roots, shoots and stems of some weeds can establish new populations, their removal is recommended to prevent future infestations. Rouging diseased plants or those that are alternate hosts for pests of desired plants is another tactic to manage landscape pests.

**Pest Identification and Monitoring**

Knowing what the key pests of the key plants in the landscape are and learning to identify them is important for initiating a good pest monitoring program. Scout the landscape routinely and note any changes in pest populations or levels of infestation. Be sure to inspect plant parts thoroughly and pay particular to areas such as the underside of leaves when scouting.

**Good Bugs—Bad Bugs**

Encouraging populations of natural control agents, such as beneficial insects and mites, can help maintain pest populations at acceptable levels (Table 1). Maintaining biodiversity in plantings and including nectar and pollen sources is a good way to attract beneficial insects and mites. To help conserve good bugs in the landscape, homeowners should be advised to avoid the use of harsh synthetic pesticides.

<table>
<thead>
<tr>
<th>Good bugs</th>
<th>Pests attacked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lady beetle (adult &amp; larvae)</td>
<td>Aphids, spider mites &amp; scale insects</td>
</tr>
<tr>
<td>Lacewing larvae</td>
<td>Aphids</td>
</tr>
<tr>
<td>Syrphid fly larvae</td>
<td>Aphids</td>
</tr>
<tr>
<td>Parasitic wasps</td>
<td>Aphids, scale insects &amp; mole crickets</td>
</tr>
<tr>
<td>Predatory stinkbugs</td>
<td>Caterpillars</td>
</tr>
<tr>
<td>Big-eyed bug</td>
<td>Caterpillars</td>
</tr>
<tr>
<td>Predatory mites</td>
<td>Spider mites</td>
</tr>
<tr>
<td>Red eyed fly</td>
<td>Mole crickets</td>
</tr>
</tbody>
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*Corresponding author; email: gke@ufl.edu
Natural Products

In addition to mechanical control methods such as physically removing and trapping pest insects and mites, there are several natural products that will help manage pests in the landscape. Examples of some of these products are:

Soaps and Oils. Soaps desiccate the insect by disrupting their outer covering or cuticle, while oils generally suffocate insects and mites.

Minerals. Diatomaceous earth can cause lesions in the insect cuticle resulting in eventual desiccation, while some products containing elemental sulfur will control certain diseases as well as some mites and insects such as thrips and psyllids.

Botanicals. Citrus oils such as d-limonene affect the insect nervous system, while oil from the Neem Tree acts as a repellent and feeding deterrent. Pyrethrins can cause an immediate knock down activity on insects. Rotenone acts as a stomach poison on foliage infesting insects such as aphids, caterpillars and beetles. Sabadilla is used as an insecticide but care must be taken to avoid contact with pollinators such as honeybees.

Microbial. *Bacillus thuringiensis* (BT) is a naturally occurring bacterium that is widely used to manage caterpillars in many crops. Additional BT products have been developed to have activity on other insects such as mosquitoes and Colorado potato beetle. *Agrobacterium* is a bacterium used to control plant pathogenic bacteria. Certain fungi have been observed to infest and control weeds, insects, mites and plant pathogenic fungi.

Conclusion

No single approach mentioned in this document will be the answer to eradicate most pests encountered in the landscape. The utilization of several strategies will assist homeowners to manage many of the pest problems they encounter and reduce the need for using harsh synthetic pesticides that could harm themselves and the environment.

Literature Cited