Invasive Species

By Katie Kammler, MU Horticulture Specialist

What is an invasive species? Several things come to mind when I hear the word invasive. The definition of an invasive species is a plant, animal, or pathogen that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause harm.

The invasive species that are hot topics in the news right now are emerald ash borer and spotted winged drosophila. Emerald ash borer has spread in the state and is devastating ash tree populations. I caught the first spotted wing drosophila in a bait trap this week. This is a small fruit fly that can lay its eggs in fruits that are getting ripe and the larva show up in freshly picked fruit. Another invasive insect that we have been dealing with for a while is Japanese beetle and the populations are large again this year with their peak season just starting. All of the above mentioned insects were accidental introductions. Asian lady beetle was intentional to control aphids in soybeans. These are the lady bug type beetles that invade houses in the winter.

The term invasive also includes weeds. Many of the weeds are problems we have created for ourselves, plants that were introduced for wildlife, erosion control, or escaped from gardens. Johnson grass is commonly seen along roadside and in gardens and fields. It is a hard to control perennial grass that can spread by rhizomes or seed and remain viable in the soil for years. Multiflora rose is another problem in many areas. It is a carrier of rose rosette virus that is spread by insects to horticultural varieties in home gardens. Spotted knapweed is one that is fairly new to the area. It looks like a small thistle and it produces a chemical that causes other plants around it to die. Purple loosestrife is planted in many gardens and has escaped to threaten native plants in wetlands because it is an extremely

July 2014

In this issue:

Invasive Species 1, 2
Organic Pesticide: Neem 2
July Gardening Calendar 3
Rejuvenating Tired Containers 3
Pest of the Month Bermuda Grass 4
Save the Date! MG Conference 4
Collecting Native Seed 5, 6
A Must Have! Garden Journals 6
What’s Happening! 7
Editor’s Corner 8
aggressive spreader. There are other plants that are recommended for landscape plantings that can be invasive and hard to get rid of so think about the plant and do some research before you plant.

These are just a few of many invasive plants that affect our day to day lives. They also cost millions of dollars to control so we can protect our food and ecosystems. If you are interested in more information on invasive species, see the following website. http://www.invasivespeciesinfo.gov/index.shtml

The neem tree (Azadirachta indica) originates from Southeast Asia where it is a fast growing, evergreen broadleaf in the mahogany family. The fruit is the size of a small olive and the seed contains 10-30% oil. The leaves, oil and bark have pesticidal properties. The major active ingredient in the oil is azadirachtin which is sold as Neem Seed Extract or Neem Oil. However, there are more than 25 other active compounds in the oil. Neem has shown insecticidal, fungicidal and bacterial properties.

Historically, the Neem tree has been used medicinally and cosmetically in India for centuries. For example, it is used for making toothbrushes and used for skin infections and wounds as well as malaria and intestinal parasites in countries where it is native. It is found in soaps, lotions and toothpaste in the United States also.

Azadirachtin is systemically taken up by plants through roots and weakly systemic in the leaves. It has both systemic and direct contact action. Only sucking and piercing insects are affected by the systemic form.

This extract also acts as an antifeedant, repellent, growth retardant, sterilant, direct toxin and deterrent to egg-laying. Extracts have inhibited feeding in 170 insect species in seven orders, normal growth in 4 orders and it is directly toxic to aphids, termites and various caterpillars. It disrupts metamorphosis in extremely small amounts.

Azadirachtin is a very complicated chemical compound and belongs to the class called limonoids. Due to its complexity, it will be difficult for insects to become resistant to it. It is very low in toxicity to mammals, is biodegradable, and has little effect on natural predators. Its LD 50 in rats is greater than 13,000 mg/kg. It does not appear to be mutagenic. The active ingredients biodegrade rapidly in sunlight and within a few weeks in the soil. Temperature, rainfall and other environmental factors can also degrade Neem. It also has antifungal and antibacterial action.

Repeated applications may be needed to achieve the desired results on pest control. Because it is an insect growth regulator, it is only effective against the immature stages of insects. Rescue treatments will not be effective. You will not see an immediate knockdown effect and insects may continue to feed, however, insect feeding will be reduced.

As a pesticide, it is now generally available in most garden stores and retail stores. Neem tree plantations are being established in suitable climates.

This information was taken from:
“Profiles of Natural Pesticides” from Oregon State Extension Service.
“Neem Based Insecticides” from University of Connecticut.
July Gardening Calendar
By Donna Aufdenberg, MU Extension Horticulture Specialist

Ornamentals
- Perennials that have finished blooming should be deadheaded especially if reseeding is not desired. Cut back the foliage some to encourage a tidier appearance.
- Remove any infected foliage from rose plants, pick up fallen leaves and continue fungicidal sprays as needed. Watch for any unusual growth that might indicate Rose Rosette disease.
- Newly planted trees and shrubs should continue to be watered thoroughly at least once a week if regular rains are not occurring.
- Deadhead spent annual flowers for continued bloom. Keep fertilizing them at least once a week to keep plants looking their best.
- Apply no fertilizers to trees and shrubs after July 4th.
- Plant Zinnia, Cosmos, and Cleome seed by July 4th for late bloom in annual planters and borders.
- Do not pinch mums after mid-July or you may delay flowering.
- Monitor trees and shrubs for Japanese Beetles. Your local Extension agent can give current control recommendations.

Vegetables and Herbs
- Blossom-end rot of tomato and peppers occurs when soil moisture is irregular or uneven. Irrigate regularly during dry weather and try to mulch a sufficiently around vegetable plants to conserve the moisture.
- Dig potatoes when tops die and pull onions when tops fall over and start to turn brown. Dry in a ventilated area and store in a cool and dry place.
- Make successive plantings of beets, beans, cucumbers and carrots to be able to harvest into fall.

Fruits
- Prune out and destroy old fruiting canes of raspberries after harvest is complete. Watch for diseased canes and plants.
- Blackberries are starting to ripen. Get ready for picking!!
- After harvesting your strawberries, remove excess runners and any unhealthy runners.
- Keep an eye on peach trees for brown rot. Keep trees sprayed to keep disease and insects at bay.

Lawns
- Water grass frequently enough to prevent wilting. Early morning irrigation allows turf to dry before nightfall and will reduce the chance of disease.
- Keep weeds from making seeds now. This will mean less weeding and spraying next year.
**Pest of the Month - Bermuda Grass**

by Sarah Denkler, MU Extension Horticulture Specialist

For those who find Bermuda grass to be a weedy pest or unwanted weekly chore, give a big thank you to the winter of 2013-2014. There’s not a chemical today that could kill as much Bermuda grass as mother nature did this year.

However, if any living Bermuda grass was left, this perennial will quickly take over again unless something is done. Hit it while its down.

Not only does this grass spread by stolon and rhizome but many non-hybrid varieties produce seed that is viable for up to two years. The stolon is a living stem that seems to float or stretch across the ground surface, spreading the grass as each node takes root. Rhizomes are underground roots that can spread under sidewalks, moving the grass quickly to unwanted locations.

Control of Bermuda requires first and foremost, commitment. This is a grass that cannot be kept in check with just one control strategy or one application of chemical. Management requires the repetition of multiple strategies.

Choose from this handful of ideas and be steadfast in your goal.

- The tireless removal of any plant tissue
- Do not fertilize before summer but instead fertilize in September producing new growth that is more likely to be killed in winter
- Flood any grass for an extended period of time or go the other way and withhold water all together
- Add shade, weakening the stand
- Smother with plastic.
- Apply chemical applications of sethoxydim or fluazifop on healthy grass as it begins to grow in late spring and apply again before grass reaches 6 inches. In late summer use multiple applications with glyphosate on healthy grass as food is being stored for winter.
- Mow at 3 inches adding shade and weakening turf.

---

**Save the Date! 19th Annual Missouri Master Gardener Conference**

**Birds, Bees, Butterflies & Bats: Our Partners in Gardening**

**September 12-14, 2014**

Presented by:

St. Louis Master Gardeners

Missouri Master Gardener Association, Inc.

Missouri Botanical Garden
Wildflowers along roadsides really start to show their colors this time of year. Their beauty and unique qualities make some wish to pick the flowers to take home. Wildflowers should not be cut or dug up from roadsides and other public places. For one thing, you are stealing the beauty of our natural world for others to enjoy. Another great reason not to dig or cut wild plants from public land is that doing so is against the law! So how are you supposed to get those spring beauties, coreopsis, and coneflowers growing in your garden or in your fields? Missouri does have several seed dealers that specialize in native Missouri flower and grass species. Some are grown from seed from our neighboring states, while others are seed sourced right here in Missouri, adapted to our erratic weather! For those more thrifty plant lovers, seed collecting from private land is an acceptable method of moving wildflowers to your place!

On private land you will need to ask for landowner permission before you start. Collecting from public land is normally a bad idea. The Missouri Department of Conservation will let you collect small amounts of seed on their Conservation Areas that they own if you submit a Letter of Authorization for Plant Collection first. You are not allowed to collect seed from their Conservation Areas that are tied to a Nature Center, such as Powder Valley in St. Louis or the Cape Girardeau Nature Center. What you take must be for your own use and cannot be sold, same as their rules for nut, berry or mushroom collection. The Missouri State Parks only allow seed collection with written permission from the state Director. When in doubt about gathering seed on public land, best to not attempt a collection.

Once you’ve found the flower you like and have obtained all the necessary permissions, it is easiest to flag the plant or mark the area so that you may come back later when the seeds have set for collection. Plants are much easier to identify while in bloom! You can prep yourself for seed collection by reading up on how the plant will produce its seeds. Will the seeds be in a pod? In a fruit? In a dried seed head? Fruits or pods may be easy to identify once the flowers are gone, but some plant species will be hard to identify without a flower blooming. If you are after seeds that are maturing at different rates on one seed head, you may want to plan several trips out for collecting to get the seeds before they fall on the ground. It is important to collect mature, healthy seed. If the seeds are still green and moist, they are not ready quite yet. A mature seed will be dark in color, normally brown and should be dry. Seed heads from flowers may need to be broken up to find the seed, just like a fruit will need to be opened to obtain the seeds.

There are several annual wildflowers, so it is important not to take all the seeds in one area. It is best to harvest here and there, not everywhere. Try not to impact more than 1/10th of an area. Depleting the seed bank of an area can be devastating for annuals and even perennial seeds may be lost if too hot a fire or the wrong herbicide impacts the seed bank. Sparingly is the key to being a good steward of our wildflowers. Once you have the wildflower established in your garden, it will produce plenty of seeds for you to further expand its range at your place. Native plants have deep root systems and it may take up to three years before you get a good bloom on some species of
Collecting Native Seed
Mary Crowell, Quail Forever

wildflower.
Now that you’ve got the seed, you’ll want to store it properly until planting time. First, to ensure the seeds are thoroughly dry, set them out on a paper towel for a week or so in a cool, dry place. I like to store my saved seeds in old spice jars, just make sure you clean all the cinnamon or parsley flakes out first! You’ll want to keep different species separated and label appropriately. The best time of year to plant wildflower seed is actually in the dormant season: December through February. The freeze and thaw action will scarify the seed coat and allow the seed to make better seed to soil contact. Broadcasting seed by hand and packing the seed down should be suitable to get enough soil to seed contact. You may want to try reading up on each specific seed type and burying a few seeds, but most wildflower seed will not need to be very deep. One-half inch is about the maximum depth, with many seeds only needing 1/8” to 1/4” planting depth. Some natives will take up to three years to put out a flower, such as some of our coneflowers because they are investing so much energy into establishing a deep root system. That root system is what makes them hardy against extreme weather. The annual species, such as coreopsis, will likely bloom the first year. Hopefully you can find the native plant seed you would like to incorporate into your garden that is not against state regulations. Getting native wildflowers established will not only be for your enjoyment, but butterflies, songbirds, and other small wildlife will also be appreciative!

A Must Have! Garden Journals
Donna Aufdenberg, MU Extension Horticulture Specialist

The From Seed to Harvest and Beyond: Garden Journal and Calendar is a garden journal for Missouri gardeners, as well as a how-to guide and information resource. It provides a place to keep all gardening information, plans and notes together.

Keeping a garden journal is a great way to organize and keep track of the how, when, where and what of the gardening season. Writing down your thoughts, successes, failures, needed improvements and new ideas as the gardening season progresses is easier than struggling to remember them several months after the season has ended. Many gardeners believe the keys to successful gardening are to get your plans on paper first and to keep records. This journal allows a gardener to do this.

If you are interested in purchasing a garden journal for yourself or for a gift, we are selling them as a fundraiser for $20 each plus $4 shipping and handling. Each journal comes in a binder with a zipper pouch, note pad, etc.

Contact the Bollinger County Extension Center at 573-238-2420, Butler County Center at 573-686-8064 or the Ste. Genevieve Center at 573-883-3548 for ordering information.
## Group News - What’s Happening

**July 2014**

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Poplar Bluff MG Meeting 6:00pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Perry County Fair 10-13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Contact your local Extension Center if you have questions about any event on the calendar.

### August

- 4 - Parkland MGs 1st Monday at 6:30pm, Memorial United Methodist, Fmgn, MO
- 5 - Poplar Bluff MG 1st Tuesday at 6:00pm at Holy Cross Episcopal Church
- 14 - Ste. Genevieve MG 2nd Thursday, at 6:30pm, Ste. Gen. County Ext. Center
- 21 - Cape Girardeau County MGs 3rd Thursday at 7:00pm, Cape County Ext. Center
- 25 - Perry County MGs 4th Monday at 6:30pm, Perry County Ext. Center

### Upcoming Events

- If you have a horticultural related event for the calendar call 573-686-8064 or email it to Denklers@missouri.edu.
**Editor’s Corner**

*The Garden Spade is published monthly by University of Missouri Extension staff for individuals and families living in Southeast and East Central Missouri. This newsletter is provided by your local extension council.*

*Editors.*

Katie Kammler, Horticulture Specialist  
255 Market St., Ste. Genevieve, MO 63670  
573-883-3548

Sarah Denkler, Horticulture Specialist  
222 North Broadway Street, Poplar Bluff, MO 63901  
573-686-8064

Donna Aufdenberg, Horticulture Specialist  
304 High Street, PO Box 19, Marble Hill, MO 63764  
573-238-2420

---

We welcome and encourage Master Gardener groups and individuals to submit items to the newsletter. We encourage the submission of any news such as upcoming volunteer opportunities, community events related to gardening, warm wishes or congratulations to fellow gardeners. We also encourage Master Gardeners to share experiences and write articles on timely topics.

All entries into the group news sections must be received by 4:30 on the 15th of each month for the following months news.

Email News to: kammlerk@missouri.edu, denklers@missouri.edu, or aufdenbergd@missouri.edu

**Disclaimer. No special endorsement of mentioned products is intended, nor is criticism implied of similar products not mentioned.**

---

University of Missouri, Lincoln University, U.S. Department of Agriculture & Local University Extension Councils Cooperating  
EQUAL OPPORTUNITY/ADA INSTITUTIONS