

ALTERNATIVE LANDSCAPE SPECIES: NON-INVASIVE SUGGESTIONS

SCOTT MARSH, STATE WEED SPECIALIST

What are the best plants for a garden? Those that are hardy, quick to establish, fast growing, produce lots of showy fruit to attract wildlife and fill in the empty spaces between plants quickly, right?

Unfortunately, these are also some of the main characteristics of invasive plants.

Many invasive weeds, such as purple loosestrife and Grecian foxglove were introduced as ornamental plants. They then escaped the confines of the gardens and yards they were planted in and began to spread. Now they are competing for resources against native plants and interfering with agricultural crops. Unfortunately, there are still many species being sold in nurseries and big box stores today are invasive.

It is important to learn which species are or can be invasive before you buy them. The nurseries try to exclude the most invasive species from sale but some species are not invasive in all areas so some are able to “slip through the cracks”.

Fortunately, there are native or non-invasive exotic alternatives available for most of these invasives. This page provides a couple of examples of which species to substitute for invasive species.

For more information on which ornamental species are invasive and the alternatives that are available, contact the Kansas Native Plant Society through their website at www.kansasnativeplantsociety.org and click on Resources.

INVASIVE

Tree of Heaven (*Ailanthus altissima*)



Grows in abandoned alleys, gutters or just about anywhere that is not in shade. It grows very quickly, and competes aggressively for sunlight in developing forests.

Bush honeysuckles (*Lonicera* spp.)



Grows in forest edge, abandoned field, pasture, roadsides and other open, upland habitats. It can rapidly invade a site, crowding out native plant species.

ALTERNATIVE

Kentucky Coffeetree (*Gymnocladus dioica*)



- Very large compound leaves
- Thick, flat brown pods
- No significant disease or pest problems

Yellowwood (*Cladrastis lutea*)



- White, fragrant, pendulous flowers
- Yellow fall color
- Large compound leaves
- Likes well drained soils and full sun

Serviceberry (*Amelanchier* spp.)



- A small tree or tall shrub
- Grows in rich and dry soils
- Attracts wildlife
- Abundant flowers and rich fall color

American elderberry (*Sambucus canadensis*)



- Tall deciduous shrub
- Abundant edible berries
- Attracts wildlife
- Grows in a variety of conditions

EUROPEAN PEPPER MOTH

GREG CHRISLIP, STATE ENTOMOLOGIST

The European pepper moth (EPM) *Duponchelia fovealis*, is a known pest in greenhouses in Canada and Europe, feeding on cut flowers, vegetables and sometimes aquatic plants. Several detections have been made in the United States. The moth was first detected in California in 2004. Local populations have now been located in Alabama, Arizona, Colorado, Florida, Georgia, Mississippi, New York, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas and Washington. It is not known yet if this pest has become established in the landscape, or is just in the nursery and containerized vegetable trade. More than 70 host plants have been identified. It is interesting to note all detections have been in greenhouses, and it is not established in the wild.

Eggs are laid on the underside of leaves. Larvae require moist conditions and will feed on both living plant material and detritus. Pupation occurs four week after hatching with the caterpillar constructing a untidy cocoon of webbing and soil particles.

Larvae feed on leaves, roots, stems and fruit. While young, they usually feed on leaves, where they make holes on the leaves. Older larvae can consume whole leaves, or may feed below the soil surface, leaving little outward sign of damage. Larvae may also bore into stems and fruits, or may girdle stems killing whole plants.

EPM shows little resistance to pesticides labeled for lepidopterous pests. As the larvae also feed on detritus removing debris, from the greenhouse will remove additional habitats.



ONLINE PLANT SALES

JENNIFER SMITH, KANSAS CITY METRO AREA SPECIALIST

As more consumers turn to online shopping for its many benefits, you can bet the online plant market will only continue to grow, and the launch of Amazon's plant store is making it easier for businesses to get in the game. Whether your business has been selling plants online for a while or you are just getting started, there are few things you need to know from a regulatory standpoint.

Domestic shipments

First, if online plant sales means that you will be shipping out of state and you have not been doing so previously, you need to request a Live Plant Certificate of Inspection. You can do this when you apply for or renew your Live Plant Dealer License, or by contacting the plant protection specialist in your area. The specialist will inspect plants prior to shipment and ensure that you are meeting the regulations of states into which you plan to ship. A copy of the certificate should accompany each shipment. States may reject interstate shipments which are not accompanied by a Certificate of Inspection.

Second, you need to be aware of the regulations of states into which you plan to ship. One of the biggest issues we run into is with Japanese beetle quarantines. Kansas is partially infested with Japanese beetle. Some states (mostly to the east of us) are more infested, and the states to the west of us are mostly uninfested. More information about Japanese beetle restrictions is available in the U.S. Domestic Japanese Beetle Harmonization Plan, which can be found on the National Plant Board website at nationalplantboard.org/documents-and-policies/japanese-beetle-harmonization-plan/.

Other quarantines or regulations may apply depending on the state you wish to ship into and the type of plant material you wish to ship. Links to most states quarantines and regulations are also available on the National Plant Board website at: nationalplantboard.org/laws-and-regulations/. Checking with individual states' plant protection divisions may also be helpful, or ask your plant protection specialist for assistance.

International shipments

Shipping internationally also requires a Live Plant Certificate of Inspection, but this certificate alone does not necessarily certify plants for shipping. Many countries require each shipment to be accompanied a Phytosanitary Certificate which is specific to the material being shipped. Some countries require an Import Permit. Many also have special requirements based on plant species and concerns for specific pests. Even bareroot or propagative material may need testing for specific diseases or microscopic evaluation. If you plan to ship plant material internationally, the best bet is to contact your plant protection specialist for guidance well in advance of shipping. Also, you may wish to contact the plant protection organization of the country into which you wish to ship or have your customer do so.

USING INDICATOR PLANTS TO DETECT IMPATIENS NECROTIC SPOT VIRUS IN THE GREENHOUSE

GAELE HOLLANDBECK, PLANT PATHOLOGIST

As the temperatures begin to warm up and spring rolls around, the time to monitor for plant pests also begins. A common type of plant pest that shows up yearly in greenhouses is plant viruses, transmissible by various insects, by mechanical means, by grafting, or a combination of these. One of the most common viruses is Impatiens Necrotic Spot Virus (INSV). Although it is named for impatiens flowers, its actual host range is quite diverse, infecting vegetables, fruits, ornamental crops, and weeds. The host list includes hundreds of plant species, such as chrysanthemum, begonia, gloxinia, tomato, and pepper. It is transmitted by the insect vector thrips but is not known to be spread by other means. However, it can manifest in a variety of different symptoms, including ring spots to black leaf spots, veinal necrosis, stem lesions and wilting and various other symptoms (Fig. 1). Once a plant is infected with INSV, it cannot be cured and should be rogued as soon as it is discovered to minimize the risk of spread to other plants.



•Figure. 1: INSV symptoms on Maltese Cross. Photo by Jennifer Smith.

An underutilized method of control in greenhouses for INSV is to use sentinel, or indicator, plants to monitor both for presence of thrips and the presence of INSV. Petunias serve well as indicator plants, as they are attractive to thrips. Additionally, INSV does not spread systemically throughout the petunia plant so leaves showing infection may simply be picked off rather than discarding the whole plant. Thrips feeding scars appear as distinct white marks (Fig. 2), and if INSV is present these scars will develop brown outlines within 2 or 3 days of feeding. For best results, remove flowers so that the thrips feed only on leaves, where the characteristic feeding scars will be best visible. Place one plant on the bench or on the floor every twenty to thirty feet and check on them every 2 or 3 days. For optimum attraction of thrips, place a blue non-sticky card or blue plastic picnic plate above the indicator plants.

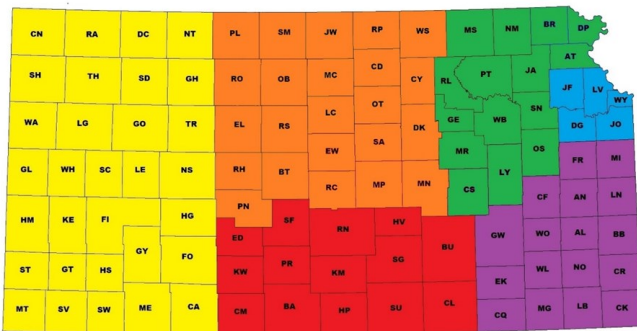


•Figure 2: Thrips damage on milkweed. Photo by Jennifer Smith.

Fava beans may also be used as indicator plants. They may be preferable as their seeds are larger and they germinate faster but they have fewer leaves than petunias so more plants are needed. Additionally, the virus can spread systemically through a fava bean plant, so if one develops symptoms in or near the feeding scars, the entire plant must be rogued and replaced. Fava bean plants should be checked daily for symptoms of virus, dark brown or black spots on the leaves near the feeding scars as well as yellow ringspots on leaves or stems.

This method is also effective for detecting Tomato Spotted Wilt Virus (TSWV), another common plant virus in the greenhouse spread by thrips.

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EMERALD ASH BORER

The national trapping survey which is contracted out by USDA deployed 1,055 traps for emerald ash borer. All were negative. For information on the emerald ash borer, visit: www.emeraldashborer.info.

On June 6, 2017, several EAB galleries were observed and a live EAB adult was removed while peeling bark from a tree, after KDA was notified by an arborist. The suspect tree was identified while the arborist was trimming branches for a home owner in a residential area near Lake Shawnee in Topeka. KDA sent the specimen to a laboratory with USDA's Animal and Plant Health Inspection Service's Plant Protection and Quarantine (USDA-APHIS-PPQ) which confirmed KDA's findings on June 7, 2017.

The Kansas Department of Agriculture girdled 15 trees in eight counties — Brown (1), Cherokee (3), Crawford (1), Franklin (1), Labette (2), Miami (1), Osage (2) and Shawnee (4). Tree removal and peeling took place in October and all were negative.



EAB Quarantine counties

Kansas Department of Agriculture

Plant Protection and Weed Control
1320 Research Park Drive 66502

04611

CORN COMMODITY SURVEY

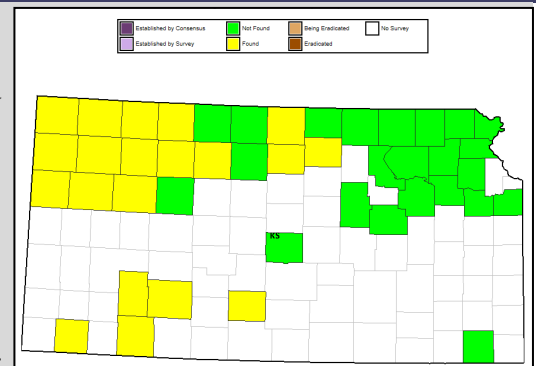
PESTS SURVEYED

Insects: Egyptian Cottonworm (*Spodoptera littoralis*), cotton cutworm (*Spodoptera litura*)

Diseases: late wilt (*Harpophora maydis*), Java downy mildew (*Peronosclerospora maydis*), Philippine downy mildew (*Peronosclerospora philippinensis*), Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*), Bacterial leaf streak, tar spot, Goss' blight

Nematode: Mexican corn cyst nematode (*Punctodera chalcoensis*)

In 2017, 87 sites in the northern part of the state were surveyed. One site/field for every 25,000 acres of corn in 35 counties were included in the two-year survey. The survey was conducted from May–October of 2017. No positive disease was identified except bacterial leaf streak (see map). Pests and nematode results were negative. Southern counties were surveyed by K-State.



Bacterial leaf streak/*Xanthomonas vasicola* pv. *vasicolorum*

THANK YOU

We always appreciate the live plant dealers and land owners who let us put traps and surveys on their property. This type of work is of great importance in protecting Kansas. Early detection will improve the odds of eradication and containment success if the pests are found.