Horticulture 2013 Newsletter  
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Video of the Week:  [Planting a Fall Garden]

VEGETABLES

Bitter Cucumbers

A bitter taste in cucumbers is the result of stress that can be caused by a number of factors, including heredity, moisture, temperature, soil characteristics, and disease. Most often this occurs during the hot part of the summer or later in the growing season.

Two compounds, cucurbitacins B and C, give rise to the bitter taste. Though often only the stem end is affected, at times the entire fruit is bitter. Also, most of the bitter taste is found in and just under the skin. Bitter fruit is not the result of cucumbers cross-pollinating with squash or melons. These plants cannot cross-pollinate with one another.

Often newer varieties are less likely to become bitter than older ones. Proper cultural care is also often helpful. Make sure plants have the following:

- Well-drained soil with a pH between 6.0 and 6.5. Plenty of organic matter also helps.
- Mulch. Mulch helps conserve moisture and keeps roots cool during hot, dry weather.
- Adequate water especially during the fruiting season.
- Disease and insect control. (Ward Upham)

Hard Core in Tomatoes

During stressful weather--usually aggravated by excessive fertilization--the central core of a tomato may become tough and turn greenish white. The walls also may become pale and corky. This is usually a temporary condition known as “hard core.” Fruit that develops later is often free of this condition.
Older varieties of tomatoes normally have five distinct cavities that are filled with seeds and jelly-like material called locular jelly. However, many newer tomato varieties possess genetic traits to make the fruit meatier and firmer with the seeds being produced all over the inside of the fruit rather than in the five distinct cavities. These types of tomatoes do not seem to produce a hard central core nearly as readily as ones that are not as meaty.

The older variety, Jet Star, which has been widely grown for many years by Kansas gardeners, has a tendency to produce a hard core when stressed. Newer varieties such as Mountain Spring, Mountain Fresh, Florida 91, Sun Leaper, Sunmaster, Celebrity, Carnival, and other ‘semi-determinate' varieties are less likely to suffer from this condition. (Ward Upham)

**TURFGRASS**

**Slime Molds**

This is a repeat of an article we had in June but felt it would be helpful as all the rain we have received recently in many parts of the state has caused this organism to be active.

Slime molds are primitive organisms that are common on turf and mulch. Slime molds are not fungi and are no longer classified as such. They belong to the Kingdom Protista rather than Kingdom Fungi. On turf, you might often see large numbers of small gray, white or purple fruiting structures, called sporangia on leaf blades during cool and humid weather throughout spring, summer, and fall. Affected areas are often several inches to 1 foot in diameter. During wet weather, the fruiting structures may appear slimy. As the structures dry out in hot weather, they become ash gray and break up easily when touched.

Homeowners often are concerned that this is a disease organism that will kill the grass, but slime mold feeds on bacteria, other fungi, and dead organic matter. It simply uses the turf as a structure on which to grow. However, slime mold can damage turf by completely covering leaf blades and interfering with photosynthesis. Chemical control of slime molds is not necessary. Use a broom or a heavy spray of water to dislodge the mold.

Slime molds on mulch often attract attention because of their bright colors and disgusting appearance. Common names are often quite descriptive. For example, the "dog vomit" slime mold is a bright, whitish color that resembles its namesake. It eventually turns brown and then into a hard, white mass. There is also the "scrambled egg" slime mold, "the yellow blob" slime mold and the "regurgitated cat breakfast" slime mold. Slime molds do not hurt anything, but most people do not find them attractive and want to get rid of them. Simply use a shovel to discard the offensive organism and then stir up the mulch for aeration. (Ward Upham)
Recommended Tall Fescue Cultivars

Though several cool-season grasses are grown in Kansas, tall fescue is considered the best adapted and is recommended for home lawns. The cultivar K-31 is the old standby and has been used for years. However, there is a myriad of newer cultivars that have improved color, density and a finer leaf texture. Most of these newer varieties are very close to one another in quality.

Each year we the National Turfgrass Evaluation Trial rates tall fescue varieties for color, greenup, quality and texture. Quality ratings are taken once a month from March through October. K-31 consistently rates at the bottom. The recommended cultivars were 3rd Millennium, Biltmore, Braveheart, Escalade, Faith, Finelawn Xpress, Firecracker, Gazelle II, Honkey Tonk, Hudson, Hunter, Padre, Pedigree, Raptor II, Reunion, Rambler SRP, RK4, Sidewinder, Skyline, Speedway, SR 8650, Talladega, Titanium LS, Turbo and Wolfpack II. Keep in mind that mixes of several varieties may allow you to take advantage of differing strengths. It is not necessary for mixes to contain only the varieties mentioned above.

Though K-31 may still be a good choice for large, open areas, the new cultivars will give better performance for those who desire a high-quality turf. (Ward Upham)

Kentucky Bluegrass Variety Selection for Cool-Season Lawns

Though Kentucky bluegrass is not as heat and drought tolerant as tall fescue and the warm-season grasses, it is commonly used in northeastern Kansas, where there is sufficient annual rainfall. It is also grown under irrigation in northwestern Kansas where the higher elevation allows for cooler summer night temperatures.

The following cultivars have performed well compared to other bluegrasses in this region. Use this list as a guide. Omission does not necessarily mean that a cultivar will not perform well. Recommended cultivars for high-quality lawns, where visual appearance is the prime concern, include Alexa II, Aura, Award, Bewitched, Barrister, Belissimo, Beyond, Diva, Everest, Everglade, Excursion, Ginney II, Granite, Impact, Midnight, NuChicago, NuGlade, NuDestiny, Rhapsody, Rhythm, Rugby, Skye, Solar Eclipse, STR 2485, Sudden Impact, Washington and Zifandel. Such lawns should receive 4 to 5 pounds nitrogen per 1,000 square feet per year and would typically be irrigated during dry periods to prevent drought stress.

Cultivars that do relatively well under a low-maintenance program with limited watering often
differ from those that do well under higher inputs. Good choices for low maintenance include Baron, Baronie, Caliber, Canterbury, Dragon, Eagleton, Enviicta, Kenblue, North Star, and South Dakota. Instead of the 4 to 5 pounds of nitrogen per 1,000 square feet per year, low-maintenance program would include 1 to 2 pounds of nitrogen per 1,000 square feet per year. Obviously, a low-input lawn will not be as attractive as a higher-input lawn, but you can expect the cultivars listed above to look fairly good in the spring and fall, while going dormant in the summer. (Ward Upham)

PESTS

Oh...No...Japanese Beetles are Here!

As many of you are well aware, Japanese beetle adults are out in full-force feeding on one of their favorite host plants…roses. The means of dealing with the adult stage of this insect pest are limited, however, and have been for many years, primarily relying on the use of insecticides. Japanese beetle, Popillia japonica is native to Japan and was first reported in the United States in 1916 in the state of New Jersey. Since then, it has spread throughout the country from Maine to Georgia becoming permanently established in nearly every state east of the Mississippi River and several states westward. Japanese beetles have been established in eastern Kansas. The adult is one of the most destructive insect pests of horticultural plants in both landscapes and gardens. The larvae or grub stage is a major turfgrass pest in home lawns, commercial settings, and golf courses.

Adult Japanese beetles emerge from the soil and live from 30 to 45 days feeding on plants over a four to six week period. They feed on many ornamental plants including trees, shrubs, vines, herbaceous annual and perennials, and of course—roses. Placement of plants in the landscape and volatiles emitted by plants are factors that may influence adult acceptance for feeding. Japanese beetle adults produce aggregation pheromones that attract individuals (both males and females) to the same feeding location. Adults may fly up to five miles to locate a feeding site; however, they tend to fly only short distances to feeding and egg-laying sites.

Japanese beetle adults feed through the upper leaf surface (epidermis) and leaf center (mesophyll), leaving the lower epidermis intact. They typically avoid feeding on tissue between leaf veins, which results in leaves appearing lacelike or skeletonized. Adults are most active during warm days, feeding on plants that are exposed to sunlight throughout the day. This is likely why roses, which require at least six hours of direct sunlight, are such a susceptible host plant. They also tend to initiate feeding at the top of plants, migrating downward after depleting food sources. Japanese beetle adults congregate in large numbers on rose flowers. Although adult beetles feed primarily on flowers, they will also feed on leaves. Japanese beetle adults chew holes in flower buds, which prevent flowers from opening or cause petals to fall prematurely. In addition, adults will consume entire rose petals, and feed on the pollen of fully-opened flowers.
The management of Japanese beetle adults involves implementing a variety of cultural, physical, and chemical strategies.

**Cultural:** maintaining healthy roses through proper irrigation, fertility, mulching, and pruning is important in minimizing any type of “stress” which may decrease susceptibility. Also, removing weeds such as smartweed (Polygonum spp.) that are attractive to Japanese beetle will at least alleviate infestations of adults.

**Physical:** Japanese beetle adults may be removed from roses by hand-picking or collecting prior to populations becoming extensive. The appropriate time to hand-pick or collect adult beetles is in the morning when ambient air temperatures are typically “cool.” Adults can be easily collected by placing a wide-mouthed jar or bucket containing rubbing alcohol (70% isopropyl alcohol) or soapy water underneath each adult, and then touching them. When adults are disturbed, they will fold their legs perpendicular to the body, and fall into the liquid and be killed. This procedure, when conducted daily or every-other-day, particularly after adults emerge, may significantly reduce plant damage. The use of Japanese beetle traps is not recommended since the floral lure and synthetically-derived sex pheromone tend to attract more adult beetles into an area than would “normally” occur. In addition, adult beetles may feed on roses before reaching the traps, which increases potential damage.

**Chemical:** contact insecticides are commonly used to kill Japanese beetle adults, and repeat applications are required; especially when populations are excessive. Thorough coverage of all plant parts will increase effectiveness of the application. The insecticide carbaryl (Sevin) and several pyrethroid-based insecticides including those containing bifenthrin or cyfluthrin as the active ingredient may be used to suppress populations of Japanese beetle adults. However, since most of these types of insecticides are harmful to many natural enemies (parasitoids and predators) their continual use may lead to secondary pest outbreaks (such as twospotted spider mite). Systemic insecticides, in general, are less effective because Japanese beetle adults have to feed on leaves and consume lethal concentrations of the active ingredient. If extensive populations are present then this may still result in damage to rose plants.

So, not much has changed over the past 20 years in regards to managing Japanese beetle adults on roses. Therefore, diligence is required in order to prevent adults from causing substantial damage to roses…and still make growing roses a favorite past-time. (Raymond Cloyd)

**Elm Leaf Beetle**

![Larva](image1.png) ![Adult](image2.png)
There are normally two generations of this insect in Kansas with this being the second generation. All species of elms are attacked, but Siberian elms (often referred to as Chinese elms) are preferred.

Elm leaf beetles are serious nuisance pests of elms. Both adults and larvae feed on the elm leaves. Adult beetles are green-and-yellow striped and about 1/3-inch long. Young larvae are black and hairy but become yellow with two longitudinal dark stripes as they mature. The larvae cause most of the injury by window-feeding on foliage, resulting in a skeletonized appearance. Heavily infested leaves turn brown as if scorched by fire and often will drop prematurely. After several weeks of feeding, the larva crawl down the trunk or fall to the ground where they pupate. Elm leaf beetles overwinter as adults.

Active larvae can be controlled with a number of insecticides. However, check to make sure that larvae are still active before spraying. In many cases, the larvae have dropped from the trees and are pupating. Spraying is ineffective and unnecessary once pupation starts. Effective sprays for larvae (and adults) include carbaryl (Sevin), acephate (Acephate, Orthene), spinosad (Conserve; Captain Jack’s Dead Bug Brew, Borer; Bagworm, Leafminer & Tent Caterpillar Spray) lambda-cyhalothrin (Scimitar, Spectracide Triazicide, Bonide Beetle Killer). (Ward Upham)

**MISCELLANEOUS**

**Pesticide Effectiveness**

We sometimes receive complaints from homeowners regarding the lack of effectiveness of various pesticides. There can be a number of reasons for this lack of efficacy. Here are some of the common ones:

1. Lack of good foliage penetration. This often is a problem when spraying for bagworms on junipers. The spray must penetrate the foliage and reach the bagworms toward the inside of the plant. High-pressure commercial sprayers are able to get the spray to the insects but homeowner models are much more problematic. With pump-up sprayers, you may have to push the wand through the outer layer of foliage to reach insects toward the inside of the plant.

2. Not spraying where the insect is. Many of our insects and mites feed on the underside of leaves. If the plants are sprayed over the top, little to no pesticide reaches the pests. This problem is often seen with spider mites on broadleaf plants and cabbage worms on cabbage, broccoli and cauliflower.

3. Maturity of pest. Insects become much more difficult to control when they become adults. For example, Sevin does a good job of controlling young, early instar grasshoppers but is much less effective on adults.

4. Level of disease pressure. Most fungicides are better used as preventatives than as curatives. If
a disease gets firmly established, it may be difficult to bring it back under control. For example, chlorothalonil is effective in controlling early blight and Septoria leaf spot on tomato if used as a preventative. However, chlorothalonil will not control these diseases on badly infested plants.

5. Choosing the wrong product. Homeowners often use a product because they have it on hand. However, products differ markedly in how well they control specific pests. Make sure the pest you wish to control is on the label. Unfortunately, even labeled products may vary in effectiveness. Check K-State Research and Extension recommendations for products.

6. High pH spray water. Certain pesticides are not stable in high or low pH water. Following are some examples.

* Captan has a half-life of 3 hours at a pH of 7.0, but only 10 minutes at a pH of 8.0.
* Carbaryl (Sevin) has a half-life of 24 days at pH 7.0, but only 1 day at pH 9.
* Diazinon is most stable in pH 7 water, with a half-life of 10 weeks; at pH 5, it is 2 weeks.

So how do you bring down the pH of your spray water if it is high? Commercial people use buffering agents but that may be difficult for homeowners to find. Food grade citric acid can help. If you have a pH of 8.0, add 2 ounces of this citric acid per 100 gallons of water (1 and 1/4 teaspoons per 10 gallons) to bring the pH down to about 5.5 (Ward Upham)

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