Horticulture 2013 Newsletter
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Video of the Week:  Prairie Plants Hardy for Kansas

FLOWERS

Plant Annual Flowers by Soil Temperature

When to plant annual flowers is based on soil temperature and not the calendar. Some cultivars tolerate cool soil, while others require warm soil. This spring we have experienced such wide temperature fluctuations that it is difficult to know what to do.

An easy way to gauge the soil temperature is to simply stick a thermometer about 4" in the ground. You can take a measurement in the early morning and late afternoon to get a high and low for the day, then average them. K-State also has a good weather data library that shows soil temperatures at weather stations throughout the state.

When the soil temp is around 65 degrees, petunias, begonias, alyssum and snapdragons can go in the ground. More sensitive crops like Vinca, celosia, lantana, melampodium, zinnias, and pentas need soil temperatures of 68-70 degrees. These are the flowers that thrive in the heat of the summer and need those high temperatures. Most everything else falls in between.

This is the year to have patience. Wait until soil temperatures are up for a couple of days before rushing out to plant. Our most heat tolerant plants tolerate the heat because they love and thrive in warm soils. Cool, damp soils will comprise their root systems and then when the real heat of the summer does finally arrive, they will have few roots to support the plants growth.

Happy planting!  (Alan Stevens)
FRUIT

Fruit Sprays and Spray Water pH

Two of the common pesticides used in fruit tree sprays are malathion (for insects) and captan (for diseases). Unfortunately, both of these products are subject to alkaline hydrolysis. This is a process whereby certain pesticides will break down when mixed with high pH water. So let’s say you mix up your spray mixture by adding malathion and captan to 5 gallons of water. If that water has a pH of 7, the captan will break down so that only half of it will still be present in 3 hours. However, if the water you use has a pH of 8, half the captan will break down in 10 minutes. Malathion isn’t nearly as sensitive but still will break down under high pH conditions though it is stable at a pH between 5 and 7. Note that alkaline hydrolysis does not affect all pesticides. Captan is the exception, not the rule. For a listing of common pesticides and their susceptibility to alkaline hydrolysis, see http://www.nysaes.cornell.edu/pubs/fls/OCRPDF/118.pdf

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)

INSECTS

Cabbage Worms

This is the time of year we normally start seeing damage from cabbage worms. The imported cabbage worm is usually the first cabbage worm species to appear and is a fuzzy, elongated green worm. Larvae come from eggs laid by the white butterfly often seen flitting around the plants. Early control is essential to reduce injury. BT (Bacillus thuringiensis) and spinosad (Borer, Bagworm, Leafminer and Tent Caterpillar Spray; Captain Jack's Dead Bug Brew) are effective organic products that are labeled for this pest. BT can be found in Dipel, Thuricide and other similar materials. Direct sunlight deactivates BT quickly so it is helpful to spray late in the day or on a cloudy day. Conventional insecticides such as carbaryl (Sevin), malathion and methoxychlor are also effective but will kill natural enemies of these pests as will rotenone, an organic product. Be sure to hit the underside of leaves where insects feed. Note that hitting the underside of leaves is easier when using a dust applied with a duster than when using a liquid spray. (Ward Upham)
We have received a number of inquiries regarding sowbugs and pillbugs most likely due to the moist weather we have experienced this spring. Sowbugs and pillbugs are not insects but are classified as isopods or crustaceans, closely related to crayfish and crabs, and are distributed worldwide. The most common sowbug and pillbug species are Porcellio laevis and Armadillium vulgare. In Europe, sowbugs and pillbugs are commonly called woodlice. Both are oblong, oval or convex shaped, segmented, and are flattened underneath the body. They are black, gray, or brown in color, and approximately 19 mm (3/4 inches) in length when full-grown. The broad head contains a pair of eyes, two pairs of antennae, and chewing mouthparts. They also have seven pairs of legs. Sowbugs have two small, tail-like appendages (uropods) located at the end of the body; pillbugs do not have appendages. Sowbugs and pillbugs are distinctly segmented with seven hardened individual overlapping plates. Pillbugs can roll-up into a ball when disturbed (thus the common name ‘roly-poly’) whereas sowbugs cannot. This helps to minimize water loss and provides protection from predators.

Sowbugs and pillbugs have a particular biology in which eggs and young remain inside females for several months inside a pouch-like marsupium. This provides protection from predators and prevents desiccation (drying-up). Females may produce two or more broods during the year with between 20 and 28 young per brood. Both sowbugs and pillbugs primarily feed on decaying organic matter and fungi because they possess weak chewing mouthparts; however, if populations are abundant they may occasionally feed on the stem and/or roots of young seedlings, and may feed on young, tender vegetation or fruit. They can cause damage to beans, lettuce, and other vegetable crops. The food source for pillbugs and sowbugs must contain copper as this element is essential to their survival because the oxygen transporting chemical in the blood is hemocyanin, which is a copper-containing molecule. In addition, pillbugs and sowbugs are known to consume their own feces. I know last year during the “heat of summer” after I had painted our outdoor shed that I could observe pillbugs or sowbugs actually peeling the paint away to get at the moist wood underneath…that’s how dry it was last year. Also, it reinforces the point that insects and other organisms do what they have to in order to survive and don’t much care to read the entomology books.

Sowbugs and pillbugs are nocturnal (night-time) feeders hiding during the day under rocks, plant debris, boards lying on the ground, and in mulch; however, they may be observed during the day-time after rains or when conditions are overcast. They may also burrow several inches into soil. Both sowbugs and pillbugs require constant moisture for survival since they cannot control or regulate water loss from their bodies as they lack a waterproof exoskeleton. Furthermore, pillbugs excrete nitrogen in the form of ammonia instead of uric acid, which results in a greater water loss. Adults may live up to 2 years or more. Sowbugs and pillbugs may occasionally enter homes, primarily damp areas such as basements and around house plants. They may enter greenhouses during the winter due to suitable environmental conditions (e.g., temperature and moisture).
Management
The primary means of dealing with sowbugs and pillbugs is by habitat manipulation. For example, raking mulch and leaf debris will expose sowbugs and pillbugs to natural enemies and pest control materials. Applications of pest control materials are generally not required indoors because sowbugs and pillbugs will quickly dry-out and die after entering homes. Commercially available products for homeowners labeled for control or suppression of sowbug/pillbug populations (primarily outdoors) may contain the following active ingredients; beta-cyfluthrin, lambda-cyhalothrin, permethrin, and gamma-cyhalothrin. There is a product commercially available that contains a combination of materials including 2-phenethyl propionate, sodium lauryl sulfate, eugenol, thyme oil, and sesame oil. Most of these active ingredients will only kill sowbugs and/or pillbugs on contact so repeat applications may be required. Another product is called Sluggo® Plus, which contains the active ingredients; iron phosphate (0.97%) and spinosad (0.07%). Iron phosphate is primarily active on slugs and snails whereas the spinosad component of the formulation is suppose to have activity on sowbugs and pillbugs. It is recommended to spread the bait granules on the soil around plants that require protection—do not place in piles. The product is more effective when the soil is moist after application although after heavy rains or irrigation it will be necessary to make repeat applications. However, don’t make applications within three days of harvest. It should be noted that sowbugs and pillbugs are highly susceptible to natural enemies including birds, toads, lizards, and centipedes that may substantially impact populations of sowbugs and pillbugs. (Raymond Cloyd)

MISCELLANEOUS

Recent Rains Trigger Mushroom Development
The frequent, heavy rains in certain areas of the state have resulted in the appearance of mushrooms in home lawns and landscape beds. Although mushrooms are often spectacular in size and color, most are relatively harmless to plant life. Some of these mushrooms are associated with arc-like or circular patterns in turfgrass called fairy rings. The ring pattern is caused by the outward growth of fungal mycelium. The mycelium forms a dense, mat-like structure in the soil that decomposes organic matter. This decomposition releases nitrate into the soil, which in turn stimulates the growth of the grass at the outer portion of the ring. This results in a dark green appearance of the grass at the margin of the ring. Unfortunately, the thick fungal mat formed by the fungus interferes with water infiltration. The fungus also may release certain byproducts that are toxic to the turf. This can lead to dieback of the turf close to the ring. Fairy rings are difficult to control. You can sometimes eliminate the ring by digging to a depth of 6 to 12 inches and 12 inches wide on both sides of the ring, refilling the hole with non-infested soil. Or you can try to mask the symptoms by fertilizing the rest of the lawn so that it is as dark green as the ring. This often isn't a good idea because it tends to promote other turf problems. Commercial people can use certain fungicides to control fairy rings
but these products are not available to homeowners. See http://www.ksre.ksu.edu/bookstore/pubs/EP155.pdf for more info on these fungicides.

Some mushrooms in lawns are not associated with fairy rings. These may be mycorrhizal (symbiotic association with tree roots) or saprophytic (live on dead organic matter such as wood, etc.) in the soil. Because some of these mushrooms are beneficial, you don't really want to kill them. Besides, a fungicide spray to the mushroom itself does little good. Remember the mushroom is simply the fruiting structure of the organism. Most of the fungus is below ground and inaccessible to the chemical. If mushrooms are a nuisance, pick them and dispose of them as soon as they appear. Also, remove sources of large organic debris from the soil. Also, mushrooms tend to go away as soil dries. Patience may be the best control.

Some of the mushrooms in the lawn are edible, but others are poisonous. Never eat mushrooms unless you are sure of their identity. (Ward Upham)

Moving Houseplants Outside for the Summer

It is often helpful to set many houseplants outside for the summer so they can recover from the low light levels endured during the winter months. As soon as night temperatures stay consistently above 55 degrees F, houseplants can be moved to their summer home. Choose a spot that has dappled shade, is protected from the wind and is close to water. A porch or a spot that receives shade from trees or buildings will work well. Putting houseplants in full sun will cause the leaves to photooxidize or sunburn because the leaves have become adapted to low light levels inside the house. Where possible, sink the pots into the ground to help moderate root temperatures and reduce watering frequency.

If you have a number of plants, dig a trench 6 to 8 inches deep (or deeper if you have larger pots) and long enough to accommodate all of your plants without crowding. Place peat moss under and around the pots. Peat moss holds water, helps keep the pots cool and reduces evaporation from clay pots. About every two weeks, rotate the pots a quarter turn to break off any roots that have penetrated the peat moss surrounding the pot and to equalize the light received on all sides of the pot. Water as needed. If the potting soil is dry a half-inch deep in the pot, it is time to water. (Ward Upham)

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