Pests seen in June
Spider mites – juniper, Alberta spruce
Azalea lacebug – azalea
Magnolia weevil – yellow poplar
Rose sawfly – rose
Cytospora canker – spruce
Boxelder bug nymphs – lacebark elm
Quince rust – hawthorn
Japanese beetles – misc. plants
Black root rot – holly
Verticillium wilt – maple
Pine bark adelgid – white pine
Powdery mildew – lilac, columbine, dogwood

No Color Pictures
For some of you, this is the second month with no color pictures. Last month, the color printer broke but it was fixed in time for about half of you to receive color photos. Well, as luck would have it, the printer is broken again and the debate is on as to get a new printer or put more money into an older machine. Hopefully by next month this problem will be resolved. Of course, that was said last month.

Daylily Rust Update
So far, daylily rust has yet to be detected in Kentucky. During nursery inspections, we are paying particular attention to daylilies in an effort to determine if the disease is present in Kentucky. If you have any suspect daylily leaves, you should send them to the UK Plant
Disease Diagnostic Center. Your county extension agent will have the necessary forms for you to fill out.

Leaf Spots Can Damage English Ivy
John Hartman, Extension Plant Pathologist

In early spring, winter injury was noted in many ivy beds. Summer weather brings on additional problems, primarily leaf spot diseases. There are two important English Ivy (Hedera) leaf spot diseases in Kentucky, one caused by a bacterium, and one by a fungus. The two diseases are sometimes difficult to distinguish.

Bacterial leaf spot (pictured) is favored by periods of warm, wet weather typical of summer in Kentucky. This disease, caused by the bacterium Xanthomonas campestris pv. hederae, can be especially damaging to Ivy growing in many landscapes. The bacteria invade leaves, shoots, and stems through stomata and wounds causing a greenish-brown angular leaf spot 1/4 to 1/2 inch or larger in size. The spots sometimes appear greasy and may have a yellow margin; as they age, spots turn dark brown and may crack as they dry.

The disease is diagnosed in the laboratory by observing bacterial streaming under the microscope; however, the disease is often so active that landscape industry specialists can also diagnose the disease in the field in the same way. Cut through several leaf spots with a sharp knife and place small infected leaf pieces on a glass slide. Add a drop or two of clean water to the infected tissue and cover with small glass cover slip. After a few minutes to an hour, bacterial streaming can be seen just by holding the glass slide up to the light and observing the milky color of the water near the dissected leaf spot.

Growers should avoid planting diseased plant material, and avoid sprinkler irrigation which splashes bacteria from diseased to healthy plants. Copper-based fungicides which also serve as bactericides can be used to slow the spread of bacterial leaf spot.

Fungal leaf spot (anthracnose) appears as large, irregularly shaped tan or brown spots having numerous pimple-like fungal fruiting structures in the dead tissues. The causal fungus is Glomerella cingulata; however, the imperfect fungal state, Colletotrichum is normally observed now. Close examination with a hand lens may show spine-like formations associated with the fungal fruiting structures. There are other fungal leaf spot diseases of English Ivy which also produce fungal fruiting structures; this distinguishes them from bacterial spot, which produces none. Fungal spots do not produce bacterial streaming as described above.

Controls for anthracnose and fungal leaf spots are similar to controls for bacterial leaf spot, except that fungicides such as thiophanate-methyl [Cleary's 3336] (cleared for anthracnose of landscape plants) and mancozeb [Fore] (used for fungal leaf spots of ornamentals) are also available.

Japanese Beetles And Masked Chafers Are Flying
Mike Potter, Extension Entomologist

Adult Japanese beetles and masked chafers have begun to emerge. As is usually the case, it's difficult to predict how serious a problem the beetles and grubs will be this year.

Japanese Beetle Adults - Detailed information on this pest can be found in ENT-5, Japanese Beetles in the Urban Landscape. Options for protecting landscape plants from foliage feeding adults are as follows:

Plant Selection- The best way to avoid perennial battles with adult Japanese beetles is to select plant material that is less preferred. Publication ENT-5 lists species and cultivars of trees and shrubs that are less likely to be attacked by beetles.

Hand Picking and Exclusion- Removing beetles by hand may suffice for smaller plants and when beetle numbers are relatively low. Volatile odors released from beetle-damaged leaves attract more beetles. Thus, by not allowing Japanese beetles to accumulate, plants will be less attractive to other beetles. One of the easiest ways to remove beetles from small plants is to shake them off early in the morning when the insects are sluggish. The beetles may be killed by shaking them into a bucket of soapy water. Highly valued plants such as roses can be protected by covering them with cheesecloth, reemay, or other fine netting during peak beetle activity (usually late June to mid-July).

Insecticides- Various insecticides including Sevin, Tempo (= Bayer Advanced Lawn& Garden Multi-Insect Killer), Scimitar, Talstar, malathion, and Orthene are labeled for control of adult Japanese beetles. Sevin is very effective and is the product of choice for many homeowners. Foliage and flowers should be thoroughly treated. The application may need to be repeated at 7-10 day intervals to prevent reinfestation during the adult flight period, or after heavy rains. Follow label directions and avoid spraying under windy conditions. Insecticidal soaps may kill beetles that are hit by the spray, but they provide no residual protection. Botanical insecticides such as neem or pyrethrum are not very effective.

White Grubs - There is no reliable way to predict whether any given year will be a bad one for white grubs the immature, turf-feeding stages of Japanese beetles, masked chafers, and certain other beetles. Moreover, since grub infestations tend to be localized and sporadic, only a small
percentage (generally < 10%) of Kentucky lawns require treatment, even in bad years for grubs.

Indicators of Infestation- White grubs and their resultant damage are not usually evident until August or September. Although sampling the turf is the only way to confirm that a problem truly exists, certain factors may indicate an increased risk of infestation later in the season. If your turf has a history of serious grub problems, there is a greater chance that adult beetles will return and re-infest the same areas. Sites with large numbers of adult beetles in June and July are more likely to have grubs in late summer. Early warning signs include swarms of brown, -inch long masked chafer beetles skimming over the turf at dusk, or green June beetles buzz-bombing the turf by day in search of mates and egg-laying sites. Masked chafer and May beetle adults are also attracted to porch and street lights at night. Heavy infestations of adult Japanese beetles feeding in the area might also foretell subsequent problems with grubs of that species.

Rainfall and soil moisture are critical factors affecting the extent of grub damage during a season. Frequent irrigation in June and July may attract egg-laying female beetles to the turf, especially if surrounding areas are dry. High soil moisture also increases egg survival. If lawns are irrigated during June and July, be especially alert for signs of grubs later in the summer. Conversely, adequate soil moisture in August and September (when grubs are actively feeding) can help to hide root injury. Irrigated turf can sometimes tolerate 20 or more grubs per square foot before showing signs of injury.

Treatment Strategies - Two different strategies are available for controlling white grubs with insecticides: curative and preventive. Each approach has its own merits and limitations. With preventive control, the insecticide is applied as insurance, before a potential grub problem develops. Consequently, they are most suited for high-risk sites with a history of grub problems, or where heavy beetle activity is noted.

Preventive control requires the use of insecticides with long residual activity in soil. Both Merit (sold to homeowners as Bayer Advanced Season-Long Grub Control) and Mach 2 have sufficient soil persistence to be applied any time from late-May to mid-July and still control young grubs hatching from eggs in late July or early August. The optimum treatment period for these products is mid-June to mid-July.

Preventive treatments afford greater flexibility in application timing, and are easier to schedule and implement than are curative treatments. They often afford greater peace of mind to golf superintendents and lawn service companies because potential damage is avoided or minimized. The main drawback of preventive grub control is that the decision to treat must be made before knowing the extent of infestation. Grub outbreaks tend to be localized and sporadic, and only a small percentage of lawns require treatment in a given year. Thus, preventive control often results in areas being treated unnecessarily. Good record keeping and observation will help in pinpointing grub-prone areas, which are the most logical candidates for preventive applications.

With curative control, treatment is applied in late summer typically August or September after the eggs have hatched and grubs are present. This is an effective strategy when damaging grub populations are known to be present. Ideally, the decision to treat is based on site inspection and sampling, or past history of infestation. Since white grub infestations tend to be localized, the entire lawn often will not need to be treated. Grub "hot spots," which can be confirmed by sampling, are most likely to be full sun, south or west-facing slopes, lawns seeded with Kentucky bluegrass, lawns that were heavily irrigated during June and July, and turf areas that were damaged by grubs in previous years.

Proper timing of curative grub treatments can be tricky. Insecticides applied too early may degrade before the eggs have hatched, whereas if the product is applied late, the grubs will be harder to kill and severe damage to turf may have already occurred. Presently, granular Dylox is the fastest-acting, most effective insecticide for curative grub control. Diazinon is also an option for homeowners. Products containing chlorpyrifos (e.g., Dursban) are not very effective against grubs. There is little benefit in applying any of these short-lived, curative-type products for white grubs in June or July.

For a complete list of insecticides available for curative and preventive grub control, see Entfact-441, Insecticides for control of white grubs in Kentucky turfgrass (available at your county extension office or on the web at www.ca.uky.edu/age/pubs/pubs.htm).

Red Thread
Paul Vincelli, Extension Plant Pathologist

Red thread disease was very active in perennial ryegrass last week. Look for the red, thread-like fungal structures at the ends of blighted leaves. Although red thread is often associated with low-fertility turf, this disease can be very active in "hot-spots" of turf that has received adequate fertility.

The disease does not attack the crown, so fungicide treatment is generally not necessary except in the highest-maintenance turf.

Warm Weather Favors Ajuga Crown Rot
John Hartman, Extension Plant Pathologist

Ajuga, or Bugleweed, is valued as a ground cover in Kentucky landscapes because it forms a dense mat-like cover. Ajuga is subject to one major disease, crown rot,
caused by the fungus *Sclerotium rolfsii*. Crown rot is favored by our warm, humid Kentucky summer weather. The most obvious indicator of crown rot disease is the appearance of somewhat circular patches of dead plants, especially in poorly drained beds.

In early stages of the disease, infected ajuga may show yellowing of lower leaves. Plants soon wilt and die because the causal fungus has invaded the roots and crown and cut off the water supply. Badly infected plants may be easily pulled up because the roots and crown have been destroyed. The most revealing diagnostic feature is the presence of small spherical tan to reddish brown sclerotia of the fungus, often embedded in a mat of white fungal mycelium. The sclerotia, about the size of a mustard seed, survive winter or other unfavorable conditions, allowing the fungus to resume infections of nearby susceptible plants next season.

The crown rot fungus has a wide host range including most common vegetables, perennial and annual ornamentals, and young woody plants in nurseries. Ajugas should not be planted where the disease is already present in other hosts. Soil from infected beds can be removed and replaced with "clean" or sterilized soils, and then replanted. The fungicide Terralor, containing PCNB, can be used as a drench to prevent new infections.

**Arborvitae Leaf Miner**

*Taken from Michigan State University's Landscape Crop Advisory Team Alert Volume 16, No. 3, April 27, 2001*

Little green caterpillars identified as arborvitae leafminers were found in recent samples of arborvitae branches sent in from Alpena County, MI. The branches showed severe injury from the leafminer. There are four species of leafminers that attack arborvitae (cedar) in the northeastern US. All belong to the genus *Argyresthia* and all have similar life cycles and feeding habits. *Argyresthia thuiella* is the most common and widespread of the four that occur in our area. The adult moths appear in mid-May to mid-July and the females lay eggs on the green tips of one- and two- year-old twigs. Upon hatching, the tiny larvae (caterpillars) tunnel into the leaf scales and feed in them as miners for the rest of the season. At first, the mined leaves have a translucent or straw color, then they turn brown. Mines start near the end of a branchlet in the scale-like leaves and extend into other branchlets. Injury begins in the summer and reaches a climax in the fall. Death of mined branchlets often occurs giving the tree a sickly appearance. The greatest injury probably occurs to hedge rows and ornamental plantings. Winter is spent in the larval stage. Pupation and adult emergence occur in the spring. There is only one generation per year.

There are several other causes of decline in arborvitae. Arborvitae leafminer injury is indicated by the presence of minute emergence holes in the leaves and by the presence of minute, brown frass pellets (excrement) inside the damaged leaves. Over 25 different species of parasites (natural enemies) have been recovered from larvae and pupae. Most years these natural enemies keep populations of arborvitae leafminers at low levels. A parasitized larva often appears sickly, and is lighter in color and yellowish. The use of insecticides to control other pests may contribute to the increase of leafminer numbers by destroying these natural enemies. It is best to avoid using insecticide sprays to control the leafminer when populations are low and the damage is minor to conserve these natural enemies. When damage is extensive and health of the tree(s) appears threatened, sprays containing Tempo (cyfluthrin), Orthene (acephate) or Sevin (carbaryl) applied in mid to late May and again two weeks later will help control the arborvitae leafminer.

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**Fire Blight - What Now?**

*John Hartman, Extension Plant Pathologist*

Fire blight symptoms are appearing in flowering pears (i.e., 'Bradford' and 'Aristocrat' pears) in nurseries and landscapes throughout Kentucky. Many backyard apples and crabapples are also affected. The plant disease diagnostic laboratories have been reporting high numbers of fire blight samples from apples and pears for the last several weeks. Many growers wonder why the disease is widespread and yet sporadic this year.

--Fire blight is widespread because for much of this spring, conditions were ideal for infections, especially during bloom when primary infections take place. Frost in some areas may also have played a role.

--The disease is sporadic because not all trees faced ideal fire blight conditions this spring. With an April drought occurring in some areas, weather may have been too dry for good development of bacterial populations and for invasion of the bacteria into flowers. Small differences in microclimate based on the tree location or exposure can make a critical difference in disease potential. In addition, timing of bloom in relation to the weather affected whether or not fire blight would be a problem.

--Fire blight has been a threat over an extended period because some trees produced many "trailing blooms." Indeed, some apple trees are still putting out an occasional bloom which would be ripe for infections now. In nurseries, dormant liners may be placed in the field over a period of several months and some of these liners may bloom, thus extending the primary infection period even more.

Growers and gardeners with infected trees are often tempted to remove infected branches. In many cases, this would be the wrong strategy, because removing branches can encourage new shoots to develop and these new shoots would also be susceptible to new infections. If fire blight strikes are discovered early, before leaves have turned completely brown, timely removal of infected
shoots can help slow the spread of the disease. However, most growers do not discover the disease early enough for this to be helpful. So what should one do with infected trees now?

--Most backyard growers should just let the disease run its course, allowing the tree defenses to stop fire blight spread within the tree. Dead shoots and branches should be removed in winter when there is little chance of spreading the disease.

--What should growers do if they feel compelled to cut out fire blight infections? If pruning is begun after obvious symptoms appear, cut back to a healthy internode of at least two-year-old wood, leaving a stub several inches long. Rely on the tree's natural defenses to prevent further movement into the branch. If needed, paint the stub with bright paint to make it more obvious. This stub can then be safely removed in the winter. Leaving infected stubs reduces the chances for development of undesirable water sprouts in response to pruning.

--The reason not to prune infected branches back to a spur or crotch in summer is because it may not be noticed in winter and could be overlooked. It should not be necessary to sterilize cutting tools between cuts if only blighted shoots are being removed.

--Do not engage in normal summer pruning and training at the same time as fire blight removal without wiping the cutters with sterilizing solutions like 70% alcohol or 10% bleach. Don't forget to remove the infected stubs along with dead shoots and cankers next winter.

--Do not apply chemical controls such as streptomycin. They are only effective if used during the normal bloom period.

--Remove trailing blooms to prevent late spring and summer infections.

Pine Bark Adelgid
James R. Baker, Extension Entomologist, NC Coop. Ext. Service NC State University

The pine bark adelgid is small (about 1/32 inch), dark reddish purple, and covered with a white, fluffy secretion. Some adults have two pairs of wings. The threadlike mouthparts are about 1/16 inch long. The egg is milky to light yellow-brown. As the embryo inside it matures, the egg darkens. The eggs are also hidden in the white, fluffy secretion. Pine bark adelgid crawlers are very small, flat, naked insects that move about actively. Nymphs resemble adults but are smaller. At first naked and yellow, nymphs soon darken and secrete fluffy, white threads.

Biology

The pine bark adelgid occurs over most of the United States wherever White, Scots and Austrian pines grow. Found mostly on white pine, the pine bark adelgid occasionally infests Scots, Austrian and other pines. This adelgid is more unsightly than injurious on older trees, but it may seriously damage newly planted trees in parks, landscapes, nurseries and Christmas tree plantations. On heavily infested trees, the needles turn yellow. Small trees may be stunted or killed. Pine bark adelgids are the most commonly reported pests of white pine. These adelgids are often confused with woolly aphids or mealybugs or even fungi because of the fluffy secretions that cover the adelgids. The winter is spent as wingless females in crevices and rough places on the bark although with heavy infestations, most of the bark may be completely covered. In late winter, development resumes and each female lays up to 24 eggs under and around her body in her fluffy, white secretion. After laying her eggs, the female dies. From the eggs hatch crawlers that move actively on the stems and needles seeking a place to feed. Once a crawler settles down to feed under a needle fascicle or crevice on the bark, it does not move again until the next molt. Crawlers may move from plant to plant by crawling or on wind currents or perhaps on the feet of birds. Most develop into wingless females that lay fertile eggs without mating. Winged pine bark adelgids apparently fly to spruce, but they do not successfully reproduce there. There are 5 or more generations per year. Populations of pine bark adelgids increase dramatically during cool fall weather and in early spring. Predaceous insects often lower populations suddenly as the weather warms up in late spring. Although an infested tree may have conspicuous patches of white, fluffy wax, during the summer the actual number of live adelgids is usually very low.

Control

Maggots of hover flies and other flies and lady beetle larvae feed on pine bark adelgids in warm weather. Trees that are heavily infested and are showing symptoms of decline should probably be sprayed for adelgid control. Horticultural spray oil can be applied during the winter and before new growth emerges in spring. Oil sprays may damage white pine during the growing season, especially in dry weather.

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<td>*imidacloprid (Merit)</td>
<td>75 % wettable powder</td>
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<td>*oil, summer or horticultural</td>
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<td>*soap (Insecticide Conc., M-Pede)</td>
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Spider Mites
Univ. of California Pest Management Guidelines

Mites are common pests in landscapes and gardens and can be found feeding on many fruit trees, vines, berries, vegetables, and ornamental plants. Although related to insects, mites are not insects but members of the arachnid class along with spiders and ticks. The spider mites, also called webspinning mites, are the most common mite pests and among the most ubiquitous of all pests in the garden and farm.

The webspinning spider mites include Pacific spider mite, twospotted spider mite, strawberry spider mite, and several other species. Most common ones are closely related species in the Tetranychus genus and cannot be reliably distinguished in the field. However, there is little need to do so since their damage, biology, and management are virtually the same.

Identification

To the naked eye, spider mites look like tiny moving dots; however, you can see them easily with a 10X hand lens. Adult females, the largest forms, are less than 1/20 inch long. Spider mites live in colonies, mostly on the undersurfaces of leaves; a single colony may contain hundreds of individuals. The names “spider mite” and “webspinning mite” come from the silk webbing most species produce on infested leaves. The presence of webbing is an easy way to distinguish them from all other types of mites.

Adults have eight legs and an oval body, with two red eyespots near the head end of the body. Females usually have a large, dark blotch on each side of the body and numerous bristles covering the legs and body. Immatures resemble adults, except the newly hatched larvae have only six legs. Eggs are spherical and translucent, like tiny droplets, becoming cream colored before hatching.

Life Cycle

In some parts of California, spider mites may feed and reproduce all year on plants that retain their green leaves through the winter. In colder areas and on deciduous trees that drop their leaves, webspinning mites overwinter as red or orange mated females under rough bark scales and in ground litter and trash. They begin feeding and laying eggs when warm weather returns in spring.

Spider mites reproduce rapidly in hot weather and commonly become numerous in June through September. If temperature and food supplies are favorable, a generation can be completed in less than a week. Spider mites are generally favored by hot, dusty conditions and are usually found first on trees or plants adjacent to dusty roadways or at margins of gardens. Plants under water stress are also highly susceptible. As foliage quality declines on heavily infested plants, female mites catch wind currents and disperse to other plants. High mite populations may undergo a rapid decline in late summer when predators overtake them, host plant conditions become unfavorable, the weather turns cooler, or following rain.

Damage

Mites cause damage by sucking cell contents from leaves. A small number of mites is not usually reason for concern, but very high populations—levels high enough to show visible damage to leaves—can be damaging to plants, especially herbaceous ones. At first, the damage shows up as a stippling of light dots on the leaves; sometimes the leaves take on a bronze color. As feeding continues, the leaves turn yellow and drop off. Often leaves, twigs, and fruit are covered with large amounts of webbing. Damage is usually worse when compounded by water stress.

Loss of leaves will not cause yield losses in fruit trees during the year of infestation unless it occurs in spring or very early summer, but it may impact next year’s crop. On annual vegetable crops, such as squash, melons, and watermelons, loss of leaves can have a significant impact on yield and lead to sunburning. On crops such as sugar peas and beans, where pods are attacked, spider mites can cause direct damage. On ornamentals, mites are primarily an aesthetic concern, but can kill plants if populations become very high on annual plants. Spider mites are also important pests of field-grown roses.

Management

Spider mites have many natural enemies that often limit populations. Adequate irrigation is important because water-stressed plants are most likely to be damaged.

Broad-spectrum insecticide treatments for other pests frequently cause mite outbreaks, so avoid these when possible. Sprays of water, insecticidal oils, or soaps can be used for management. Always monitor before treatment.

Monitoring

Mites are tiny and difficult to detect. Usually plant damage—stippling or yellowing of leaves—will be noticed before you spot the mites themselves. Check the undersides of leaves for mites, their eggs, and webbing; you will need a hand lens to identify them. To observe them more closely, shake a few off the leaf surface onto a white sheet of paper. Once disturbed, they will move around rapidly. Be sure mites are present before you treat. Sometimes the mites will be gone by the time you notice the damage; plants will often recover after mites have left.

Biological Control

Spider mites have many natural enemies, which limit their numbers in many landscapes and gardens, especially when undisturbed by pesticide sprays. Some of the most important are the predatory mites, including the western...
predatory mite, *Galendromus (=Metaseiulus) occidentalis*, and Phytoseiulus species.

Predatory mites are about the same size as plant-feeding mites but have longer legs and are more active. Various insects are also important predators—the sixspotted thrips (*Scolothrips sexmaculatus*), the larvae and adults of the spider mite destroyer lady beetle (*Stethorus pictipes*), the larvae of certain flies including the cecidomyid *Feltiella acarivora*, and various general predators such as minute pirate bugs, bigeyed bugs, and lacewing larvae. The purchase and release of predatory mites can be useful in establishing populations in large plantings or orchards, but the best results are obtained by creating favorable conditions for naturally occurring predators—for instance, by avoiding dusty conditions and pesticide sprays.

The major predator mites commercially available for release are the western predatory mite and Phytoseiulus. The western predatory mite is more effective under hot, dry conditions. These predators do not feed on foliage or become pests; thus if pest mites are not available when predatory mites are released, the predators starve or migrate elsewhere. If you wish to establish predators in a heavily infested orchard or garden that has few predators, use a soap spray or selective miticide to bring pest mites to a lower level and then release predatory mites. A good guideline is that one predator is needed for every ten spider mites to provide control. More than one application of predatory mites may be required if you want to reduce pest populations rapidly. Concentrate releases in hot spots where spider mite numbers are highest. Once established on perennials, predatory mites may reproduce and provide biological control indefinitely without further augmentation unless nonselective insecticides are applied that kill the predators. For information on where to buy these predators, view it on the World Wide Web at www.cdpr.ca.gov/docs/ipminov/bensuppl.htm.

**Cultural Control**

Cultural practices can have a significant impact on spider mites. Dusty conditions often lead to mite outbreaks. Apply water to pathways and other dusty areas at regular intervals. Water-stressed trees and plants are less tolerant of spider mite damage. Be sure to provide adequate irrigation. Mid-season washing of trees and vines with water to remove dust may help prevent serious late-season mite infestations.

In gardens and on small fruit trees, regular, forceful spraying of plants with water will often reduce spider mite numbers adequately. Be sure to get good coverage, especially on the undersides of leaves. If more control is required, use an insecticidal soap or oil in your spray (as described below), but test the product on one or two plants to be sure it is not damaging to plants.

**Chemicals**

Spider mites frequently become a problem after the application of insecticides. Such outbreaks are commonly a result of the insecticide killing off the natural enemies of the mites, but also occur when certain insecticides stimulate mite reproduction. For example, spider mites exposed to carbaryl (Sevin) in the laboratory have been shown to reproduce faster than untreated populations. Carbaryl, some organophosphates, and some pyrethroids apparently also favor spider mites by increasing the level of nitrogen in leaves. Insecticides applied during hot weather usually appear to have the greatest effect on mites, causing dramatic outbreaks within a few days.

If a treatment for mites is necessary, use selective materials, preferably insecticidal soap or insecticidal oil. Petroleum-based horticultural oils or neem oils are both acceptable.

Do not use soaps or oils on water-stressed plants or when temperatures exceed 90°F.

These materials may be phytotoxic to some plants, so check labels and/or test them out on a portion of the foliage several days before applying a full treatment. Oils and soaps must contact mites to kill them so excellent coverage, especially on the undersides of leaves, is essential and repeat applications may be required. Sulfur dust or spray can be used on some vegetables, but will burn cucurbits. Do not use sulfur dust if temperatures exceed 90°F and do not apply sulfur within 30 days of an oil spray. Sulfur dusts are skin irritants and eye and respiratory hazards. Always wear appropriate protective clothing.

**Degree Day Totals through June 26, 2000**

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**Degree Day Totals through June 25, 2001**

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