MUSK THISTLE IN KENTUCKY PASTURES AND HAY FIELDS

by J. D. Green, Ext Weed Science Specialist

One of the most troublesome weed problems in Kentucky pastures and hayfields are thistles. Thistle plants can interfere with livestock grazing and limit the amount of available forage. It is during the spring and early summer months when thistles become a major problem for land owners and livestock producers who graze cattle or produce hay.

Musk thistle, also called nodding thistle, is the most common type of thistle plant found in Kentucky. The leaf surface of musk thistle is waxy in appearance and contains spines along the leaf margins. It is considered a noxious weed because of its ability to reproduce rapidly and spread easily by wind to unprotected land areas. Musk thistle only reproduces by seed. Therefore, the major aspect of any control efforts is to prevent or limit new seed production.

Seed typically germinate in the fall and young thistle plants form a rosette which grows close to the ground during the winter months. Thistle rosettes often grow unnoticed until the rosettes begin to expand in diameter and flower stalks begin to elongate in the spring. The most active vegetative growth period of the plant is in the spring throughout the early summer months. Flower stalks emerge from the rosettes and are followed by bright purple to reddish flowers, which bloom in late May to early June. New seed develop within the flower heads and at maturity seed are easily carried by the wind and spread to other areas.

The most important step in a long-term control program for musk thistle is to prevent flowering, and the production and spread of new thistle seed. This can be accomplished by using various mechanical, biological, or chemical control methods.

Mechanical control consists of mowing, clipping pastures, or even hand-grubbing individual plants. These control methods should be initiated before flowers begin to open. Some regrowth and production of flowers can occur after mowing, but seed production will be notably less than if a timely mechanical control method had not been used. Thistle plants mowed or removed by hand after flowers have bloomed contain enough energy reserves that these plants will still produce viable seed.

A reduction in musk thistle populations can also be obtained through biological control methods. Two different insects are known to inhibit thistle growth and development, the Thistle-Head Weevil and the Thistle Rosette Weevil. The Thistle-Head Weevil can be found during the spring in many counties throughout central Kentucky. These insects feed on the maturing seed inside the developing flower head. The impact of the Thistle-Head Weevil will not eliminate all seed production, but can significantly reduce the amount of seed produced by individual plants in areas where the insect has become established.

Broadleaf herbicides labeled for use in pastures can be applied in grass pastures and non-cropland areas for control of musk thistle rosettes. For herbicides to be effective, however, the timing of the application is critical. Best results can be obtained if herbicides are applied to thistle plants that are in the early rosette stage of growth and actively growing. Therefore, the best times for herbi-
Herbicides which are labeled for use in grass pastures include 2,4-D, dicamba (e.g., Banvel, Clarity), Weedmaster, Crossbow, Milestone, and ForeFront. For spring herbicide applications apply when air temperatures are above 55°F for 2 to 3 days. Complete spray coverage of the plant is also important. When herbicides are applied after flower stalks elongate, control will be less effective and inconsistent. When using herbicides for control consult the waiting period on the product label for livestock grazing restrictions following a herbicide application. Furthermore, avoid spraying near crops such as tobacco, vegetables, or ornamental plantings. Also, avoid spray drift by not spraying on windy days or days with extremely high temperature and high humidity. In fields interseeded with clover herbicides may not be a desirable control method since clover is likely to be killed or severely injured.

MORE ON SLUGS
by Lee Townsend

Slug baits containing iron phosphate were inadvertently left out of a recent slug control article. This active ingredient is available under several brand names in products that provide safe, effective slug control. Iron phosphate baits provide a good margin of safety where children, pets, or wildlife are a concern. Sprinkle any baits where slugs, or their slime trails are seen regularly and retreat the same spots during slug season. Slugs tend to remain near food sources so you may get some advantage by providing a dependable temptation for them. Scatter baits evenly instead of small piles. This increases chances of consumption by slugs and reduces the chances of the bait being eaten by non-target organisms. The product label will give information on application rates and other suggestions for improving control. Baits can be an effective part of slug management but it is difficult to control them with these products alone.

Trapping, hand picking, and modifying to reduce hiding places and shade and to increase air movement are part of an integrated approach to slug control.

SHADE TREES & ORNAMENTALS

FLOWERING PEAR AND CRABAPPLE FIRE BLIGHT
by John Hartman

Last year, fire blight disease was widespread in Kentucky apple orchards and it was also a problem of flowering pears and crabapples both in nursery and landscape settings. Fire blight, a bacterial disease caused by Erwinia amylovora, affects many kinds of plants in the family Rosaceae including apple, crabapple, pear, cotoneaster, hawthorn, and brambles. The most noticed symptom of
fire blight is death of new shoots and branches. In the nursery, or on young trees in the landscape, loss of a few branches to fire blight can completely disfigure the tree.

Importance of primary fire blight infections. In those nurseries where fire blight was active last year, bacteria overwintered in disease cankers and in buds and twigs. Primary fire blight infections will begin mainly in open flowers while the most noticeable symptom, shoot death, doesn’t occur until later. In Kentucky this week, as crabapples and flowering pears are in bloom, the trees are at risk for fire blight infections. Now the bacteria have the opportunity to grow on the surface of the flowers, living on exudates from the blooms. While the weather is cool, as it has been in recent weeks, the bacteria don’t represent much of a threat to the trees. However, with two or three days of temperatures averaging over 60F (e.g.: 70F day, 50F night), bacterial populations can build up to potentially threatening levels. The higher the average daily temperature, the faster the bacteria will grow. The bacteria at this stage are still on the outside of the blossoms trying to get in. If, after this several-day warm period, there is a rain or even a heavy dew, the large numbers of bacteria will be washed to the base of the open flowers. There, bacteria can get inside the flowers through the nec-taries where, if temperatures are at least 60F, they can now feed on and destroy the flower cluster from the inside. From there, bacteria move internally through cambium and phloem tissues to the subtending twig or branch. Bacterial populations build rapidly in and on infected tissues and they are then carried to growing shoots by rain splash or insects. Entering these shoots through stomata or wounds, bacteria rapidly kill infected shoots.

Disease management. In nurseries with a history of fire blight, growers may wish to manage the disease with antibacterial sprays. Keep in mind that if the weather remains cool during flowering pear or crabapple bloom, there will be no need to worry about primary infections and therefore the risk of serious fire blight would be low. Or, if the weather is warm, but no rain falls during bloom, fire blight risk is also low. Growers that monitor temperatures and apply sprays such as streptomycin when the weather has been warm and rain is in the forecast should have good success. For more precise fire blight monitoring and decision-making, a computer program called MARYBLYT has worked well for Kentucky apple growers. After trees have finished blooming, there is no longer a need for streptomycin sprays.

PROTECT YOUR HOME FROM TERMITES
by Mike Potter

The entomology department receives many calls from clients wanting to know what can be done to protect their home from termites. Oftentimes they also wonder if a certain practice or condition is likely to cause termite problems. Homeowners can reduce the risk of infestation by following these guidelines.

1. **Eliminate wood contact with the ground.** Many termite infestations result from structural wood being in direct contact with the soil. Earth-to-wood contact provides termites with easy access to food, moisture, and shelter, as well as direct, hidden entry into the building. Wood siding, porch steps, door and window frames and similar wood items should be at least six inches above ground level. Eliminating wood-to-ground contact may require re-grading or pulling soil or mulch back from the foundation, cutting the bottom of siding, or supporting steps or posts on a concrete base. Contrary to popular belief, wood that has been pressure treated is not immune to termite attack. Termites will enter pressure-treated wood through cut ends and cracks and also build tunnels over the surface.

2. **Don’t let moisture accumulate near the foundation.** Termites are attracted to moisture and are more likely to “zero in” on a structure if the soil next to the foundation is consistently moist. Water should be diverted away from the foundation with properly functioning gutters, down spouts and splash blocks. Leaking faucets, water pipes and air conditioning units should be repaired, and the ground next to the foundation should be graded (sloped) so that surface water drains away from the building. Homes with poor drainage may need to have tiles or drains installed. Lawn sprinklers and irrigation systems should be adjusted to minimize puddling near the foundation.

3. **Reduce humidity in crawl spaces.** Most building codes call for 1 square foot of vent opening per 150 square feet of crawlspace area. For crawlspace equipped with a polyethylene vapor barrier (see below), the total vent area often can be reduced to 1 square foot per 300 to 500 square feet of crawlspace area. One vent should be within 3 feet of each exterior corner of the building. Vents should be kept free of leaves, dirt and debris, and should not be obstructed by vegetation. Moisture and humidity in crawl spaces can be further reduced by installing 4-6 ml polyethylene sheeting over about 75 percent of the soil surface. The soil cover will act as a vapor barrier.
barrier to reduce evaporation from the soil and condensation of moisture on joists and subflooring. Vents and vapor barriers are installed by pest control companies.

4. Do not store wood or paper against the foundation or inside the crawl space. Firewood, lumber, cardboard boxes, newspapers, and other cellulose materials attract termites and provide a convenient source of food. When stacked against the foundation they offer a hidden path of entry into the structure and allow termites to bypass any termiticide soil barrier that is present. Vines, ivy, and other dense plant material touching the house should also be avoided. Where practical, dead stumps and tree roots around and beneath the building should be removed, along with old form boards and grade stakes left in place after the building was constructed.

5. Use mulch sparingly, especially if you already have termites or other conducive conditions. Many people use landscape mulch for its aesthetic and plant health benefits. Excessive or improper usage, however, can contribute to termite problems. Termites are attracted to mulch primarily because of its moisture-retaining properties and the insulation it affords against temperature extremes. The mulch itself is of poor nutritional value to termites and a non-preferred source of food. Since the moisture retaining properties of mulch are more of an attractant than the wood itself, it makes little difference what type of mulch is used (cypress, pine bark, eucalyptus, etc.). Contrary to popular belief, crushed stone or pea gravel are comparable to wood mulch in terms of attraction, since they also retain moisture in the underlying soil. Where mulch is used, it should be applied sparingly (2-3 inches is usually adequate), and should never be allowed to contact wood siding or framing of doors or windows. There is no truth to the rumor being circulated on the internet that mulch is likely to spread Formosan termites from New Orleans to Kentucky (for more on this subject, see KPN 3/6/06).

6. Consider treatment by a professional pest control firm. Buildings have many natural openings through which termites can enter, most of which are hidden. While the above measures will help make a house less attractive to termites, the best way to prevent infestation is to treat the adjoining soil with a termiticide. There are two general categories of termite treatment, liquids and baits. The purpose of a liquid treatment is to make the ground around the foundation repellent and/or toxic to termites so that they will not infest the structure. While most of the liquid termiticide products are repellent, three newer materials, Termidor® (fipronil), Premise® (imidacloprid), and Phantom® (chlorfenapyr) are non-repellent to termites foraging in the soil. Consequently, termites tunneling into the treated zone are killed. In Kentucky, these products are proving very reliable in their ability to control termites in the initial attempt. Baits can also be installed to eliminate termites foraging around structures (see newly revised Entfacts 604: Termite Control: Answers for Homeowners, and 639: Termite Baits: A Guide for Homeowners).

Preventively treating a home for termites is a reasonable investment, especially if the structure has no prior history of treatment. If the building was previously treated by a pest control firm, it’s a good idea to maintain the warranty by paying the annual renewal fee. Should termites re-infest the building, (which can happen even if the initial treatment was performed correctly), the company will return and retreat the affected area at no additional charge.

Whether or not a person chooses to have their home treated, they should know the signs of termite infestation:

- Pencil-wide mud foraging tubes on foundation walls, piers, sills, joists, etc.
- Winged “swarmer” termites, or their shed wings, in windowsills and along edges of floors.
- Damaged wood hollowed out along the grain, lined with bits of mud or soil.

Detecting hidden infestations requires a trained eye. Many pest control firms perform termite inspections free of charge and will alert the homeowner to any conditions they uncover that are conducive to termite attack.

PESTICIDE NEWS & VIEWS

NEW INSECTICIDE FORMULATIONS
by Ric Bessin

Several insecticides have changed their formations for 2006, so growers need to be especially careful when using these products as there are a few changes in how they are used. All of these new formulations use different concentrations, so the rates are VERY different than those for the older products listed in our recommendations. As always read the labels carefully and follow the directions.

Venom Insecticide - This is a formulation and concentration change from Venom 20 SG. The new formulation has the same crops and pests on the label. The very significant change is the concentration alteration, it is now a 70 percent formulation, so the rates are only a fraction of what they were with the older formulation. Do not confuse Venom Insecticide with Venom 20SG.
Admire Pro Systemic Protection - Admire 2 F has become a popular insecticide for tobacco and some vegetable producers in the state. Admire Pro is replacing Admire 2 F as it has improved mixing properties. Growers need to be aware that as with Venom, there is a major change in concentration between the formulations. Admire 2F had 2 pounds active ingredient per gallon, while the new Admire Pro formulation has 4.6 pounds active per gallon. While the two products have similar use patterns, the rates are very different, with the Admire Pro used at only a fraction of the rate of Admire 2 F.

Assail 30 SG - This new formulation is replacing the older Assail 70 WP. This change will reduce the potential for applicator exposure as the new formulation is low dust. Similar to the previous two examples, this is also a rate change. The concentration in this instance has been reduced from a 70 percent wettable powder to a 30 percent soluble granule. Since the concentration has been reduced the use rate for the new formulation for the field is increased over the older formation.

Capture LFR - This new formulation is designed to mix directly with liquid fertilizer for soil application to corn. Mixing insecticides with liquid fertilizer and having them remain as a uniform suspension has always been difficult, this formulation should make that much easier. Capture LFR only has corn on its label, so it cannot be used on other crops listed on the Capture 2 EC label. Capture LFR has 1.5 pounds active ingredient per gallon, while the older Capture 2 EC has 2 pounds active per gallon. With this reduction in concentration, growers will need to adjust their use rates accordingly.

INSECT TRAP COUNTS

UKREC, Princeton KY

March 24-31, 2006
Black cutworm .................................................................1
True Armyworm .............................................................5

View trap counts for the entire 2005 season at –
http://www.uky.edu/Ag/IPMPricenton/Counts/2006trapsfp.htm

For information on trap counts in southern Illinois visit the Hines Report at –
http://www.ipm.uiuc.edu/pubs/hines_report/comments.html

The Hines Report is posted weekly by Ron Hines, Senior Research Specialist, at the University of Illinois Dixon Springs Agricultural Center.

NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.