

WEED CONTROL NOTES  
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## CURLD AND MUSK THISTLE

Control Series 110

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Valuable pasture is lost whenever curled and musk thistle occur. In 1968 one thistle plant to 16 sq ft (2722 per acre) reduced pasture yields an average of 23% or 470 lbs. of dry forage per acre. These thistles infest at least 40 western Virginia counties and are continuing to spread. During each of the last 5 years, 2,4-D has been used on at least 150,000 acres of thistle infested pastures. Seed blowing from adjoining areas, dormant seed in the soil and short residual activity of 2,4-D in the soil coupled with a few thistles acting as annuals, contributes to reinfestations of these sprayed areas. Most musk and curled thistles are biennials; start growth in one growing season, overwintering as a rosette of leaves, and in the second growing season produces a seed stalk, flowers and seeds, and then dies. Chemical control efforts must continue.

Many woody plants growing near some of the sprayed areas have developed abnormal leaves (twisted and smaller). Permanent injury to these plants is not expected. Very small particles of 2,4-D, carried directly from the sprayer (spray drift) by high winds, are believed to be responsible for this injury. Young and actively growing white oak leaves are sensitive to low concentrations of 2,4-D; whereas, in the fall, dormant buds are relatively tolerant.

The following recommendations are made for maximum control of thistles and to keep spray drift to a minimum:

## A. Controlling Spray Drift

1. Spray only when the wind is less than 5 mph. The higher the wind, the greater the drift. Air movement is lowest early in morning and late evening.
2. Keep sprayer pressure between 20-30 psi. Be sure the pressure gauge is working and accurate. Large droplets are produced with low pressure. They will not drift out of the field being sprayed. Higher pressures increase the number of small particles - thus more drift.
3. Use proper size nozzles. Use one of the following flat fan nozzle tips: Accessory Manufacturing Co. 80.3, 80.4, 80.5; Century Manufacturing Co. 21F, 25F, 30F, 31F; Delavan FS7, FS8, FS9; Monarch 39, 46, 59; Spraying Systems Co.; 8003, 8004, 8005, flooding tips TK5 or larger or equivalent. These flat fan nozzle tips will give even distribution of coarse particles.
4. Use a boom type sprayer for open fields. It delivers the spray close to the ground and thus reduces drift. Direct the spray down.
5. Use a boomless sprayer, a power handgun, or back pack sprayer for rock outcrops or other inaccessible areas. Use low pressure and make application as late in the fall as possible.
6. Calibrate sprayer. Find out how much water your sprayer is delivering at a safe speed. Adjust forward speed and nozzle tip size so that 20-30 gallons of water is being applied at 20-30 psi. Use the minimum spray boom height that will insure good coverage.

## B. Maximum Control of Thistles

1. Use amine, oil soluble amine or low volatile ester of 2,4-D. They are equally effective when young thistles are actively growing. Oil soluble amine and low volatile ester are suggested for adverse weather conditions (rain or cold) after applying. Do not use low volatile esters when the maximum temperature will be above 85°F. (Do not use high volatile esters.)
2. Use these rates. Use 1 lb. (acid equivalent) for musk and 1 1/2 lb. (acid equivalent) for curled thistles, in 20-30 gals. of water per acre. The higher rate will also control many other weeds in the pastures.
3. Spray thistles when they are in the rosette stage. The application can be made either in the late fall or early spring. Thistles are hard to kill once the stem starts to elongate. Spring is slightly more effective time to control thistles, but more hazardous in terms of damage to desirable plants.
4. Watch the temperature. Spray when the temperature is predicted to be 60°F or above during the day. The plant will be actively growing at this temperature and this is necessary for 2,4-D to be effective.
5. Mechanical control. Use hoe on very light infestations. Thistles must be cut 1 1/2"-2" below the surface of the soil to kill them. Prevent them from spreading. Mowing will not prevent seed head formation.

## C. Adjust Time of Spraying.

1. Start by using 2,4-D in the spring as soon as the temperature is predicted to be 60°F or above during the day. Stop spraying as soon as leaves of trees start actively growing.
2. Spray early in the morning or late evening when the air movement is at its lowest for the day.

3. Spray in the fall after about October 7 and continue until it gets too cold for 2,4-D to act. Trees are less susceptible to 2,4-D injury in the fall. Most thistle plants that will produce seed during the next growing season will have germinated by about that time.

CULTURAL CONTROL. Bare soil is needed for the thistle seeds to germinate and the plants to develop. Use proper pasture management: fertilizing, liming and grazing to permit good growth and a tight turf. This competition is needed as part of the control program.

PRECAUTIONS: Keep dairy animals off sprayed pastures for 7 days after treatment. If any poisonous plants are present, keep all grazing animals off the treated areas until all these plants are dead. When 2,4-D is used as directed, no harmful residues will occur on the foliage.

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#### KEYS TO PROPER USE OF PESTICIDES

1. Read the label on each pesticide container before use. Follow instructions to the letter; heed all cautions and warnings, and note precautions about residues.
2. Keep pesticides in the containers in which you bought them. Put them where children or animals cannot get them, preferably under lock and away from food, feed, seed, or other material which may become harmful if contaminated.
3. Dispose of containers in the manner specified on the label.

SEE YOUR DOCTOR IF SYMPTOMS OF ILLNESS OCCUR DURING OR AFTER USE OF PESTICIDES!

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