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Ag 84L
Cap. 2

**protecting
TREES
and
SHRUBS
from
RABBIT
damage**

**NATURE OF
DAMAGE**

REPELLENTS

- Preparation
- Application

Leaflet No. 396

U. S. DEPARTMENT OF AGRICULTURE

protecting TREES and SHRUBS from RABBIT damage

Standing on drifted snow, rabbits stripped the upper part of this Scotch pine tree.

Rabbit injury to apple nursery stock. (J. J. Davis, Fish and Wildlife Service, U. S. Department of the Interior.)

Rabbits cause serious damage to trees and shrubs by nipping off shoots, branches, leaves, and buds, and by gnawing and peeling off bark. They feed on these materials but often remove parts of trees and shrubs without eating them.

One rabbit can ruin a small planting during a winter. Wherever rabbits are numerous, protection against them is necessary in order to operate a nursery, start an orchard, or establish shelterbelts or plantings for landscaping, erosion control, or wildlife cover.

REPELLENTS

The most effective and the cheapest way to prevent damage is to paint or spray trees and shrubs with a chemical preparation that will keep rabbits away.

Several effective rabbit repellents have been developed at the Cheyenne Horticultural Field Station of the United States Department of Agriculture at Cheyenne, Wyo.

The repellents are harmless to trees and shrubs. The amount that farm animals may get from eating treated foliage is not likely to poison them. The repellents are easy to prepare and apply, and cost only about \$2 a gallon. They have a chemical base of nicotine alkaloid or of thiram, an organic sulfur compound.

You can purchase preparations containing these chemicals from insecticide and fungicide dealers. The following preparations are on the market:

1. *Black Leaf 40*, a liquid nicotine sulfate solution that contains 40 percent of nicotine alkaloid. It is sold as an insecticide.

2. *Arasan*, *Arasan SF-X*, and *Tersan 75*, powders that contain thiram. The first contains 50 percent of thiram, the others 75 percent. They are sold as fungicides.

CARRYING AGENTS

The chemicals should be mixed with a carrying agent before they are applied. A satisfactory carrying agent serves to dilute the chemicals, and it enables the repellent to stick to trees and shrubs in all kinds of weather.

Suitable carrying agents are water emulsions of asphalt or of a synthetic plastic such as vinyl resin or acrylic resin. An asphalt water emulsion is cheaper than an emulsion of synthetic plastic and can be purchased from almost any dealer in building supplies or petroleum byproducts.

PREPARING REPELLENTS

Following are directions for preparing repellent formulations:

1. Add 1 gallon of asphalt water emulsion to 1½ gallons of water. Add 1 pound of household detergent and mix until smooth. Add 1 quart of Black Leaf 40 and mix thoroughly.

This makes 3 gallons of paint at a cost of about \$4.80.

To make a spray, dilute the formulation with 1 gallon of water and 1 pint of Black Leaf 40.

2. Add 1 gallon of asphalt water emulsion to 2 gallons of water. Stir in 4 pounds of Arasan and mix thoroughly.

This makes 3½ gallons of paint at a cost of about \$7.25.

This formulation cannot be diluted to make an effective spray.

3. Add 1 gallon of asphalt water emulsion to 1 gallon of water. Stir in 2 pounds of Arasan SF-X or Tersan 75 and mix thoroughly.

This makes 2¼ gallons of paint at a cost of about \$4.90.

To make a spray, dilute the formulation with 1 gallon of water and 1 pound of Arasan SF-X or Tersan 75.

A small paint mixer—one that has a 3-inch propeller on a quarter-inch shaft 1 foot long and is used in a quarter-inch electric drill—is ideal for mixing repellents.

APPLYING REPELLENTS

Apply a repellent whenever you see rabbits around your trees and shrubs—before they cause damage. Damage is most likely to be severe when forage for rabbits is scarce—in late fall and during winters, or in drought periods.

Apply the repellent with a brush or with a sprayer of the compression- or centrifugal-pump type. Do not use a gear-pump sprayer; the action of the gears breaks down the emulsions.

If you make a spray, run the formulation through a fine screen before putting it into the sprayer.

Apply the repellent thoroughly to the trunk of the tree or shrub, from the base to a point high enough on the trunk to be out of reach of rabbits. Bear in mind that snowdrifts around trees and shrubs enable rabbits to feed higher on the plants than they can when the ground is bare.

One gallon of repellent will brush-coat 100 trees 1 inch in diameter.

PRECAUTIONS

Nicotine sulfate solutions are poisonous. Handle them with care. Do not get them on the skin or about the eyes or mouth.

Keep the preparations out of reach of animals and children. Observe the cautions on the label of the container.

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