

AGRICULTURAL EXPERIMENT STATION  
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INSECT PESTS OF HOLLY

by

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Holly Scale, (Aspidiotus brittanicus Newstead.)

Infestations of this scale decreases the decorative value of holly and limits the shipment of infested stock to certain areas.

The scales are more or less brown in color. The female scales are round or slightly oval and are about  $3/32$  of an inch in diameter. The male scale is oval and is about as long as the female but only half as wide. While infestations are generally localized on the lower leaves of holly trees, individuals quite often may be found scattered here and there on the upper leaves.

Aside from holly, this scale has been found to infest boxwood, English ivy, and English laurel.

Control Suggestions - Oil emulsions have been found to give the best results in controlling this pest. Sprays applied early in the spring before the buds open, using 3% oil to 97 gallons of water plus  $1/2$  lb. of an emulsifying agent such as Vatsol O.S., Aresket "300", or Grasselli 131P, have given fair results. Oil specifications are viscosity 65-70 seconds Saybolt and sulfonation test not less than 90.

Oil sprays applied near the middle of June, when the scales are crawling, should give good results. At this time, 2 gallons of oil to 98 gallons of water with  $1/2$  lb. of one of the aforementioned emulsifying agents, plus 1 pint of 40% nicotine sulfate should be used. Specifications of the oil should be viscosity not over 65-66 seconds Saybolt and a sulfonation test of 90 or over. (Caution: this spray should not be applied when the temperature is much over 80°F.)

Soft Brown Scale, (Coccus hesperidum Linn.)

This scale is becoming one of the major pests of holly. It is about  $5/32$  of an inch in length when full grown, oval in shape, rather soft in texture, and mottled with light and dark shades of brown. It gives birth to living young and as far as known has no male sex. There are several generations a year.

## Holly

Control Suggestions - Some degree of control may be obtained with the sprays suggested for the holly scale.

### Oblique-banded Leaf-roller, (Archips rosaceana Harris)

This pest at times is quite serious on holly. Injury is evidenced by the new tips being malformed, webbed together, and badly chewed.

Winter is spent in the egg stage. These are laid on the twigs and branches. They hatch and begin feeding during March, April, and May. Most of the injury is done during May, June, and July. Some moths are present and laying eggs during most of the summer. There is but one generation annually.

The full grown larvae are about an inch in length with a pale green body and a very dark brown or black head. They wriggle very actively when disturbed.

The moth has a wing expanse of about one inch. The front wings are reddish brown in color with a wide dark oblique band across the middle.

Control Suggestions - An early spring oil spray as suggested for the holly scale has been found to be of value in killing the eggs.

Lead arsenate at the rate of 3 pounds to 100 gallons of water applied when the larvae are feeding will reduce the injury to some extent.

### Holly Bud Moth, (Rhopobota naevana Hubner var. ilicifoliaria Kearf.)

This insect was first reported in Oregon in 1935. No spread of the pest from where it was originally found has been discovered. If once established, it could become a very serious pest and therefore a close watch should be kept for its presence.

As far as known, holly seems to be the only consistent host.

The winter is spent in the egg stage. The eggs are generally laid singly on the under sides of the leaves. They are oval in shape, flattened, and orange-red in color. They are laid during the latter part of July and in August.

The moth has a wing expanse of about  $3/5$  of an inch. The fore wings have a brown ground color with an oblique silver band at the middle and a large silver spot at the tip.

The full grown larvae are about  $1/2$  inch long with a grayish-green body and a jet-black head. When fully grown, they drop to the ground and pupate in the rubbish beneath the tree. There is but one generation a year.

The injury consists in the larvae webbing and feeding in the young terminal shoots and thus destroying the new growth. Affected tips are rendered unsalable. The injury of this pest and the oblique-banded leaf-roller is very similar and care should be taken to ascertain the true identity of the

casual insect, as the leaf-roller seems only occasionally to be of importance and the bud moth, once established, may become a menace to the holly industry of Oregon.

Control Suggestions -

1. Ovicidal spray: This spray should be applied just before the eggs begin to hatch. The eggs at this stage have a black spot visible through the egg shell. This is the head of the young larva. Depending upon the year, eggs will be found to hatch from the last of April to the middle of May.

Formula:

Oil - - - - - 2 1/2 gallons  
 Aresket "300", vatsol or other  
     suitable emulsifier - - - - - 1/2 pound  
 Nicotine sulfate - - - - - 1 pint  
 Water - - - - - 98 gallons

Oil specifications should be viscosity not over 65-66 seconds Saybolt and sulfonation test of 90 or over.

2. A poison spray applied at two ten-day intervals after new growth appears gives fair control.

Formula:

Lead arsenate - - - - - 3 pounds  
 Nicotine sulfate (40%) - - - - - 1 pint  
 Whale oil soap - - - - - 5 pounds  
 Water - - - - - 100 gallons

Cleaning up and burning debris beneath the trees from the middle of July to the first of August will destroy many of the pupae.

Holly Leaf Miner, (Phytomyza illicicola Loew )

This insect has been reported to occur in Oregon. Damage is caused by mining within the leaf resulting in winding deadened areas.

Control Suggestions - No control for maggots within the leaves has been developed. Dusting the holly trees during the flight period of the adult flies is suggested with a 2% nicotine-lime dust which may be secured commercially or mixed as follows:

Hydrated lime 10 lbs. - screen to prevent lumps  
 Nicotine sulfate (40%) 1/2 pound or 1/2 pint)

Mix in a tight barrel mounted to allow turning or simply by rolling on ground for five minutes. Smooth stones may be used to facilitate mixing.

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A cover spray consisting of lead arsenate 2 1/2 pounds to 100 gallons of water may be used as a substitute for the aforementioned dust.

This dust should be applied at weekly intervals through May and until the middle of June. The spray should be applied at ten-day intervals and after every rain.

Appearance of Injury - Damage just noticeable in August and consists of a red spot or linear mine. Later the mines become larger and are deadened.

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