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UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

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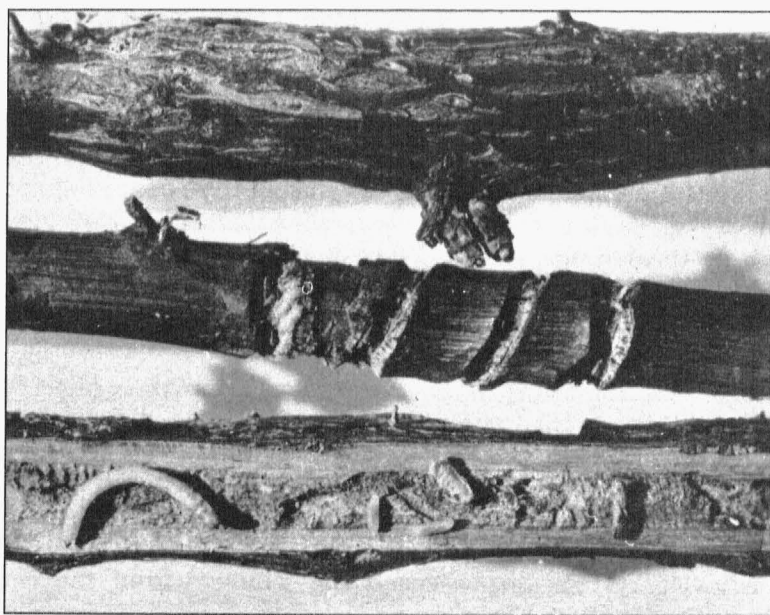
CIRCULAR 220

Columbia, Mo.

March, 1942

Bramble and Bush Fruit Insects

W. W. Smith



Injury to raspberry cane by red-necked cane borer. At top is shown a swollen raspberry cane. Middle: Cane cut to show tunnels made by cane borer larva. Bottom: Cane split to show larva (left) and parasites (center).

In connection with the Victory Garden Program, it seems probable that many persons who have not had previous experience in the growing of brambles, gooseberries, and currants, may in the near future be confronted with the problem of protecting

these crops from insect attack. This circular suggests methods of controlling most of the important insect pests likely to attack these plants in Missouri.

Insects Attacking the Canes

Rose Scale.—This is an insect which occurs on all of the bramble fruits and on some varieties of roses. Whitish, scurfy-looking spots with reddish-brown margins at the base of the canes and along their length indicate the presence of this insect. The damage to the canes is done by the scale insects, which suck sap from the plant and are located underneath the whitish deposit.

Control: During the spring, while the plants are still dormant, the application of lime-sulfur solution (11½ to 12½ gallons of lime-sulfur compound in 88½ or 87½ gallons of water), or a 2% oil emulsion (2 gallons oil emulsion in 98 gallons of water) will kill the scale.

San Jose Scale.—This scale insect occurs mostly on currants, gooseberries, and various orchard trees. It appears as very small, grayish, rounded or oval raised spots on the canes and branches. These spots are the coverings of the scale insects which suck the sap of the plants.

Control: Use 3 gallons of oil emulsion per 100 gallons of spray, or 12½ gallons of lime-sulfur per 100 gallons of spray, applied during the dormant season, for best control of this insect.

Red-necked Cane Borer.—The oval or cigar-like swellings or galls on the canes of any of the brambles are caused, for the most part, by the grubs of the red-necked cane borer. These bluish-black beetles, about ¼ to ⅓ inch in length, with reddish foreparts, appear in the bramble plantings in May and June and lay their eggs in the bark of the new canes. The grubs make spiral tunnels around the new canes and cause the swellings to develop in the late summer. These galls prevent the normal development of the canes and may completely girdle and kill them above the swelling. The grubs spend the winter within the canes. There is one generation a year.

Control: During the dormant season, or in the early spring, prune out all of the canes showing swellings, and burn them. Destroy all of the wild brambles in the neighborhood of the planting to prevent reinfestation.

Tree Crickets.—These are not the common black field crickets, but are greenish-white insects considerably smaller than the field crickets. The chief damage to the brambles is caused by the

egg-laying habits of the female crickets. During September and October, the female crickets deposit their eggs in a line down the canes, inserting them with their drill-like ovipositor. As many as one hundred egg tunnels may be drilled into a space four inches long on the cane. This causes the bark to split, and may also cause the cane to break or to die above the point of injury. The eggs overwinter in the canes and the young crickets begin hatching in April or May. These may feed, to a limited extent, on the flowers and fruit of brambles, weeds, and orchard trees. There is only one generation a year.

Control: If infested canes are not too numerous, cut them out at pruning time, or at least remove the parts of the canes damaged, and burn them. Keep down weeds in the planting and destroy any wild brambles in the vicinity. In very heavy infestations, a heavy lead arsenate spray (3 pounds in 100 gallons of water) may be helpful if applied just before the fruit sets.

Insects Attacking the Foliage

Red Spider.—This is a tiny reddish to yellowish mite, which is often the most serious pest of brambles in dry seasons. These mites feed on the under surface of the leaves and cause them to curl and turn reddish-brown. In severe cases, the leaves are killed. There are several generations of these mites each year, and the eggs are laid in webs on the underside of the leaves.

Control: Both the adults and the eggs of the red spider mite can be killed by the use of a spray containing one per cent of summer oil, carefully applied so that the undersides of the leaves are well covered. Ordinarily the spray should be applied during the latter part of June, or whenever the infestation becomes evident.

Raspberry Sawfly.—Occasionally the foliage of raspberry and some of the other brambles is attacked by spiny, greenish worms about the time that the first leaves become full-grown. These are the young stage of a wasp-like insect which emerges from the soil and lays its eggs on the leaves when they are very small.

Control: The raspberry foliage should be examined when about one-half to two-thirds grown and, if the young worms are found present in any numbers, the application of a lead arsenate spray (3 or 4 pounds per 100 gallons), or dust (1 part lead arsenate and 4 parts hydrated lime) will give good control. If worms do not appear until the fruit is well along toward ripen-

ing, use a rotenone dust containing not less than $\frac{1}{2}\%$ rotenone, or a rotenone spray, as these materials are not poisonous to man.

Imported Currant Worm.—Like the raspberry sawfly, the adult of this currant and gooseberry pest is a small wasp-like insect which emerges from the soil early in the spring and deposits its eggs in rows along the undersides of the young leaves. The worms hatch soon after the leaves have expanded and feed for a short time as a colony. Then they scatter out over the plant and may defoliate it in a short time if they are very numerous. A second generation occurs in June.

Control: The control is the same as that recommended for raspberry sawfly.

Currant Aphid.—This insect overwinters in the egg stage, the eggs being attached to the canes. Hatching out about the time that the leaf buds begin to open, the young aphids, or plant lice, crawl to the undersides of the first leaves and start sucking the sap from them. They cause curling, cupping, and dwarfing of the leaves, and consequent loss of vigor by the plant. They may breed throughout the season, and there are several generations each year.

Control: A spray composed of 3 teaspoonfuls of nicotine sulfate, 2 ounces of soap, and 3 gallons of water, and applied carefully so as to thoroughly cover the undersides of the leaves, will give satisfactory control of the aphids. The spray will be most effective if applied on a warm day (65 to 70 degrees) when the leaves are about half-grown. Nicotine-lime dust may also be used (1 ounce nicotine sulfate thoroughly mixed with 1 pound of hydrated lime).

Other Pests

Other insects which may attack the brambles are the raspberry crown borer, which tunnels into the canes and crown, the raspberry cane borer, which girdles new canes and tunnels down into them, the raspberry fruit worm, which feeds on the receptacle inside the cap of the fruit, the flea beetle, fruit tree leaf roller, and bud moth.

It cannot be overemphasized that the small grower can go a long way toward successful insect control by the use of approved measures in planting, crop rotation, clean culture, and good management. Where these methods of cultural control are carefully carried out, only occasional use of insecticidal treatment is required.