TENTATIVE SUGGESTIONS ON THE CONTROL OF HOP DOWNY MILDEW

Since the downy mildew of hops has only recently made its appearance in Oregon, the following suggestions based on the experience of investigators in British Columbia should be of real assistance to Oregon growers in dealing with the hop mildew problem until such time as investigations can be conducted under Oregon conditions. These suggestions are compiled from information received thru the courtesy of Dr. William Newton of the Dominion Laboratory of Plant Pathology at Saanichton, B. C., who has been in charge of the experimental work on downy mildew control in the hop fields of British Columbia.

Symptoms of the Disease. Abnormal, pale, green, dwarfed and shortened shoots or "spikes" appear either at the base of the plants or along the hop bines or at their tips. On normal leaves the disease produces separate, usually angular, spots which at first appear water-soaked when held to the light, then turn dark colored. These spots may run together into larger dead areas. Attacked cones may be browned and stunted. The dark gray, spore-bearing layer of the fungus appears on the under side of the leaf spots and spiked leaves. The spores produced on the spotted leaves and "spikes" spread the disease rapidly in damp or foggy weather.

Susceptibility. Early Cluster hops are very susceptible. (Late Cluster hops appear in Oregon to suffer less, although they are susceptible.) Fuggles shows great resistance to the disease. Wild hops are sometimes very susceptible.

CONTROL SUGGESTIONS

Removal of "Spikes". The yards should be patrolled throughout the season and all "spikes" should be removed and destroyed because when left to shed spores they become a very important source of infection.

Spraying. Spray with bordeaux mixture 4-4-50. Start when the bines are not over 6 feet high. Repeat about every 10 days until just before the hops reach the "burr" stage. Do not spray during the "burr" stage, so as not to interfere with the pollination and setting of seed. Spraying during July and August is thought to be unnecessary on the Pacific Coast as a rule when the weather is warm and dry.

Spray Underneath the Leaves. Since practically all infection occurs on the underside of the leaves, the under surfaces should be thoroughly coated with the spray. In later sprays give especial attention to covering the youngest and most susceptible leaves.

Spreader. A spreader seems absolutely necessary to secure an even coating on the under sides of the leaves. The best material tested in British Columbia was potassium-resin soap. Whale oil soap formed a troublesome curd that clogged the nozzles.
To make this potash-rosin soap, boil together 10 pounds of caustic potash, 20 pounds of commercial rosin and 3 gallons of water. Add about 2 quarts of this soap to every 100 gallons of bordeaux spray. Caustic soda cannot be used in place of caustic potash.

Spray Injury. The recommended bordeaux spray will sometimes cause injury when applied during the hot part of the day. If a good mist is produced by a fine nozzle opening with good pressure behind it, the injury is not important.

Spray Equipment. The high-powered spray gun appears satisfactory early in the season but extension rods are practically essential later on, for the spray nozzle has to be run upward through the foliage by the operator.

Sanitation. At the close of the season all remains of hop plants, dead bines and fallen leaves must be removed completely from the yard and burned, as it is in this material that the disease chiefly overwinters. Keep the ground about the plants free from growth during the season by clean cultivation.

Dusting. The use of a dust made by mixing 1 part of the finest obtainable anhydrous copper sulfate and 3 parts of fresh hydrated lime, applied by directing the dust against the foliage with some force while dew is on the leaves, appears to show some merit but needs further trial.

Wild Hops. Wild hop plants should be eradicated for some distance about hop yards, as otherwise many of them will prove to be sources of continuous infection.

Summarized by H. P. Barss from information transmitted by Dr. Wm. Newton of the Dominion Experimental Farm, Saanichton, B. C. June, 1930.