HOW TO CONTROL ROSE APHIS AND ROSE MILDEW

Rose gardens should be watched closely at this season for the appearance of the rose infesting aphids or plant lice, and the disease known as powdery mildew. Two species of aphids are commonly found on rose bushes, sometimes both kinds occurring together on the same bush. They always show a preference for the tenderest growth and, consequently, are most abundant on the ends of the shoots and on the flower buds. They are rarely injurious except early in the season. Later on they are usually kept under control by their several insect enemies, the beneficial effect of which is generally erroneously attributed to hot weather. The powdery mildew is usually more injurious than the aphids, the Rambler varieties being more susceptible to the disease than other roses. The disease is due to a fungus, a parasitic plant growth, which is prevalent in the early part of the season, causing the tender leaves and terminal shoots of the rose to become curled and stunted and covered with whitish, powder-like spore stalks and spores. Conditions which tend to increase the atmospheric humidity, such as cloudy or rainy weather, too close planting, and unnecessary irrigation and watering, favor the development of the fungus. A few weeks after
the roses begin their spring growth the mildew disappears and rarely becomes troublesome again during the season.

Spraying for aphis: The rose aphis may be controlled by spraying with several insecticides among which are (1) nicotine extract and soap, (2) whale oil soap and (3) common laundry soap. These are listed in the order of preference. "Black Leaf 40", "Nikoteen", and "To-bac-tine" are trade names for three of the best known concentrated tobacco extracts. The first named is used in Arizona as a sheep dip and is consequently more easily obtainable than other brands. It is guaranteed to contain 40 percent nicotine and is retailed in gallon cans at $12.50 and in half pint cans at 85 cents. While "Black Leaf 40" is especially mentioned herein, other brands of concentrated nicotine of equal strength may be substituted in the recommendations which follow. A teaspoonful of this concentrated nicotine compound is sufficient for one gallon of spray. Soap should be used with the "Black Leaf 40" at the rate of one-half ounce in one gallon of the spray. This is not primarily for the insecticidal value of the soap, but for the purpose of giving the spray better penetrating and sticking properties. Whale oil soap, hard laundry soap, or one of the soap powders (Gold Dust, Pearlax, etc.) may be used in the foregoing spray mixture. The first is the more effective, but has the disadvantage of an unpleasant odor. The soap should be dissolved in a small quantity of hot water, after which sufficient water is added to make one gallon. Add to this the teaspoonful of "Black Leaf 40". This insecticide is not always immediate in its effects, but the thoroughness of the work can be judged twenty-four hours after the application is made. When whale oil soap is used alone, two ounces should be used in a gallon of water and when laundry soap or soap powders are used three or four ounces should be used in a gallon of water.

Spraying for mildew: As a preventative of rose mildew, spraying with a solution of potassium sulphide or "liver of sulphur" is recommended. This should be done as soon as any trace of the mildew is discovered. The potassium sulphide is dissolved in water at the rate of one-half ounce in a gallon. The spray should be finely distributed over the foliage. This spray deteriorates after it is prepared and, therefore, only freshly made solutions should be used. This fungicide does not undo injury accomplished before the spray is applied but merely checks the spread of the fungus. This result is in proportion to the thoroughness of the application.

Combination spraying: When it is desired to spray for both the aphis and the mildew at one time, the insecticide and fungicide may be
combined, this spray in this case will contain one teaspoonful of "Black Leaf 40," one-half ounce of soap and one-half ounce of potassium sulphide, in one gallon of water. If soap alone is used against the insects, two to four ounces should be used instead of the nicotine solution and soap combination. Where the saving in time and expense is no object, it is preferable to make separate applications, spraying for the insects first and for the mildew a few hours later.

Garden sprayers: In combating insect pests and plant diseases it is as important to apply the spray properly as it is to use the proper insecticides and fungicides. In spraying rose bushes for aphids, the small hand sprayers of the atomiser type, costing as a rule 50 to 75 cents, are, unfortunately, rather unsatisfactory. They do not give sufficient force to the spray and are not adapted to reaching all parts of the plant, particularly the under surfaces of the leaves. For use against the mildew disease these cheap sprayers are perhaps a little more effective, since force is not necessary in this case. For a garden sprayer, particularly for spraying both insecticides and fungicides, either a "bucket," a "compressed air" or a "knapsack" sprayer is recommended. These cost from $3.50 to $15.00 for complete outfits. For small gardens the "bucket" pumps are especially recommended on account of their comparative cheapness. The equipment needed consists of two feet of 3/8 inch rubber hose, a three-foot extension rod and a nozzle adapted to throw spray at right angles to the extension, enabling the operator to reach all parts of the plant. The extension rod should, preferably, be of aluminum. This costs twenty-five cents a foot, but gives far greater satisfaction than the heavy gas pipe extension. The writer prefers the "cyclone" or "side cyclone" nozzles for garden work. These are right angle nozzles of practically the same design costing about 60 cents each. The following are among the best known manufacturers of garden sprayers:

The Bean Spray Pump Co., San Jose, Cal.
(Smith-Booth-Usher Co., Los Angeles, Cal., agents).
The Deming Company, Salem, Ohio.
P. E. Myers & Bro., Ashland, Ohio.

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