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# The Agricultural Experiment Station

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## PLANT LICE AND THEIR REMEDIES.

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The abundance of plant lice during the past three years has led to a number of experiments at the Station which have covered a wide range of insects and insecticides. The results indicate that proper methods will keep these pests under control.

### LIFE HISTORY.

Plant lice are tiny insects usually rounded in form and provided with two little tubes which extend upward and backward from the abdomen. Lice live upon the juices of plants by thrusting their bills through the epidermis of the tender twigs or leaves. The first brood in the spring is produced from eggs which were laid the previous fall. The other generations, except the last, are females born alive, and as these young begin immediately to suck juices and soon bear other young, the number which may result in a single season from the hatching of one egg is almost incredible. The first generations are wingless and live not far from the place where the eggs hatched. In time, however, winged individuals appear. These fly to new feeding grounds and are the chief source of distribution. Most lice are green and escape notice, but some are made conspicuous by their colors. The last brood in the fall lay eggs. These may be seen after the leaves have fallen as tiny black oblong objects on the limbs and about the buds. An abundance of these indicates that watchfulness will be needed the following spring.

### THEIR ENEMIES.

Generally plant lice are kept under control by their enemies, chief of which are the lady-birds and syrphus flies. Adult lady-birds may usually be recognized as oval red beetles spotted with black. The larvae are oblong, rough and commonly mottled red and black. They have three pairs of legs and a distinct head.

The eggs are yellow and laid in patches where lice are abundant. The syrphus fly larvae are smooth, green or greenish white and without distinct legs and head. The eggs are white, oblong bodies which are laid singly on the leaves of infested plants. Where the enemies are abundant they will destroy the lice and spraying is unnecessary.

#### INSECTICIDES.

From the manner of their feeding it is impossible to kill plant lice with poisons. It is necessary to employ some substance which will kill by contact and to apply it very thoroughly, for every insect which escapes the application remains to repopulate the food plant. These precautions are valuable: 1. Spray upward with force so as to wet the under side of the leaves. 2. Spray before the winged forms appear to prevent distribution. Among the best insecticides are:

*Whale-oil Soap.* This must be dissolved in boiling water, after which it is diluted in the proportion of one pound of soap to from six to twelve gallons of water.

*Tobacco Stem Decoction.* Tobacco stems or dust may be purchased from cigar manufacturers at a very reasonable price. They should be put in cold water, heated to boiling point and boiled for half or three-quarters of an hour. The decoction is then diluted to make from two to five gallons of spray for each pound of stems. The preparation should be used before it becomes sour or stale.

*Kerosene Emulsion.* This may be used in proportion of from one gallon of oil to fifteen of water, to one to twenty-five.

Whale-oil soap and kerosene emulsion are liable to injure the foliage when used in strong solutions. Probably the tobacco preparations are safest where these are needed.

#### COMMON PLANT LICE.

*Green Apple Louse.* This is rather difficult to kill. It may be treated with whale-oil soap in the proportion of one pound of soap to six gallons of water; tobacco stem decoction, one pound to three gallons; or kerosene emulsion, one to fifteen. It is best to spray before the lice have caused the leaves to roll or early in the spring when the lice have just hatched.

*Green Plum Louse.* Use tobacco stem decoction, one pound to four gallons, or tobacco soap, one pound to twelve gallons.

*Black Cherry Louse.* Is conspicuous for its color. It is rather hard to kill. Apply the stronger strengths of any of the insecticides named above.

*Snowball Louse.* Lives in the young buds and curls the leaves in such a way that it cannot be easily reached. Drench the stems and opening buds in the spring with whale-oil soap, one pound to eight gallons.