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Control of **SPITTLEBUGS** on **LEGUMES**

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Spittlebug
froth about
twice
natural
size



Circular 689

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**UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE**

Extension Service in Agriculture and Home Economics in co-
operation with ILLINOIS STATE NATURAL HISTORY SURVEY

THE MEADOW SPITTLEBUG has become a real threat to hay production in Illinois. For several years this insect has been reducing hay yields in Ohio, Indiana, and Wisconsin, and now it is something for Illinois farmers to worry about.

What is this spittlebug?

It is a tiny insect that can cause a big loss in clover and alfalfa fields. It appears in late April and early May in a tiny mass of froth. In late May and early June, if you see masses of froth like that pictured on the cover, clinging to the stems of alfalfa and clover plants, you know you have this bug. These masses are quite noticeable, so you are not likely to have trouble finding them if they are in a field. You may also see them on some other cultivated plants and many weeds.

The young spittlebug, which does the most damage, can be found within these masses of froth.

What makes the froth?

These insects excrete fine droplets of a liquid which is almost pure plant sap. Through these droplets of sap they extend a tiny air tube. With this tube they grasp a small amount of air and bring it back through the sap. This continual action causes the froth to form. This froth, by the way, protects the spittlebug from its natural enemies.

How much damage do these bugs do?

They will cause hay losses varying from slight to 25% or more, depending on how heavily the field is infested. The bugs stunt the plants by sucking out their sap. In the heat of the day, heavily infested plants wilt and the damage can be quite severe. Also, where infestations are heavy, the hay may mold unless it is cured in the field for a longer time than normal, and the longer curing may cause further loss of leaves.

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What is their life cycle?

Meadow spittlebugs (*Philaenus leucophthalmus* (L.)), go through the winter in the egg stage. In late April or early May the eggs hatch into tiny yellow to coral-colored insects. By careful examination they can be found in a tiny mass of froth about the size of a pinhead in the crown or in a folded leaf of an alfalfa or clover plant.

As the plant grows, the spittlebugs travel upward, seeking the tender new growth which is their food. The young bugs remain in masses of froth on the plant.



Young bug

On reaching maturity, the insects emerge from the froth. The adults are light-to-almost-black wedge-shaped insects about 1/4 inch long. They appear to be hard-shelled and jump readily when disturbed.



Adult: 1/4 inch long

From late June through August the adults wander to other plants or weeds in fields, along roadsides, and in fence rows, feeding on whatever they find. In late August and early September they return to alfalfa and clover fields. Here they lay their eggs on the grain stubble, old pieces of cornstalk, weeds, and clover plants. The egg masses, consisting of 2 to 20 eggs, are glued on with froth behind leaf sheaths and in similar protected places.

Eggs



Salmon & Myg 58

All three of the above pictures are greatly enlarged, that of the eggs somewhat more than the others. The egg mass shown here was actually about 1/8 inch long.

Situation in Illinois

During the fall of 1951 spittlebugs were abundant north of a line from Crawford county to Peoria and Rock Island counties (Areas 1 and 2 on map).

In Area 1 the 1952 infestation is expected to be general, and many fields are likely to be heavily damaged. Farmers in this area should be prepared to use insecticides, if necessary, to reduce the loss of hay.



SPITTLEBUG INFESTATION 1952

In Area 2 spittlebugs will be found in most fields. Although fewer fields than in Area 1 will be seriously affected, many may benefit from treatment.

The 1952 infestation threatens to be heavier than any we have seen in the past. Fields hardest hit will be those in a first-year hay crop. Second- and third-year hay fields will be infested but not so severely damaged as those in the first crop year.

To the south and west (Area 3) infestation is markedly less than in the rest of the state.

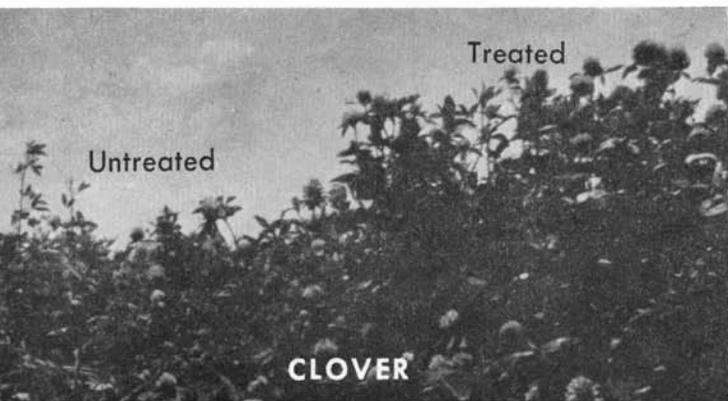
What control measures can be used?

Insecticides will control this insect *if correctly timed*. For those who notice heavy infestations too late, the only solution is to cut the hay *early* and allow it to *dry more than usual* before putting it in the barn. The early cutting and drying will kill many of the bugs, as they require tender, juicy growth in order to survive.

If, when the infestation is extremely heavy, the hay is not allowed to dry, mold may appear around the spittle masses.

What insecticide can be used?

Lindane, BHC (benzene hexachloride), and toxaphene are the three insecticides now recommended. Apply lindane or BHC at the rate of 2/10 pound of the gamma isomer per acre (*see label on container*). Apply toxaphene at the rate of 1 1/2 pounds. Lindane is preferred because it is less likely to leave residues or odors on the plants at harvest.



The amount of water to use will depend on the delivery of the sprayer, but at least 10 gallons per acre is preferred with ground equipment.

If spraying is done at the right time, either aerial or ground equipment and either high-pressure - high-gallonage or low-pressure - low-gallonage sprayers can be used.

When should spray be applied?

Late April or early May, when alfalfa is about 4 to 6 inches high, is the time to spray. Using

alfalfa as a gauge, treat clovers at the same time. If a field is sprayed too late, the insects are bigger and protected by foliage, thus harder to kill. Furthermore, late treatments may present a residue problem.

At treatment time the small spittlebugs will be found in tiny masses of froth in the crown of the plant or in a folded leaf. Although you may not be able to see many of these bugs, there undoubtedly will be many eggs still to hatch; and if tiny masses of froth are numerous it will be advisable to treat.

(Fall - treatment of stubble fields with 1 1/2 pounds of DDT per acre to kill the adults before they lay their eggs is being studied.)

What about residues?

Lindane and BHC are not long-lasting insecticides. If three weeks elapse between spraying and harvesting, there will be little danger of any residue. Also many of the leaves on the plants when sprayed will never be put in the barn. If toxaphene is used, allow five weeks to elapse before harvest.

What precautions should be taken?

Legumes can be damaged by 2,4-D and 2,4,5-T. Any sprayer used for either of these chemicals should be cleaned thoroughly before it is used for spraying a legume. Mix ammonia with water at the rate of 1 gallon to 49 gallons of water. Fill spray tank with this solution. Then start sprayer, and without running the material through the boom, run it back through the tank several times. Then spray a little through the boom, shut off sprayer, and leave it overnight. Next morning spray rest of tankful through the boom. Finally, rinse tank thoroughly and completely several times with clean water.

Apply lindane or BHC three weeks before harvest - toxaphene at least five weeks.

Handle insecticides correctly. Keep them out of the way of livestock and out of reach of children.

Follow the precautions listed on the container.

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