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COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

AGRICULTURAL EXPERIMENT STATION.

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CHINCH BUG INFECTION.

Do not throw all of your infected bugs away at the close of the season; save a good supply with which to start the disease next spring, and thus save yourself the time and trouble of sending to the station for it.

Conditions Necessary for the Development of the Disease.

All moulds, rusts, and mildews, which are forms of fungi, require a certain degree of warmth and moisture for their growth. The "White Fungus" of the chinch bug can not be propagated, either in infection cages or in the field, until these conditions prevail. This fact explains the delay in the spread of the disease so often noticed when the weather is very dry or very cold, while in a damp atmosphere and with a temperature of near 80 degrees, two days will accomplish what it has taken, perhaps, two weeks to do before.

How to Procure Infected Bugs.

As the experiment station has not chinch bugs in sufficient numbers on the experimental grounds to supply the demand for infected ones, it is necessary for each person applying for the infection to send a quantity of living bugs. Procure a small tin can or box of some kind *with a tight fitting cover*, and holding from a pint to a quart; baking powder cans are very suitable. Put some green wheat or corn leaves in the can, *but no soil or water*, and put in about half a pint of live bugs, *full grown ones if possible*. Be sure to send bugs in *boxes made perfectly tight*, so that none can escape. *Do not make any holes in the boxes for air*. Wrap the box securely in paper and *send it by express*, charges prepaid, and direct as follows.:

ENTOMOLOGIST OF THE EXPERIMENT STATION,

COLUMBIA, MISSOURI.

The name and post office address of the sender should be placed on the outside of the box, and a letter or postal card should be written, stating that the bugs have been sent.

Be Sure to Give Your Post Office, County, and State.

Upon receipt of the bugs we will send you by mail, free of charge, a small box of the diseased bugs. They will all be dead, but they will transmit their infection to living ones brought in contact with them.

Do not be discouraged because you do not receive more—the quantity which we send you is sufficient for the purpose, as one diseased bug will communicate the infection to thousands of healthy ones, if the conditions are favorable. *Do not put these bugs in your fields*, but follow carefully the directions given below.

Directions for the Infection of Chinch Bugs.

Make four thicknesses of cotton cloth to fit the bottom of an ordinary wooden bucket or ten pound tin lard bucket, or, better, a perfectly tight wooden box about eighteen inches wide by six inches deep and of any convenient length. Wring out the cloth, after soaking in water, and place it in the bottom of the bucket or box. Put in the infected bugs and about a teacupful (if possible) of living bugs from the field. Put some bits of green wheat or corn leaves into the bucket or box, and tie a cloth over the top so that the bugs can not escape, and over the cloth place a board to keep the interior moist. At the expiration of from two to six days, depending upon temperature and moisture, all the bugs in the cage should be found infected. Examine them every second day (early in the morning if possible, as they are then in a dormant condition and can be handled better), remove all old feed and put in a fresh supply. If the inside of the cage appears to be dry, give the sides and top a good sprinkling of milk-warm water, but not so much as have it stand in drops. As soon as you observe the characteristic "White Fungus" on a portion of the bugs, take out about half of all in the cage, both dead and alive, and replace them with a fresh supply of living bugs from the field. Scatter these infected bugs in your field where the bugs are thickest, half a teaspoonful in a place. Continue to draw infected bugs from your cage every second or third day, and scatter them in your fields, keeping up in the meantime a full supply of fresh bugs.

Careful attention to these directions will secure success where careless use of the infection has resulted in failure. Make daily observation of the condition of affairs in the field, and of the weather while the field infection is in progress. Note carefully the condition of things in neighboring fields. Keep full notes and do not fail to report the results of the experiment.

Should the first lot of infected bugs sent you seem to fail in its purpose, send without delay for a new supply.

You can distribute these infected bugs from your own cages to your neighbors, and they in turn to others, so that in a short time a large area of country may be benefited.

The Action of the Infection in the Field.

“(1) The disease begins to show that it has been communicated from the second to the fourth day after infection has been placed in the field.

“(2) The live bugs, leaving their food plant, show signs of uneasiness by moving rapidly and aimlessly about from spot to spot.

“(3) In the course of another day, the bugs become sluggish and seek protection from the sun's light and heat. The favorite place of shelter is beneath clods and corn-stalks, or within some moist and shaded spot.

“(4) From the sixth to the eighth day, the first dead bugs are found enveloped with fungus, looking, when first dead, as some have put it, ‘like little wads of cotton.’ From the time the bugs first become sick, they cease to sap the growing stalk. Thus it will be seen that the ingress of the pest into the field may be quickly checked, if the experiment is properly attended to and atmospheric conditions are favorable.”

J. M. STEDMAN,

Entomologist.

All bulletins and reports of the Experiment Station will be sent free to any citizen of Missouri upon request to the Director of the Experiment Station, Columbia, Boone county, Missouri.