

CHINCH BUG IS TOUGH PEST

By J. S. HOUSER

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Herewith is presented the second portion of J. S. Houser's address before the NAGA Cleveland convention on the subject of sod webworm and chinch bug control. GOLFDOM printed the webworm portion of the address in its March issue.

I WISH I might speak with positiveness and assurance concerning the next insect I shall discuss—the hairy chinch bug. Unquestionably, this chinch bug, which attacks the grass of turf, is different from the species commonly found on grain crops. H. G. Barber, of the Federal Bureau of Entomology and Plant Quarantine, is of the opinion that it is a distinct species. The common name “hairy chinch bug” has been suggested because the individuals are distinctly more hairy in appearance than are field chinch bugs.

Another important difference is that sometimes as many as 50% or more of the adult bugs are incapable of flight because the wings are too short to support the body in the air; hence, the name “short-winged chinch bug” is sometimes employed. A further distinguishing characteristic is that the hairy chinch bug is able to thrive under conditions of moisture which the field chinch bug would find intolerable. I refer, of course, to known instances of serious damage to heavy, matted stands of bent grass upon which profuse sprinkling is practiced.

St. Augustine grass in Florida is seriously damaged by a chinch bug that is considered distinct from the two I have mentioned.

The full grown or adult hairy chinch bug is about 3/32 inch in length and about one-half as broad. When viewed from above, the fore part of the body is black and the hind portion has the general appearance of being dark gray. The newly hatched young are almost microscopic in size and are quite red in appearance. As the young grow, the body becomes darker and is quite black just before the insects transform to the adult stage. As mentioned previously, some of the adults have fully developed wings which extend to the tip of the body, but with others the wings are fore-shortened to about half normal length. Occasionally, an adult individual will be found with only rudimentary stubs instead of wings.

Winter is passed in the turf, the adults seeking shelter well down in the crowns of plants. With the advent of warm weather, the adults become active, eggs are laid, and the first generation of young appears. The second and last occurs in August.

The chinch bug feeds on the sap drawn from the plant by means of a sharp beak which is inserted into the tissues. It is important to recognize this fact because it explains why lead arsenate or other poisons of a similar nature cannot be used in the control of this insect.

The hairy chinch bug does not occur west of Ohio. It is found in greatest abundance along the Atlantic Seaboard and is particularly destructive on Long Island. Serious outbreaks have been reported in Pennsylvania, New Jersey, and Connecticut, and probably the insect is destructive at times in other Eastern states. The only records of serious damage which I have for Ohio pertain to the Cleveland and Canton areas. In 1934 I observed a number of bent-grass lawns belonging to private owners in Cleveland, parts of which were totally destroyed, and also areas in the lawn of the Cleveland Museum of Fine Arts.

In every instance these lawns had received the very best of care as concerned watering, fertilizing, etc. Those portions subject to the most sunlight and heat were the most seriously affected. This past summer the degree of damage was somewhat less severe in Cleveland but was of sufficient moment to cause specific losses in some areas. Because of the cumulative effect of the two seasons 1934 and 1935, it became necessary to rebuild a part of the Museum lawn. A letter from a correspondent in Canton, Ohio, Dr. F. S. Van

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Dyke, informs me that, for the past 4 years, chinch bugs have been troublesome in his lawn but it was not until the fall of 1934 that he discovered the cause of the damage.

**Easy to Miss
Chinch Bug as Cause**

It is entirely possible that injury to turf from chinch bugs is far more prevalent than the records indicate and that the decline of the grass frequently is erroneously attributed to drouth or some other factor. The dessicating effect on grass which results from chinch bug activity very closely resembles the effects of soil moisture deficiency and easily can be mistaken for such. At first, a few small brown spots appear; these gradually enlarge as the injury progresses.

The bugs are very active during hot, sunshiny days. As they scurry about, they can be detected quite easily if one pauses to make examination. During periods of dark, cool weather they hide in the matted grass and can be found only by careful searching. The most likely place for making such an examination is in the greener parts of the turf bordering the browned areas.

It is generally conceded that the hairy chinch bug is a more resistant species than either of the other forms that have been mentioned. The field chinch bug, for example, is quite susceptible to infection by a fungous disease which kills large numbers if weather conditions are favorable. In the fall of 1934 and the spring of 1935, this disease was rampant in Ohio among the hordes of the field-inhabiting species, but the hairy chinch bug was attacked to a much less degree. However, examinations made May 10, 1935, in the Cleveland area indicated that nearly 75% of the overwintered bugs had died from this cause. This factor probably accounts, in large measure, for the decrease in damage in Cleveland last season.

**Chinch Bug Control
Proves Baffling Problem**

The hardness of the hairy chinch bug is indicated further by its ability to withstand the effects of insecticides. This brings me to the difficult part of this discussion, because our efforts thus far in Ohio have been attended by only a moderate degree of success. Moreover, the reported experience of other workers along this line are somewhat confusing and, at times, contradictory.

Last spring a cooperative control pro-

gram was arranged between C. F. Irish, president of The Chas. F. Irish Company; L. M. Garipey, Superintendent of Grounds of the Cleveland Fine Arts Museum; and the writer, representing the Department of Entomology of the Ohio Agricultural Experiment Station. The objective sought was the evaluation of several materials for the control of this insect. The formulae used were as follows:

1. Nicotine sulfate 1 gal.
Pine Tar Soap..... 3 gal.
(Grandpa's Wonder)
Water 300 gal.
2. Nicotine sulfate 1 gal.
SS-3* 1½ pt.
Water 300 gal.
3. Loro 1 gal.
SS-3 1½ gal.
Water 300 gal.
4. Nicotine sulfate 1 gal.
Penetrol 1½ gal.
Water 300 gal.
5. Nicotine sulfate 6 lb.
Hydrated lime 50 lb.
6. Commercial tobacco dust
(Containing 1% nicotine)
7. Cyanogas G—Fumigant (free
flowing)

The four liquid formulae were used at the rate of 150 gals. per 1000 sq. ft. of surface and the dusts were used at the rate of 25 lbs. per acre. The liquid sprays were applied with a power sprayer operated at 350 lbs. pressure and were liberated through a three-nozzle spray broom directed by hand and held about 6 inches above the grass. By this device, the liquid was driven into the grass and was found to penetrate the soil to a depth of about 1-inch, when used in the amount indicated. At least a part of each area which received a liquid application was covered with waterproof canvas immediately after the material was applied.

One section of lawn was sprayed with the nicotine sulfate-pine tar soap combination on May 10, July 19, and July 26, and other sections were sprayed July 26 with all four of the liquid formulae. None of the liquid sprays gave a commercial degree of control when used as indicated, although the weather conditions attending the applications of July 19 and 26 were almost ideal for work of this sort. The temperature was about 100° F. and the

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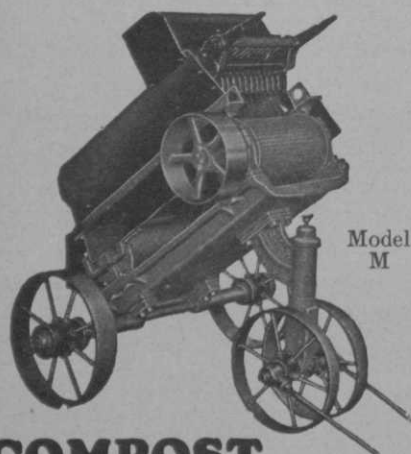
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bugs were very active. To be sure, many dead bugs were found in each spray plot but the number surviving the treatment was much too large. It is possible that, had conditions permitted a more concentrated program on the first-brood insects, a greater degree of success would have been obtained.

The nicotine-lime dust and the commercial tobacco dust were applied July 31 and the Cyanogas was applied August 19. The plots treated with nicotine-lime dust and with tobacco dust were covered with canvas, which was left in place for a period of 5 hours. The Cyanogas plot likewise was covered but for a period of 15 minutes only. This period was considered adequate from the standpoint of the effect of the treatment on the insects, and it was deemed inadvisable to continue it longer because of the possibility of damage to the grass.

In general, it may be said that all of the dust treatments yielded a satisfactory degree of control. When all points are considered, including that of safety to plants, the ground tobacco dust perhaps should be given the highest standing insofar as this test is considered, but further work might alter the relative standing indicated. Slight burning was caused by the Cyanogas, particularly at points where unevenness of distribution caused undue concentrations of the material. To supplement our findings, it may be said that Dr. Van Dyke of Canton states that he secured satisfactory control from tobacco dust. Prof. H. E. Hodgkiss of Pennsylvania State College reports that he obtained good results from the use of nicotine-lime dust.

Other workers have reported favorable results from nicotine-soap sprays, and some have obtained indications of success when rotenone was used as the killing agent.

The general consensus seems to be that some additional work remains before recommendations concerning the control of this troublesome pest can be made with absolute assurance.

New England PGA'S Get-Together
at Boston, April 9

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