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# *Chinch Bug Control In Lawns*

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# CHINCH BUG CONTROL IN LAWNS

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Brown, dead patches found in lawns in the eastern United States during the summer and early autumn are often caused by chinch bug feeding. This insect not only sucks the juices from grass plants, but also injects grasses with a salivary fluid which is probably quite injurious. Bent grasses, including redtop, are more susceptible to chinch bug injury than Kentucky bluegrass or fescue; however, young bluegrass is frequently very seriously damaged.

## IS IT CHINCH BUG INJURY?

Browning of lawns may be due to several causes besides chinch bug injury. Some of these are other insects, diseases and drought. The chinch bug is distinguished by its habit of moving outward from the center of turf areas attacked, expanding the size of the injured spots as it moves. Badly infested greensward soon shows many dried out and dead patches of various sizes and shapes. These may border one another. Grass in such lawns is ultimately displaced by weeds and crabgrass. Grass in warm, sheltered places is most likely to be attacked.

If chinch bugs are the cause of lawn injury, close examination of the dead areas will usually reveal teeming populations of the insects around the boundaries of these patches, with diminishing numbers towards the centers. In lawns where obvious injury has not developed but where it is suspected the insects may be working, examination of the crowns of the grass plants should reveal their presence. Should this test fail, a small area of lawn may be flooded with warm water to the puddling point or a tin can with bottom removed may be forced an inch or two into the turf and filled with water. If chinch bugs are present, they will float to the top in 5 to 10 minutes.

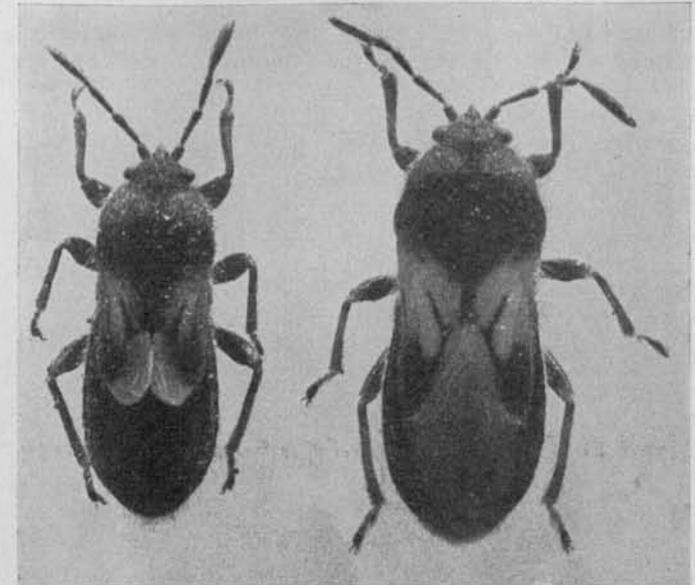
## How Chinch Bugs Look

The adult chinch bug varies from 1/6 to 1/5 of an inch in length. It is black with white wings and reddish legs. The wings cross over the back. On the outer margin of each wing is a small, triangular black spot. The immature stages, commonly called nymphs, are brick-red in color with a crosswise white band just behind the wing pads. When crushed, the insect emits a disagreeable odor.

Adult chinch bugs do not usually emerge from hibernation until the air temperature is 70° F. or above and the day is warm and clear. Occasionally, some activity may occur in early season when the weather permits at

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which time mating may take place. Females live for 20 to 30 days during which time they lay eggs continually. Each female is capable of depositing about 200 eggs. Nymphs require 30 to 40 days, and in cool weather longer, to complete their development to the adult stage. There are two generations a year.



Adult chinch bugs, magnified about 12½ times.

## Seasonal Occurrence

Weather conditions are the factor governing the number of chinch bugs in an area. Warm, dry weather during the spring months, followed by average or less than average rainfall in early summer, favors the development and survival of the insect. This is especially noticeable among the young during the latter period. A cold wet spring virtually stagnates the population, while heavy rainfall in late June and early July when the eggs are hatching will destroy a large part of the nymphal population.

## BIOLOGICAL CONTROL

The chinch bug is frequently attacked by a disease which is notably destructive during cool, cloudy, wet weather. This disease is caused by an organism called the "chinch bug fungus". During hot, dry seasons, the fungus is of little value in reducing chinch bug populations. When artificial cultures of the fungus are released during wet periods following dry weather, they tend to hold the population at a minimum. When several seasons of dry weather succeed one another, this method of biological con-

trol is valueless. Because of its obvious limitations, the use of "chinch bug fungus" has been virtually discarded as a practical control. Hence, it becomes necessary to resort to insecticides to prevent chinch bug injury to lawns.

### **INSECTICIDAL CONTROL**

Before the development of DDT and chlordan, nicotine and rotenone preparations were the chief means of controlling chinch bug outbreaks. These materials had the disadvantage of washing off easily with rain and repeat treatments were often necessary. Several of the newer insecticides do not have this drawback and have given excellent control of chinch bugs in our experiments. Chlordan gave best results in our experimental plots, with DDT-sabadilla mixture ranking second, and DDT alone third.

### **Chlordan**

Chlordan applied to an infested lawn as a 5 per cent dust at the rate of 5 pounds to each 1,000 square feet will destroy both adult and immature bugs in 24 hours or less. Its residual action in preventing reinfestation assures complete protection for two to three months or longer. Since chinch bugs become active in late spring and early summer, a treatment applied on July 1 will give protection for the rest of the season.



**Voluntary recovery of turf after treatment with Chlordan for chinch bug control. No re-seeding was done. Before treatment, the lawn looked like the one shown on the cover.**

## DDT

DDT will not destroy chinch bugs nearly as fast and completely as chlordan. In many instances the status of a treated population appears to be virtually the same 24 hours after treatment as before. As the infestation gradually declines, many adults apparently remain normally active for days. Actually, from one to two weeks are required in midsummer for complete mortality of the population and reinfestation begins to appear in about 7 to 8 weeks subsequent to treatment. For best results, DDT may be applied to an infested lawn as a 10 per cent dust at the rate of 5 to 6 pounds per 1,000 square feet.

## DDT-Sabadilla

DDT-sabadilla dust (12½ per cent DDT and 2½ per cent sabadilla), used at the rate of 5 pounds of formulation per 1,000 square feet of lawn, will give somewhat better results than DDT alone, but the combination is much less efficient than chlordan. It causes a rapid decline in population after about the second day following treatment and all of the chinch bugs will be destroyed in from 6 to 10 days. The nymphs apparently show more resistance to DDT and sabadilla than the adult bugs. Residual protection lasts for a month and a half or so.

## Methods of Application

Any of the insecticides mentioned above may be applied as taken from the package or they may be combined with sand or fertilizer as a diluent, thus providing a greater bulk of material to achieve more even and thorough distribution.

"Milorganite" has been used successfully as a carrier. It is a dry, granular, organic fertilizer which mixes remarkable well with the toxicants, the insecticidal dust adhering tenaciously to the particles of "Milorganite". "Milorganite" does not tend to burn grass; inorganic fertilizers often cause lawn damage unless used very carefully. The mixture flows evenly and smoothly from the hopper of the fertilizer distributor; clogging, which sometimes occurs when the insecticide is used alone, is avoided, and the lawn is aided in recovery by the fertilizer.

"Milorganite" may be used safely as a diluent at the rate of 10 to 30 pounds per 1,000 square feet of turf. A complete fertilizer, such as 8-6-2 or 10-6-4, may be used at the rate of 10 pounds per 1,000 square feet but must be handled with caution. Sand mixed with the insecticide at the rate of 2 to 3 pounds per 1,000 square feet will also aid distribution. Insecticides alone or mixed with a carrier should not be applied when the grass is wet.

A pressed paper or metal drum with attachable top (preferably one which can be clamped down) is a help in mixing insecticides with fertilizers. The proper amounts of insecticide and fertilizer for about 3,000 square feet of lawn should be weighed out and dumped into the drum. After the top is replaced, the drum can be turned on its side and rolled over and over for several minutes to assure thorough mixing. When

mixing is completed, the drum should be allowed to stand for a few minutes to permit the dust to settle before opening. The insecticide-fertilizer mixture is then ready for the spreader and distribution. The procedure may be followed as many times as necessary to provide material for the infested turf area.

A fertilizer or lime distributor of 12, 18 or 36 inch spread is convenient for treatment of the average home lawn. For larger areas, an 8 or 10 foot distributor drawn by a jeep, tractor or other mobile equipment convenient for the purpose will prove satisfactory. If no device for settling the dust is



**Thirty-six inch spreader for applying insecticides to lawns for chinch bug control.**

attached to the spreader, a broom or the back of a wooden rake may be used for this purpose. Mowing the lawn before or immediately after the treatment is applied is also helpful in perfecting coverage and settling the dust. When the distributor is regulated for slow gravity feed, criss-crossing the application may be helpful in applying the proper amount of material per unit area and assuring complete coverage with a minimum of over-lapping or skipping. Treatment may be made whenever convenient during the growing season.