

Kansas State Agricultural College

EXPERIMENT STATION

DEPARTMENTS OF ENTOMOLOGY AND AGRONOMY

Management of Chinch-Bug Infested Lands.

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I.

Chinch-Bug Outlook and What may be Done.

Losses in wheat, oats and corn from ravages of the chinch bug this season are already heavy. In the absence of continuous moist weather conditions, they will do immensely more harm unless efficient measures are taken against them. The problem of protecting our crops from their ravages has this season assumed a double aspect. Most of the bugs are breeding and feeding in wheat and oat fields. When the grain ripens and food fails, they will surely migrate on foot into adjacent fields of corn, Kafir-corn, cane, or millet. In some instances, however, especially where winter-killed wheat has been listed to corn, the bugs have already ruined the crop.

The migrating bugs should be prevented from reaching the corn and

other crops and *destroyed* by means of dust line or coal-tar or crude-petroleum barriers.

Where the corn has already or soon will be destroyed by the bugs it is unwise to plant another crop of which they are fond. If the locality be favorable and the farmer has means of disposing of his crop, he might profitably plant cow-peas. If this is for any reason not feasible, he can not do better than to get the ground in shape for fall-sown crops, such as alfalfa and wheat. Indeed, by early and proper preparation of his soil he may make up at least a portion of his chinch-bug losses in his increased yield of wheat or in getting a good stand of alfalfa.

II.

Use Dust or Coal-Tar or Crude Petroleum Barriers for Destruction of Chinch Bugs.

Now is one of two times when the farmer can strike the chinch bug a hard blow and destroy millions of the pest. In general there are two types of barriers—the dust barrier, which is excellent when the weather is dry but worthless when it is rainy, and the coal-tar or petroleum barrier, which is serviceable in wet weather.

The dust barrier.

To construct a dust barrier proceed as follows: (1) Plow a strip six or eight feet wide between the bugs and the field to be protected. Finely pulverize this with harrow or disc and reduce the surface to dust by dragging brush over it. Then in this strip form a furrow next the side nearest the bugs by dragging lengthwise back and forth upon it a log or heavily loaded V-

shaped trough. In the bottom of the furrow at intervals of from ten to twenty feet sink post holes a foot or eighteen inches deep. (2) Plow a deep lister furrow in place of a strip and reduce the sides and bottom of it to a fine dust by dragging heavy brush back and forth in it and then sink post holes as directed in the preceding plan. Any defective places must be dressed up with a hoe or rake. So long as the sides of these furrows are covered with fine dust the bugs cannot get out of them, and, in their efforts to cross the furrow, the insects, failing to ascend the sides, move along the bottom, where they fall into the post holes and may be destroyed with kerosene, or if the sun be hot many will perish in the superheated dust. In their persistent efforts to scale the sides of the

furrow they will, if numerous, finally remove the dust from the sides sufficiently to permit them to cross. In this event the dust must be renewed or a new barrier constructed nearer the protected field. This barrier is rendered utterly worthless by even a light rain.

The coal-tar or crude petroleum barrier

The coal-tar or petroleum barrier may be constructed in either of two ways. (1) Level off and firm down *hard and smooth* a strip free from weeds and grass about two feet wide by dragging over the surface a broad heavily-weighted plank or some similar object. To secure the best results the plank should be shod with zinc or some other metal that will slip readily on the surface. Rough and uneven places should be dressed off with hoe or shovel. Along on this smooth surface place a narrow line of coal-tar or petroleum not less than three-fourths inch wide and then, as in the case of the dust barrier, sink post holes, on the side next the bugs and as near the line as possible. It would be well to dig the holes first and place the line afterwards. Coal-tar or petroleum is very offensive to the bugs and they refuse to cross it. In their efforts to find a crossing place they run along the line and crowd one another into the holes, where they may readily be destroyed with kerosene. (2) Instead of placing the tar or crude petroleum on the level, throw up a back furrow and firm down *hard and smooth* both sides and top by dragging over it an inverted convex-bottomed through. Place the tar or petroleum line on top of the ridge thus formed and provide post holes as described above. In dry, windy weather some trouble is met in maintaining this type of barrier, owing to the fact that dirt and litter blow into it, thus forming bridges for the

bugs. By placing the line upon a ridge less difficulty, it is said, is experienced from this source. The coal-tar or petroleum should be secured and the surface on which to place the line should be prepared some time in advance of the movement of the bugs, so that all may be in readiness for placing the tar as soon as the bugs begin their march. While the bugs are coming the line must be constantly watched throughout its length and renewed from time to time as necessity may require, which ordinarily will not be oftener than twice or three times a day. One man can guard from 80 to 100 rods after it is in operation, but it will require all his time to do so.

Use kerosene.

Where for any reason the bugs get into the corn before the barrier can be constructed, the line may be placed within the corn, leaving two or more rows on which the bugs may collect. Experience shows that even in the absence of a barrier, the hungry bugs on entering a field attack only the first few outer rows and do not abandon them till their hunger is satisfied or the plants have been killed. This habit will make it an easy matter to maintain a barrier in the corn, since by providing the bugs with food the necessity for their crossing the barrier will be removed. When they have collected in large numbers on these outer rows, the bugs (and the corn, too, if necessary) should be destroyed by thoroughly drenching the insects with kerosene emulsion or pure kerosene applied with a spray pump, or by piling dry straw between the rows and burning the whole outfit.

These are not easy methods, but when the size of the stake is considered, are worth giving a thorough trial.

III.

Cultural Methods Against the Chinch Bug.

All grain fields which are infested with bugs should be plowed immediately after harvest. Begin plowing on the outside of the field and follow the plow immediately with the disc harrow and then with the common harrow, in order to close the openings between the furrows and prevent the buried bugs from escaping. The dust mulch thus produced will also prevent the bugs which are left on the unplowed land from escaping from the field.

Plow six to eight inches deep, use a coultter and weed hook, or preferably a jointer and weed hook, and take care to completely cover all stubble and trash. Should rain fall within forty-eight hours after plowing, harrow the ground again as soon as it is dry enough to renew the dust mulch.

If the ground contains no weeds upon which the bugs may feed they will leave the field as the grain approaches maturity. To prevent the bugs leaving a field of standing grain

before harvest, plow a strip about a rod wide around the outside of the field. Immediately pulverize this strip of soil so as to produce a fine dust mulch to prevent the bugs from crossing. After harvest plow the remaining portion of the field, following the binders with the plows as closely as possible.

If the bugs have left the field before the harvesting of the crop or before the plowing can be done, there is no special need to hasten the plowing.

If a field of corn is fully infested with the bugs, the sooner the field is plowed the better. If planted with the lister, such a field will doubtless already be fairly leveled by cultivation, but if the field is not level enough to

plow run over it with the disc cultivator or the disc harrow and level the ridges, filling or partly filling the furrows, and then plow deep, taking great care to turn under and cover every stalk of infested corn. Follow the plow at once with the disc harrow, and follow the disc with the common harrow to prevent the buried bugs from reaching the surface.

A good plow is much to be preferred to the lister for turning under infested stubble or for covering infested corn, since it is not possible with the lister to bury the bugs so they may not readily escape, also some weeds or corn are apt to be left exposed above the surface to furnish food for the escaping bugs.

IV.

Crops That May be Planted When Present Crop Has Been Destroyed by Chinch Bugs.

It is folly to re-plant chinch-bug infested fields with corn, Kafir-corn, cane, or millet, since these crops will only furnish more food for the bugs. The only crops which may be planted on such infested fields after this date (June 20th) which will not be immediately destroyed by the bugs are cow-peas, soy-beans, buckwheat, and alfalfa.

Cow-peas.

Cow-peas may be preferred to soy-beans for forage, but it is rather too late to plant either crop for seed production. The New Era and Whip-poorwill cow-peas are standard varieties and may be planted as late as July 15th and make a good crop of hay, or the peas may be pastured. The peas may be planted in rows 3 to 3½ feet apart and cultivated, or they may be sown broadcast or in close drills 6 to 8 inches apart and given no cultivation after planting. The last method of planting requires about a bushel of seed peas per acre, while ¼ to 1/3 of a bushel per acre is sufficient seed for planting the crop in rows. Plant 2 to 4 inches deep, using the corn planter or grain drill in preference to the lister. Or the peas may be planted in shallow listed furrows. Seed of cow-peas is very high in price this year and difficult to secure, and it may not be possible for farmers to plant this crop extensively. For further information on the culture of cow-peas send for Experiment Station Bulletin No. 160.

Alfalfa.

Corn fields badly infested with chinch bugs may be prepared as des-

cribed above and seeded to alfalfa late in August or early in September. The early plowed grain fields may also make a good seed-bed for alfalfa. Alfalfa is not attacked by chinch bugs, the crop is a very profitable one to grow, and is well adapted for growing throughout the south central part of the State, the area now worst infested with chinch bugs. At present this area is not growing nearly enough alfalfa—the farmers should plant more of it. A plentiful supply of alfalfa seed may be secured. We prefer to plant Kansas-grown or Western-grown seed rather than seed which is imported. For further information on the seeding and culture of alfalfa write for Experiment Station Bulletin No. 155.

If large areas are infested in certain localities not all of the land can be planted to alfalfa or to the other crops mentioned, but it will be advisable to plow this land as soon as possible, as described above, to destroy the chinch bugs, and let the land lie fallow until wheat planting time, cultivating sufficiently to destroy vegetation so that the chinch bugs can not thrive. Such treatment will clear the land of weeds, conserve the soil moisture, develop plant-food and put the soil into excellent condition for starting wheat next fall, and if the chinch bugs are destroyed, a larger yield of wheat will be insured next season than may be secured by ordinary culture methods.

Approved:

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Director.

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