Corn Borer In Threat Stage

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Although the European corn borer spread to many additional counties of Iowa in 1944 and more than doubled in population in the 20 counties where it was first found in 1942, the damage on individual farms was still not ruinous to any one farmer.

So we can say that the borer is still in the "threat" stage—not yet bad enough to cut deeply into Iowa's most important crop. In Muscatine County where the most borers were found this year, the average was about 126 borers for each 100 plants. This is not a heavy population when we compare it with areas in eastern states where the borer causes serious losses.

Federal workers who have been trying to find an accurate means of determining the damage have arrived at an estimate of 3 percent damage when borers average one per stalk. This means that in Muscatine County this year the damage on a 75-bushel crop of corn might have been a reduction of about 2 4/5 bushels to the acre.

On the farm of Clarence Taylor, Olin, Iowa (Jones County), we found about as heavy damage as in any field we were in this year. In spots of this field many of the stalks were broken over, but when we asked Mr. Taylor the actual yield of this field he said, "That field yielded about 70 bushels to the acre. I would estimate that the corn borers probably cut my yield about 7 or 8 bushels to the acre."

As this field was hand-picked, the ears from the lodged and fallen stalks were saved. A mechanical picker would not have gathered the ears from the ground nor on all the broken stalks, and the loss would have been greater.

That much cut in yield hurts when corn is worth about a dollar a bushel. It means a loss of $7 or $8 an acre. This is only an estimate and it might have been slightly higher or even less. If borers did that extent of damage to the entire corn crop of Iowa, it would be a substantial cut in the state's corn crop.

A survey of the 20 counties that were first found to have borers showed an average of 19.9 borers for each 100 stalks in 1943, but this jumped to 55.3 borers per 100 stalks in 1944. That is more than a double. We can't stand many doubles of borer population without individual farmers feeling it, as well as severely cutting the state's total corn yield.

Iowa "Made" for Borers

In many respects Iowa presents an ideal ground for the borer to "roll up his sleeves" and show what he can do. This is in part because we have such a large corn acreage in the state, partly because of our method of farming and partly because of our climate which makes these acreages and these methods possible.

In the eastern states where the corn borer first came into prominence, the corn acreage is small. The borer had to get out and "hunt up" fields in which to go to work. In Iowa, it doesn't have to hunt—there's just one field after another right in line.

In many of our eastern states, furthermore, very little corn is picked from the field with the stalks left standing. Most of it is cut for fodder and fed up, or is put in a silo where the borer dies. But in Iowa we pick most of our corn, leave the stalks standing, then in the spring work them down and sow a small grain crop. Borers in the stalks thus have a place to live over the winter and are at hand and ready to start work the next year.

Because of these differences, the corn borer has spread much more rapidly in Iowa than it ever has anywhere else. During 1944 we found borers in 88 of Iowa's 99 counties. It no doubt was in the others, though we failed to find it in the two which we scouted.
What Can Farmers Do?

Of course it is true that in many of these counties you had to really hunt hard to find the pest. That is true especially in the western half of the state. The maximum infestation occurs over along the Mississippi River—through Clinton, Scott and Muscatine, then extends on west through Cedar, Johnson, Iowa and Poweshiek counties. Both north and south of this tier of counties the intensity of infestation gradually decreases. It is only to about the middle of the state, however, that the borer is yet noticeable. It can be found in other counties but not in large numbers.

How much will the borer population thicken up in the counties north and south of this line? We don’t know. Our opinion is that there will probably be some counties of Iowa and certain areas that will not have great trouble with this pest, but that remains to be seen.

There were fields in Marshall County this year which had heavier infestation than Jones and Cedar counties had last year. This indicates that in 1945—if conditions are right—a good many more counties may begin to feel borer damage than did last year.

Natural and Other Checks

There are some checks on the borer increase. For example, we do not know exactly how large a percentage of the corn borers are killed by mechanical corn pickers, but we estimate that it may run as high as 20 percent and probably not less than 10 percent. There is a constant decrease in the number of borers from the time they hatch out. Weather and many other factors account for this decline. Hot dry weather at the time of moth flight causes many eggs to fall from the plants and results in death of many small borers before they can get into the plant. Such weather in Ohio, Indiana and eastern Illinois last year resulted in a great drop in borer population.

In southeastern Iowa the downy woodpeckers, we found, were working hard on the borers. Birds will play a part in holding down borer population. This past year we have liberated in Iowa many thousands of four different parasites that work on corn borers. Whether or not these will become established in Iowa, we do not know yet, but they seem to be one of the more promising “hopes” of helping nature to check borers.

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It may take 4 or 5 years to build up a parasite population—if they become established—to feel their effect on borers. In the area of the New England states where these parasites were obtained as high as 35 to 40 percent of the borers were found to be infested with parasites. Many borers are killed by them. The parasites were originally brought in from Europe and the Orient and they have been in the New England states for 5 to 15 years.

Regardless of how well the parasites do, we cannot expect them to completely solve the borer problem. They should be looked upon as another possible help.

What Can Farmers Do?

The question of what the farmers can do to lessen the damage is yet somewhat on the trial basis. We do know that if all cornstalks were completely plowed under, put in a silo or shredded, that
would pretty well take care of any large build-up of borer population.

But there is a big question of whether we can afford to plow under our huge acreage of stalks each year. It would mean a delay in the sowing of small grain crops and would cut down yields because of the delay. Whether the added expense of plowing under all stalks would be profitable, no one can say now with certainty.

One thing we are rather certain of is that farmers will need to time their planting carefully—planting neither real early nor late. The exact time will vary with the area of the state and type of soil. A sandy soil that pushes corn along rapidly, for instance, will need to be planted later than a heavy black soil that doesn’t warm up quickly. This also applies to rich, fertile soil and poor soil.

Another thing farmers need to observe, we are sure, is the hybrid they use. Light shanked varieties and those with a tendency toward weak stalks will not stand up under borer damage as will those with heavy, thick ear shanks and with stiff stalks. One borer may put the weak-stalked variety on the ground, or the ear of a light-shanked variety may drop with only one borer working in the right place, whereas the sturdy stalk and heavy shank may be able to stand up under some borer damage much better.

We do not know of such a thing as a completely “borer-resistant” or immune variety, but there are differences and we hope to find the ones that can tolerate borer damage. Until these are found, the best thing for any farmer to do in a county heavily infested with borers is to use the variety that can be planted at a medium date and mature, but which is known to be stiff-stalked and has a good shank that will not drop its ears readily.

What’s Coming?

One of the possibilities that may do much to solve our borer problem may lie with the agricultural engineer. If we can kill the borers by running stalks through a shredder, then why cannot a shredder be made part of the mechanical cornpicker? Machinery manufacturers are working on the problem, and Purdue University has developed a device that is attached to a mechanical cornpicker in such a way that it shreds the stalks at the same time it does the picking.

These devices seem to hold much promise, but they are still in the experimental stage and we cannot depend upon them until we know they will do what it seems they can be made to do.

If such a machine can be perfected, then it may be possible to go on farming pretty much as we are—disking down our stalks or plowing them under according to what the next crop is to be.

As we see the borer picture at this stage—it is still a threat so far as farmers in general are concerned. The total damage done in the state has just been estimated by the federal workers. They say it is approximately 2 million dollars for 1944. So far as individual farmers are concerned, they have not yet felt very much the effect of the borer. But if it keeps on increasing its area and its population where it is now established, it could bring heavy losses.

The thing we fear is that some year, weather man and the borer and other conditions will be “just right,” and when all factors “click” we could have a very, very heavy loss. In the meantime we shall work toward finding means of holding down the borer population and finding ways to decrease it if possible. There is no need for anyone to get too excited and conclude that Iowa is “finished” as a corn producing state. We shall continue to grow large acreages with high yields. We all need to be on our toes, however, against this common foe of our famous crop.

PIGS CAN “TAKE” DISEASED CORN

In experiments at the Iowa Station one lot of pigs was fed corn heavily infected with dry rot diseases alongside another lot fed healthy corn.

The two lots of pigs were as nearly alike as possible and were fed and handled exactly the same except for the corn.

The result was that the pigs on diseased corn did not make as fast gains nor did they gain as much per pound of corn, but they did not get sick and when slaughtered no ill effects could be found from feeding the moldy corn.

The experiment was repeated with results in both tests about the same.