Rootworms in Strip Intercropping

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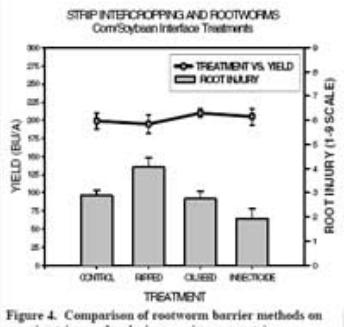
Figure 4. Comparison of rootworm barrier methods on corn in strip row bordering previous corn strip.



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Investigations continued on the Mugge Farm on the possibility of rootworm damage in the strip system. Soil was sampled for eggs, adult emergence was monitored, and root damage was rated on a 1 to 9 scale. As in 1995, rootworm eggs were found in the soybean strip but in smaller numbers. There were few rootworm eggs in the soil where corn was planted. We found evidence of only minor rootworm damage to the first row of corn caused by larvae migrating underground from the soybean strip. Root damage and adult emergence were much lower in 1996 than in 1995. It is interesting to note that 1996 yield in the outer corn row was higher than that in the other five rows. We speculate that overwinter mortality and a cool wet spring may have reduced numbers of surviving rootworms.

Three barrier treatments were tried at the corn/soybean interface to test their effect on rootworm movement into the outer corn row. These treatments included: Counter® soil insecticide, crambe oilseed meal, and a tillage treatment in which the soil was ripped to about 9 inches depth with a cultivator shank (Figure 4). The oilseed meal treatment was included because research has shown this material to be toxic and repellent to soil-dwelling insects. The tillage treatment was intended to disrupt old root channels and soil pore structure that could be used by rootworm larvae moving toward corn roots. Evidently the tillage treatment had the opposite effect, since root damage was highest and yields lowest in the areas that were ripped (Figure 1). Very few emerging adults were observed in any of the treatments. This suggests to us that compaction of soil at the corn/soybean interface may be a means of limiting rootworm movement into the first corn row.