

Wireworms in Florida Sugarcane ¹

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Wireworms, the larval stage of a click beetle, often cause severe damage to numerous crops in Florida. At least twelve species of wireworms have been found in southern Florida, but only the corn wireworm, *Melanotus communis*, is considered to cause significant economic damage to sugarcane. Since *Melanotus communis* is the important wireworm species, the rest of this document will pertain to this species.

Biology

Adult click beetles may be collected during all months of the year, but they are most numerous during May, June, and July and are scarce from September to March. The beetles are brown and about 5/8" long.

The larvae of click beetles are called wireworms because they resemble a jointed piece of stiff, bright, brownish-yellow wire. *Melanotus communis* wireworms are approximately 1-1/4" in length when fully grown (Figure 1). They are soil pests and attack the underground portions of the sugarcane plant.



Figure 1. Wireworm larva.

Wireworms are generally found under sugarcane stools rather than between stools in a row or between rows. Wireworm populations are lowest in the summer and increase rapidly in the fall staying fairly constant thereafter. However, *M. communis* are slightly smaller in the fall than the rest of the year.

Damage

Generally, wireworms are a pest of newly planted sugarcane and only rarely a pest in ratoon sugarcane. Wireworms feed on the buds and root

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primordia during germination of sugarcane seed pieces, and on shoots and roots after germination. Most of the injury to young shoots is near the point where the shoots join the seed piece or stubble. Wireworm injury can generally be identified as relatively large, ragged holes cut into seedpieces and buds, or into young shoots (Figure 2). The death of buds or young shoots leads to stand reductions. Wireworm injury has been reported as facilitating the entrance of the fungus that causes sugarcane red rot disease.

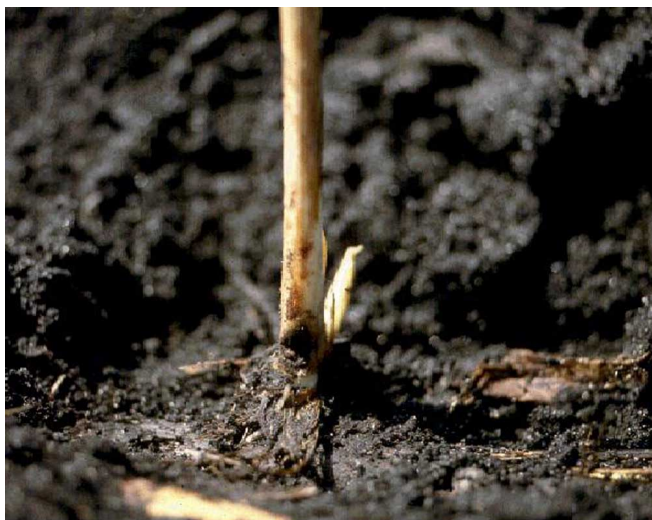


Figure 2. Wireworm damage.

Field studies have shown that significant stand reductions during early plant growth may occur at infestation levels of fewer than 4 wireworms per 5 feet of row. One recent study showed that one wireworm per 5 row feet could cause 6.2-7.8% stand reduction at twelve weeks after planting. Tillering may compensate for some of the early stand losses, but, at harvest, stalks from infested sugarcane fields tend to weigh less.

In a large plot study, the weight of cane harvested was reduced by 3.8% per wireworm per 5 feet of row. Stand reductions in plant cane caused by 8 to 12 wireworms per 5 feet of row carried over into the first ratoon crop and resulted in lower ratoon crop yield.

Control

Biological

Although there are a small number of insect parasites that attack wireworms, biological control of wireworms in south Florida by beneficial insects and diseases has generally been considered to be insignificant. Birds such as the cattle egret may sometimes be of value in reducing wireworm levels because they may consume wireworms that are exposed at the surface of the soil when a field is disked or cultivated.

Cultural Practices

Flooding for wireworm control can be effective but is a slow process and may not be practical. More studies are needed, but the current information suggests a minimum of six weeks of continuous flooding is needed during the summer to obtain wireworm control. Longer flooding durations are needed during colder months.

Flooding during late spring and summer will kill the wireworms and also prevent egg-laying by the adult click beetles. Fallow field flooding or growing rice as a rotation crop may eliminate the need to use a soil insecticide at sugarcane planting the following fall. Growing a ratoon rice crop may offer slightly increased control during years when click beetle activity extends into July and August.

Chemical

Soil insecticides are generally used in newly planted sugarcane for wireworm control. Insecticides are not used for wireworm control in ratoon sugarcane. No resistance to insecticides has been reported to occur in wireworms in Florida sugarcane.

Some Florida sugarcane growers do not use a soil insecticide at planting knowing that previous flooding of fallow fields or rice fields reduces wireworm populations. However, these fields account for only a small percent of sugarcane fields. Florida sugarcane growers on sandy soils sometimes do not use a soil insecticide at planting in the belief that fewer wireworms are in sand than muck soils where most sugarcane is grown. Again, these fields account for

only a small percent of sugarcane fields and a study did report that high wireworm populations do occur there, although not as frequently as in muck soils. Another study concluded that label rates for phorate, a soil insecticide for wireworm control in Florida sugarcane, may be too high for effective control. These previous studies have brought into question when to use soil insecticides at sugarcane planting. However, Florida sugarcane growers have not had a useful sampling method to help them in this decision. Recently, a simple sampling method has been tested that may be of use to Florida sugarcane growers to determine the necessity of soil insecticide application at planting.

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