



False wireworm spring damage (photo courtesy of Sarah Zuckof, Kansas State University)



False wireworm larva (photo courtesy of Sarah Zuckof, Kansas State University)

### False wireworms in winter wheat

Several species of false wireworms, *Eleodes* spp., occur in the drier areas of the Great Plains. More than one species may be found in a given field and which species are present may be due, in part, to soil type. The flightless adult false wireworms are known as darkling beetles. These are large black or reddish brown beetles, which can be recognized by the odd angle that the body is held at when they run. The larvae are similar in appearance to wireworm larvae, except they have longer legs and antennae. False wireworm adults lay their eggs in loose soil and most of the life cycle is spent as adults. Larvae will be found at varying depths in the soil, depending on temperature and moisture. Life cycles are variable, depending on the species.

In a typical life cycle (*Eleodes suturalis*), adults, which feed on a variety of seeds and other plant material, may live for several years. They lay eggs in the spring. Larvae will feed on germinating seeds, seedlings and larger plants from a variety of species. Egg laying takes place again in late summer. These larvae will feed on germinating seeds and seedlings, often of winter wheat. They will overwinter along with adults. In the spring, they will resume feeding until they pupate in the soil.

False wireworm larvae typically damage wheat in the fall by feeding on seeds, seedlings and young plants, resulting in lost stand. Yield losses occur if plant population losses are large enough to overcome the compensatory ability of the crop. The spring damage is depicted in the photos.

No applied biological controls exist for the control of false wireworms, however, they are affected by a variety of pathogens, parasitic insects, and predatory insects and birds. They also are cannibalistic.

Cultural practices that promote rapid germination and seedling growth help to shorten the period that the plant is most vulnerable to attack. Since the larvae and adults generally are associated with living plants, the use of tillage during the fallow period seems to have little

potential. Given that wheat is an highly favorable and susceptible host for these species, rotation to less susceptible crops may be an important method to reduce damage. Piles of decomposing straw and other vegetation provide attractive shelter for adults and thus should be avoided when possible.

Abundant false wireworm (darkling) beetles in the summer would signal the potential of problems in the fall if weather remains hot and dry. In addition, soil samples can be sifted in the prior to planting to look for larvae. An average of one larva per three square feet suggests an infestation of economic importance

Seed protectants containing imidacloprid or thiamethoxam are labeled for control of wireworms in wheat, at rates lower than those recommended for aphids and Hessian fly. False wireworms are related to true wireworms, so it is possible that these products also may be used to control false wireworms, however, no data are available to confirm this. Nonetheless, Australian data suggest that both of these active ingredients are effective against several false wireworm species (same family but different species and environment). If effective, seed protectants would limit fall damage and reduce the number of overwintering larvae. It is unlikely that seed treatment would have any affect on spring damage (other than reducing the abundance of overwintering larvae).

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