

Sorghum Nematode Management ¹

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Nematodes That Attack Sorghum

Sorghum is a host for sting (*Belonolaimus longicaudatus*), stubby root (*Paratrichodorus* spp.), lesion (*Pratylenchus* spp.), and ring (*Criconemella* spp.) nematodes. Damage from these nematodes to sorghum is usually not severe unless the crop has been monocultured for several years. Field corn and millet share many common nematode pests of sorghum. If these crops recently had a problem with nematodes in a specific field site, sorghum could possibly be affected if planted at the same location. However, sorghum's apparently greater tolerance to water stress than field corn makes it less sensitive to similar soil population densities of plant-parasitic nematodes.

Diagnosis

The presence or potential for nematode problems in sorghum could be suggested by one or more of the following: 1) Cropping history of the field, e.g. two or more years production of sorghum, other grass crops or equally nematode-susceptible crops; 2) Above-ground symptoms including off-color and/or stunted sorghum in spots or large areas of a field; 3) Below-ground symptoms such as small knots on roots or stunted and swollen root tips.

Symptoms

Above-ground symptoms of nematode injury could include stunting, thin stands, premature wilting under moderate heat or drought stress, and nutrient deficiency symptoms. Since nematode numbers can vary greatly within very short distances in the field, areas of stunted growth, yield reduction, and other above-ground symptoms of nematode damage vary greatly in shape, size, and distribution.

Nematode Assays

Nematode problems of sorghum can only be determined accurately by nematode assay. Prior to taking samples, contact your county extension agent for information concerning available sampling tools, shipment bags and proper procedures for submitting samples. Samples should not be taken when the soil is dusty dry or soggy wet. Two sampling strategies may be employed. A general survey should be performed every two to three years, and soil samples should be taken soon after the summer crop has been harvested. A soil core (1-inch wide by 8-10-inches deep) should be taken for each acre in a 10-acre block containing a uniform soil type and cropping history. The cores should be thoroughly mixed and a 1-pint sample

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extracted and placed in a sealed plastic bag and kept cool (not frozen) before immediate shipment to an advisory laboratory. In a more definitive strategy where a nematode problem is suspected, several soil cores from within and immediately around a poor growth site should be taken while the crop is still growing. Include portions of damaged roots with the soil sample. These samples should be as described above.

Management

Crop Rotation

Sorghum is more likely to be used as a nematode management tool in rotation with other crops than be the object of a nematode management program. Sorghum should not be used for rotation on land infested with sting, stubby root and/or lesion root nematodes to which it is susceptible, however, it is an excellent crop to rotate with other crops to reduce numbers of several kinds of plant-parasitic nematodes. Most varieties of sorghum are moderate to poor hosts of root-knot nematodes (*Meloidogyne* spp.). Sorghum is a non-host for soybean cyst (*Heterodera glycines*) and reniform (*Rotylenchulus reniformis*) nematodes. Hence sorghum is a good management tool in the production of cotton, peanut, soybean, and many vegetable crops.

Nematicides

Nematicides have been approved for use in sorghum production (Table 1). We lack sufficient research data on sorghum to determine exacting nematode population level requirements for chemical treatments, but some very high levels of these nematodes may justify nematicide use. It is expected that the nematode population levels requiring economic threshold for treatment of sorghum will be higher than that for corn. As with other crops, the expense of chemical treatment is more easily justified if the crop is managed for very high yield than when being maintained at a low input level.

Although Temik formulations have been approved for use on sorghum, application of this nematicide is subject to several use restrictions:

- Temik should not be used in a field for more than one application per year.
- Application must not exceed seven pounds per acre.
- Sorghum must not be harvested within 90 days of application.
- Forage must not be fed to livestock and livestock must not be allowed to graze in treated areas before harvest.

In addition there are restrictions on planting any crops not listed on the Temik label in soil treated with Temik within ten months after the last application.

The following are required by the Florida Department of Agriculture and Consumer services governing the use of Temik:

- A report of intended application of Temik shall be posted to FDAC at least 30 days before application.
- Temik cannot be applied closer than 300 feet from a drinking water well.
- Any wells within 300 feet of or in a treated area shall be posted to be unfit for human consumption.

Fields to be treated with Temik shall be so posted conspicuously at least 24 hours before application and for a minimum of 30 days afterwards.

Table 1. Nematicides that may be used for the management of nematodes on sorghum.

| Nematicide¹ | Application¹ |
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| Counter CR | 5.2 oz. / 1000 ft. row in a 7-inch band and incorporated at planting. No more than 9.8 lb. / acre, regardless of row spacing. |
| Telone II | 28 fl. oz. / 1000 ft. row/outlet via a single chisel to a soil depth of 12-14 inches. |
| Temik 15G | 7.5 oz. / 1000 ft. row in a 7-inch band and incorporated at planting. No more than 7 lb. / acre, regardless of row spacing. |
| ¹ Please consult labels for pesticide handling and use restrictions. | |