

Aberdeen Plant Materials Center



OILSEED RADISH FOR NEMATODE CONTROL

Radish (*Raphanus sativus*) is a great addition to almost any cover crop mix, and NRCS commonly recommends cover crop mixes that include radish as a component. However, radish has many different varieties which have very similar and at the same time very different benefits when it comes to soil health and crop production. For example, certain varieties of radish differ greatly in their effect on different nematode species. Many radish varieties can actually increase nematode populations, while others can be an effective means of decreasing nematode problems. The US is currently in a position to benefit from information gained from those countries where, because nematicides are restricted or outlawed, they have learned how to use radish as their primary means of nematode control.

The purpose of this publication is to outline some of the major problem nematode groups, and to highlight varieties of radish that are commercially available to control these nematodes. Radish is a bio-control measure; complete eradication should not be expected. Radish can be used to control nematodes in one of two ways. First, radish contains certain levels of glucosinolates in their top growth, and when incorporated into the soil, will naturally biofumigate the soil. Second, oilseed-type radish varieties listed below work as a lure crop for nematodes, particularly the sugarbeet cyst nematode. The presence of the radish exudates stimulates hatching, but nutrients required for reproduction are lacking and they simply die off. Crop rotations with known non-host plants such as these radish varieties have proven to be effective at reducing nematode populations. Contact radish variety suppliers for complete recommendations for their use. Other varieties of radish may be available but not listed and should be studied to make the best choice if you have a nematode problem.

Nematode Affected	Radish Variety	Recommended Seeding Rate (lbs/ac) *
Sugarbeet Cyst Nematode (SBCN)	Control	25
	Concord	25
	Defender	18-20
	Image	10-12
Columbia Root Knot Nematode (CRKN)	Carwoodi	10-12
	Concord	25
	Control	25
	Defender	18-20
Stubby Root Nematode (SRN)	Defender	18-20

*Drill seed rate.

Sugarbeet cyst nematode (SBCN) (*Heterodera schachtii*)

SBCN is a major nematode affecting sugar beets in Idaho and Oregon.

- **Life Cycle:** Six stages, completed in 4-6 weeks.
- **Reproduction:** Requires a male, hatches when specific plant exudates are present, forms cyst with as many as 500 eggs.
- **Mobility:** Sedentary nature as females form a cyst.
- **Persistence:** Cysts persist in the soil for many years, but without a host plant, eggs and larvae decline at a 40-50% rate each year.
- **Hosts:** Include red table beet, radish (excluding the ones listed above), mustard, chickweed, nightshades and goosefoot.

Columbia root knot nematode (CRKN) (*Meloidogyne chitwoodi*)

CRKN causes less economic damage than SBCN but are still a serious concern.

- **Life Cycle:** Six stages, completed in 20-25 days.
- **Reproduction:** Requires a male, hatches when favorable conditions exist, forms sack with 50-1000 eggs.
- **Mobility:** Sedentary nature as females form an egg sack.
- **Persistence:** Survives in soil or on plant tissue as eggs or as stage-two larva over the winter.
- **Hosts:** Include alfalfa and potatoes.



A juvenile root-knot nematode. Photo by William Wergin and Richard Sayre. Colorized by Stephen Ausmus.

Stubby root nematodes (SRN) (*Paratrichodorus* or *Trichodorus* sp.)

SRN prefers sandy, moist, cool soils. Crop rotations are largely noneffective as host plants are wide.

- **Life Cycle:** Six stages, completed in 2 ½ -3 weeks.
- **Reproduction:** Depending on species may or may not require male, hatches without specific plant exudates.
- **Mobility:** All stages live outside the plant therefore a mobile nematode.
- **Persistence:** Can survive winters below the frost line and could have many generations at once in one area.
- **Hosts:** Include potatoes and cereal crops.

Mention of a specific product does not constitute an endorsement by NRCS. For more information, contact your local NRCS field office or University Extension.