

NEMATODE CONTROL FOR POTATOES

CONTROL radish is a great way to keep Columbia Root Knot Nematodes (*Meloidogyne chitwoodi*) in check. In Europe where CRKN is a quarantined pest and basically no soil fumigants are allowed, potato growers rely on nematode-resistant radishes for the production of high quality potatoes. In order for European potato growers to use a nematode-resistant radish, it must pass a series of stringent field and greenhouse tests proving in multiple years it can effectively decrease CRKN populations by up to 98.5%, which **CONTROL** radish has achieved!

Mode of Action: Control radish reduces CRKN populations by being resistant to the reproductive life-cycle of these nematodes. CRKN are free living nematodes in the soil and can hatch at any time with or without a host plant. **CONTROL** radish has been bred to be resistant; meaning that when the eggs hatch, the female CRKN begin to feed on the roots of **CONTROL** radish which does not have enough nutritional value for the females to survive. It is very important to eliminate any host plants or weeds in your field when growing **CONTROL** radish and allow a minimum of eight weeks of growth to obtain the maximum decrease in nematode populations. Additionally, **CONTROL** radish has shown good reductions in Stubby Root, Root Lesion and Stem and Bulb nematode populations. The mode of action is also the same for **MASTER** mustard and **PRATEX** oats.

CRKN are fairly immobile in the soil so planting a high density seed population of 25 pounds per acre of **CONTROL** radish is necessary to combat this pest. It is highly recommended to only use **CONTROL** radish when a grower receives a nematode sample back from a certified lab showing any population of CRKN. Do not use in a mix since this can lead to a diluted concentration of active roots per square foot. When following wheat, spray out the volunteer grain with a selective grass herbicide since wheat is a host for CRKN.

MASTER mustard doesn't have the superior level of resistance towards CRKN like **CONTROL** radish does. The use of **MASTER** is recommended as a maintenance tool or if the grower will apply a fumigant like Telone II after this crop. Plant **MASTER** at a rate of 20 pounds per acre and allow a minimum of eight weeks of growth to obtain the maximum decrease in nematode populations.

PRATEX oats are a great tool to reduce Stubby Root Nematode (*Trichodorus* spp) which is a vector for Tobacco Rattle Virus (spread by nematode feeding) which can lead to Corky Ring Spot in potatoes. **PRATEX** is also effective at reducing Root Lesion Nematode (*Pratylenchus* spp). Plant **PRATEX** at a rate of 70-110 pounds per acre and allow a minimum of eight weeks of growth to obtain the maximum decrease in nematode populations.

The use of a mix, such as the Vegetable NR Mix is an excellent way to target multiple species of nematodes that have a negative impact on potatoes. This is a mix of 75% **PRATEX** oats and 25% **CONTROL** radish. Use this in a maintenance program to keep the targeted populations down. This mix is not a good option for bio-fumigation since there are no glucosinolates in the **PRATEX** oats. Plant at a rate of 40-50 pounds per acre and allow a minimum of eight weeks of growth to obtain the maximum decrease in nematode populations.

Bio-fumigation is the process of flail chopping your brassica plant like **CONTROL** radish then immediately incorporating it into the ground. **CONTROL** radish and **MASTER** mustard both have high levels of glucosinolates which through this process convert to an organic form of metam-sodium (VAPAM). To maximize the highest levels of glucosinolates in your crop, at seeding, apply an N to Sulfate Sulfur ratio of 5:1. Depending on previous crop residue such as wheat or barley, applications of 100 pounds of Nitrogen will be required due to fertility tie-up of grain stubble. Sulfate Sulfur is the building block for glucosinolates and a naturally occurring enzyme in the plant called myrosinase. When you initiate flail chopping and break down the brassicas into small, finely chopped pieces, the glucosinolates and myrosinase hydrolyze leading to the formation of isothiocyanates (metam). Immediately incorporate chopped material into the ground to prevent any gassing off and do not disturb soil for a minimum of seven days. In general, **MASTER** mustard has higher levels of glucosinolates than **CONTROL** radish. Remember, there are no glucosinolates in **PRATEX** oats.

Lastly, treat these nematode-resistant crops like a cash crop for best results. Plant as early as you can for more bio-mass and root mass growth.

