

Penergetic Wireworm and Rootworm Abatement Program

Both wireworm and rootworm are major pests that can cause losses to various field crops.

- **Wireworm** predominantly attack corn, small grains and potatoes. The larvae live and develop in the soil and injure plants by eating the young plant as they emerge and by boring into stems, roots and tubers.
- **Rootworm** have been a pest in the U.S. Mid-West for over 50 years and is the single greatest contributor to economic loss in corn growing regions in North America. It is estimated that rootworm species cause over \$1 billion in corn yield loss and control costs in the U.S. each year.

Adult beetles feed on corn foliage and silks of developing corn ears which negatively affects pollination and cob development. Contaminant at harvest can also be an issue for the fresh sweet corn market. Yet, like wire worm, rootworm's larvae stage is the most damaging stage. They feed on corn roots, compromising plant growth and stability, resulting in tipping plants, lodging, and poor yields in both sweet and forage corn. Plants may lodge or tip over, or may simply look weak and drought-stricken.

Standard Control Methods: Insecticide application at the time of planting will kill larvae hatching from overwintering wireworm and/or rootworm eggs in the soil before they can feed on and damage plant roots. Alternatively, corn hybrids that are resistant to corn rootworm are grown. These alternatives can be expensive and in the case of insecticides are poisonous.

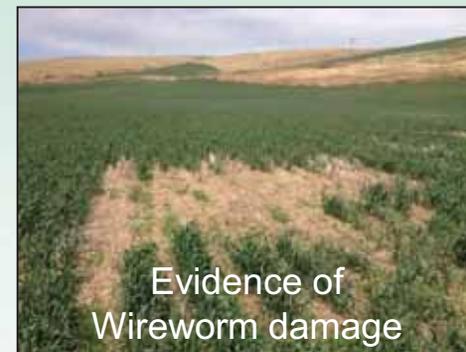
Wireworm and Rootworm Abatement with Penergetic

Trials and on farm use of Penergetic p and k have shown that they can be effective in controlling and preventing damage from both of these pests. Yet, Penergetic products rather than "killing the pests" have the effect of creating an inhospitable environment thereby deterring these destructive pests from causing damage.

As the following pages (and accompanying video) will show, Penergetic k 315 and Penergetic p 455, used either in powder or liquid form help prevent wireworm and rootworm from becoming pests in potentially at risk field crops.



Wireworm larvae

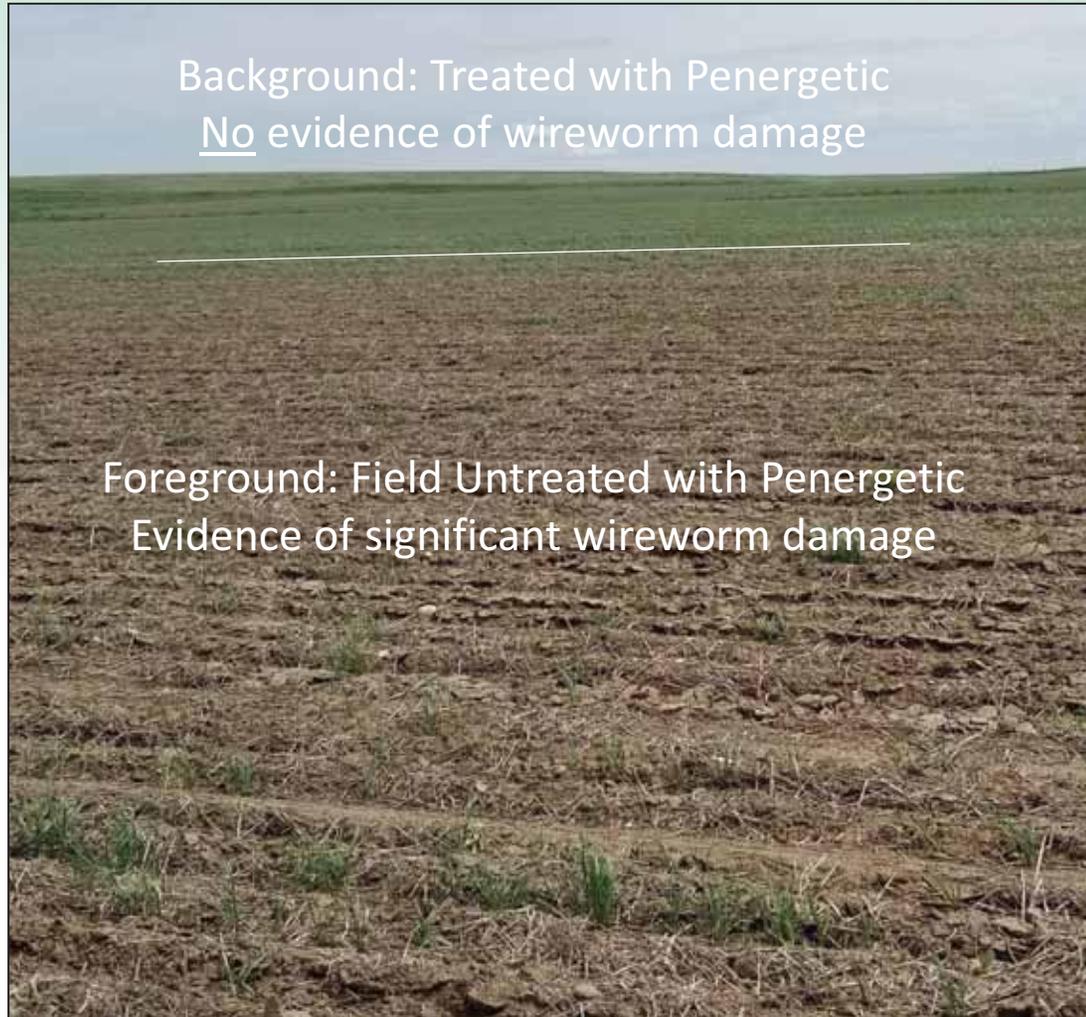


Evidence of Wireworm damage

Penergetic	Soil Treatment (Spring & Fall)	Seed Treatment	Vegetative Stage	Heading to Maturation	Comments
	oz. / acre	oz. / bu	oz. / acre	oz. / acre	
Pen K 315U3 (for soil)	14 oz.				Soil application. Apply separately or with herbicides, pesticides or granular fertilizers.
Pen P 455U3 (for plants)		3.5 oz. (in furrow)			Use as seed dressing. Can be applied with other insecticides.
Pen P 455L3 (for plants)			3.5 oz.		Foliar apply, including with herbicides, herbicide or pesticide. For best results, based on soil analysis, fertilizer rate may be reduced when Penergetic is used.
Pen P 455U3 (for plants)				3.5 oz.	

* Alternatively, use penergetic p (released) at 3.5 oz. ac./ac.

Contrasting Difference Between Penergetic Treated and Untreated

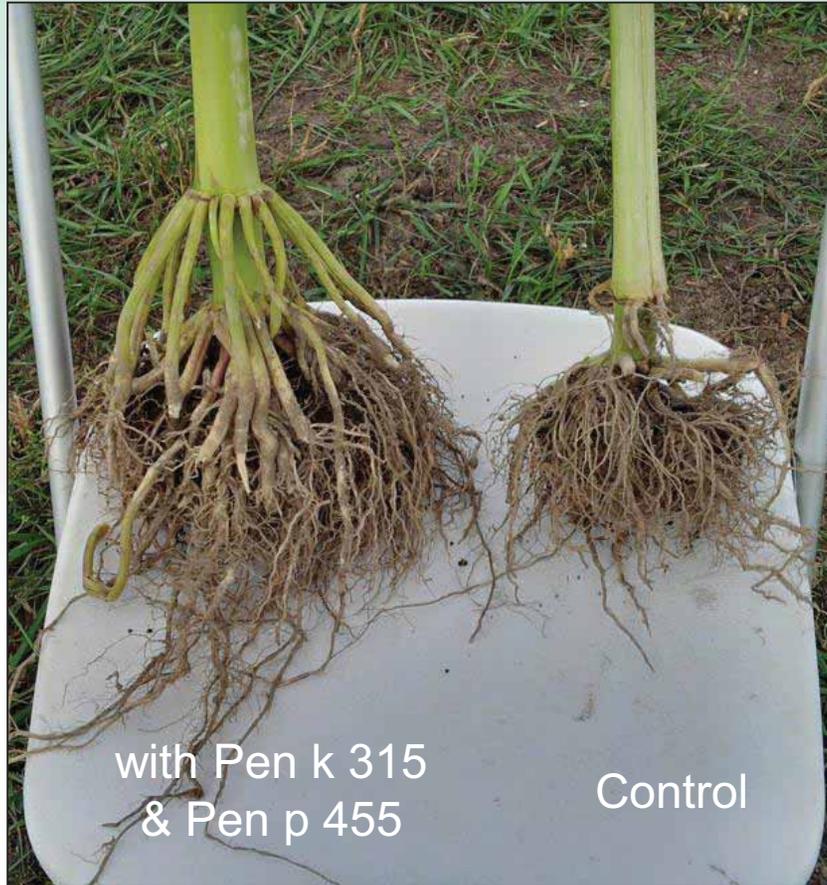


Suppressing Soil-borne Pests

Wire worm – Root worm



Root worm
damaged corn



Corn comparison exposed
to root worm infestation



Adult root worm
on corn leaf

CORN WITH ROOT WORM

Penergetic P 455 Seed Treatment vs. Control



with Penergetic P 455
(no root worm damage)



without Penergetic
(root worm damage)

Aerial view (from drone):
showing difference in sections
of field where Penergetic P
455 seed treatment was used
(no evidence of root worm
damage) and where it was not
used (extensive evidence of
root worm damage).

[** Similar results observed
with respect to wire worm.]



with Penergetic P 455 || without Penergetic



View Video

Contact your PENERGETIC SOLUTIONS Representative
for more information