



biottrinsic® Z15 and biottrinsic® N11

Protect Row Crops from Plant Parasitic Nematodes



- Two microbial seed treatments that effectively manage plant parasitic nematodes in corn and soybean with no negative impact on plant-beneficial nematodes and soil health.
- Reduce nematode juveniles from infecting plant roots and effectively manage harmful nematode populations in the soil.
- Field efficacy on par with synthetic and biological nematicides across multiple crops, nematode species, and geographies.
- Formulation: produced as flowable powders with a long shelf-life and on-seed stability.

PRODUCT BACKGROUND

biottrinsic® Z15

TAXONOMY	Streptomyces sp. strain SYM00257
MICROBE SOURCE	Surface sterilized corn seed
APPLICATION RATE	Corn: 1 vol oz/CWT (0.36 g/kg) Soy: 1 vol oz/CWT (0.36 g/kg)
TARGET PATHOGENS	Cyst Nematode (<i>Heteroda</i> spp.) Root Knot Nematode (<i>Meloidogyne</i> spp.)
FORMULATION	Flowable Powder
IRAC CODE	N-UNB: Bacterium
PRODUCT SHELF LIFE	12 months at 22
ON-SEED STABILITY	Soy: 120 days at 22 ° C Corn: 90 days at 22

biottrinsic® N11

TAXONOMY	<i>Pseudomonas oryzae</i> strain SYM29345
MICROBE SOURCE	Portia tree
APPLICATION RATE	Soy: 0.5 - 1.0 g/kg
TARGET PATHOGENS	Cyst Nematode (<i>Heteroda glycinis</i>) Root Knot Nematode (<i>Meloidogyne incognita</i>) Lesion Nematode (<i>Pratylenchus brachyurus</i>)
FORMULATION	Flowable Powder
IRAC CODE	N-UNB: Bacterium (submission in preparation)
PRODUCT SHELF LIFE	12 months at 22 ° C
ON-SEED STABILITY	Soy: 280 days at 22 ° C

MODE OF ACTION

1 COLONIZATION

biottrinsic® Z15

biottrinsic® Z15 (green) grows with roots (red) to expand defensive protection

biottrinsic® Z15 grows on the outside surface of roots

biottrinsic® Z15 grows along root cap creating a living zone of protection

biottrinsic® N11

biottrinsic® N11 (green) creates a protective biofilm on the surface of corn roots (red)

biottrinsic® N11 surrounds emerging soybean root hairs

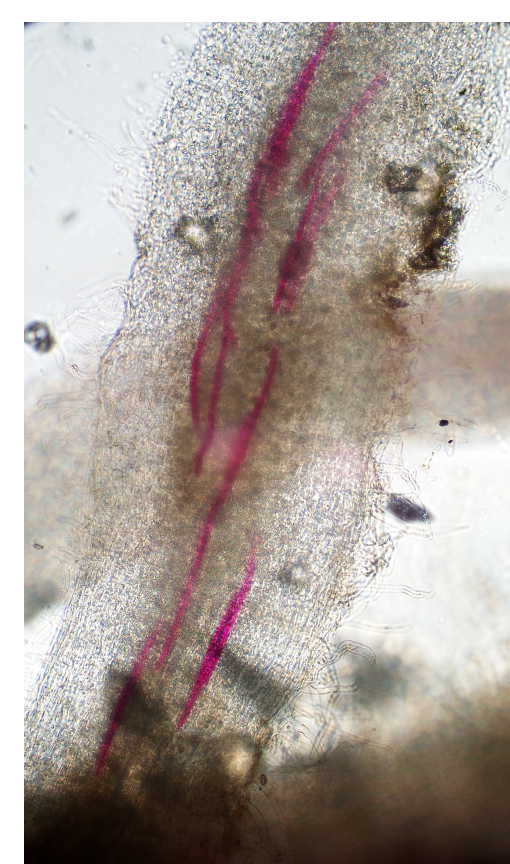
biottrinsic® N11 grows within soybean root tissue

2 DISRUPTING THE NEMATODE LIFECYCLE

biottrinsic® Z15

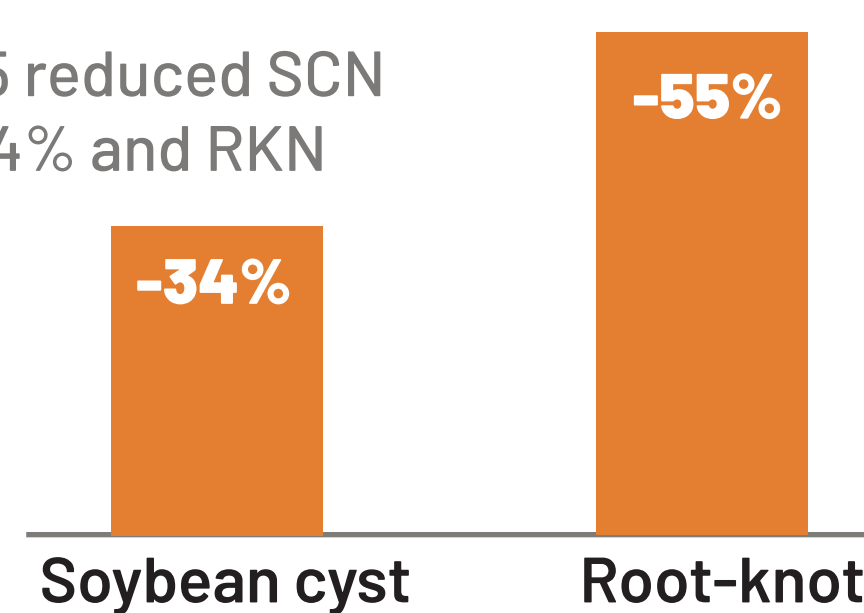
produces a compound called Geosmin, which acts as a deterrent to J2 nematode juveniles (the infectious stage of nematodes).

The outcome of this is significantly fewer juveniles inside plant roots, which disrupts the nematode lifecycle.

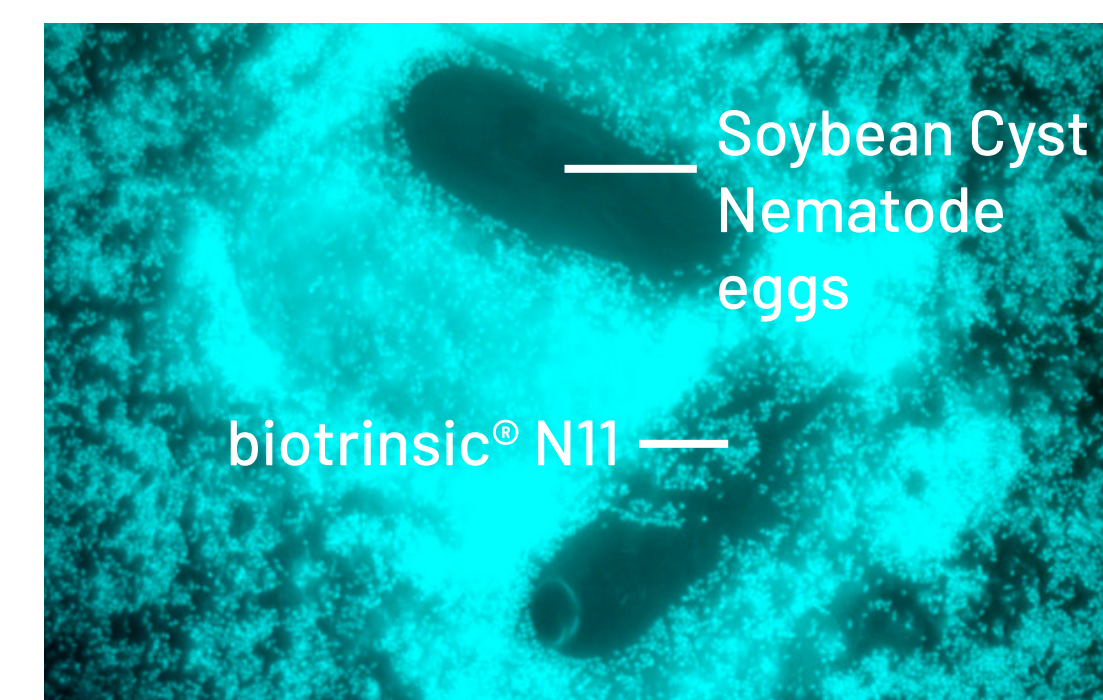


Juvenile root-knot nematode in red

biottrinsic® Z15 reduced SCN infection by 34% and RKN infection by 55% in greenhouse trials



biottrinsic® N11



biottrinsic® N11 colonizes soybean cyst nematode (SCN) eggs disrupting the conditions for the eggs to hatch. In vitro experiments demonstrated up to a

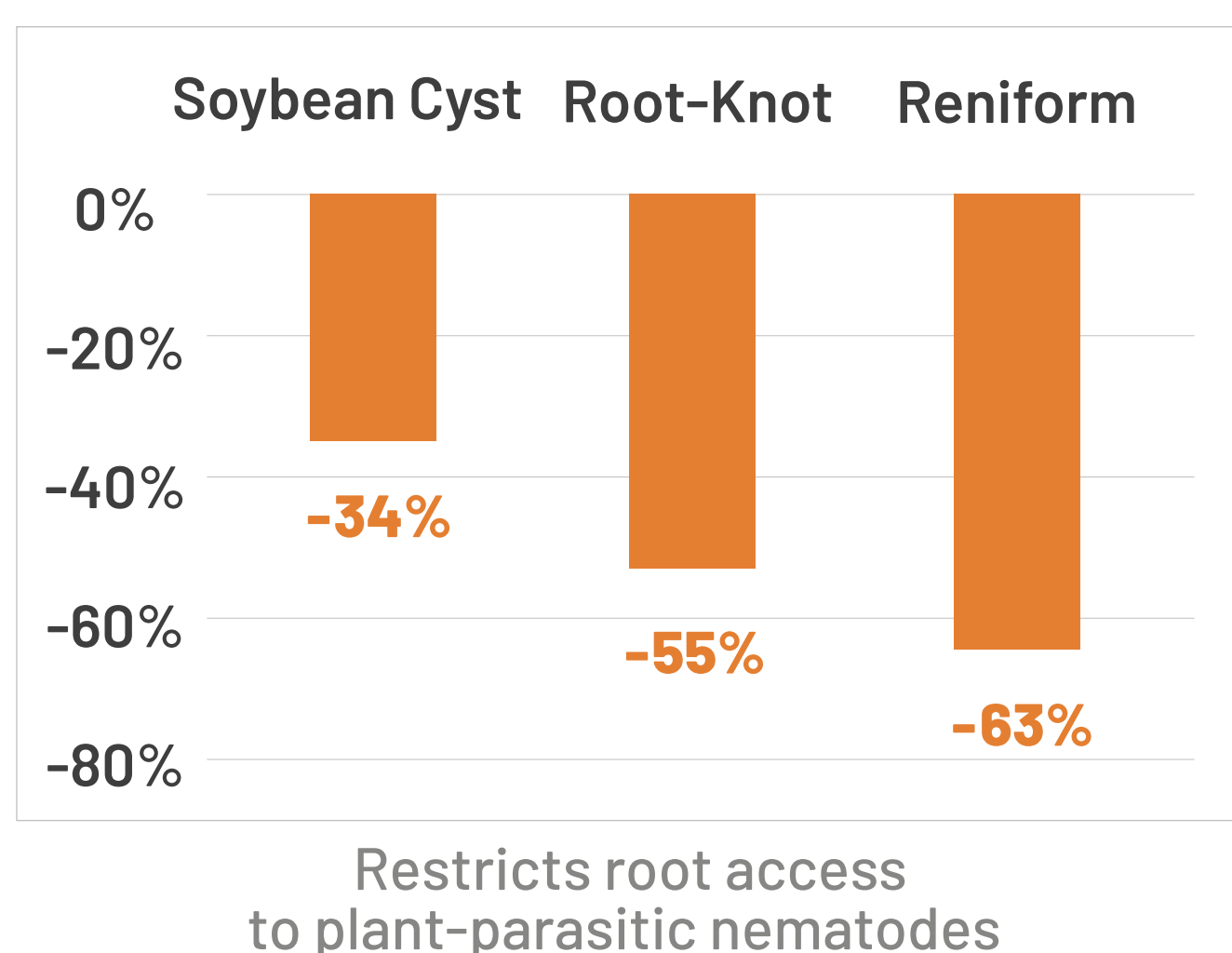
25% reduction in SCN eggs hatching

compared to the control. With fewer eggs hatching there are fewer SCN juveniles available to infect plant roots, which disrupts the lifecycle within the soybean growing season.

RESULTS

biottrinsic® Z15

Percent reduction in juvenile infection in soybean roots from biottrinsic® Z15 (combined lab and field analysis)



UNTREATED biottrinsic® Z15

60% decrease in soybean cyst formation on roots and a 48% increase in seed pod formation, 92 days after planting*



UNTREATED biottrinsic® Z15

biottrinsic® N11

biottrinsic® N11 has demonstrated ability to reduce SCN nematode juvenile and egg populations on soybean roots across 3 years of trialing in Brazil. Measurements taken 75 days after planting show the product is competitive and can protect roots throughout the growing season.



UNTREATED biottrinsic® Z15

Percent reduction in eggs on soybean roots from biottrinsic® N11 vs. untreated (field analysis Brazil, 2020-22)



Percent reduction in juvenile infection in soybean roots from biottrinsic® N11 vs. untreated (field analysis Brazil, 2020-22)

