



Technical Overview

Syngenta offers Clariva™ Complete Beans nematicide/insecticide/fungicide, a combination of separately registered seed treatments that adds the revolutionary nematicide Clariva pn to the market-leading, broad-spectrum seed treatment of CruiserMaxx® Beans with Vibrance® insecticide/fungicide.

The following bulletin outlines the technical specifications of *Pasteuria nishizawae* (*P. nishizawae*), the active ingredient in Clariva pn.

- Provides season-long spore activity against SCN
- Works under varying environmental conditions
- Lethal to nematodes, delivering immediate infection protection from day one.
- Does not harm non-target organisms
- Reduces SCN feeding and reproduction across all known *Heterodera glycines* (HG) types
- Complements crop rotation and resistant varieties
- Does not affect flow or plantability of treated seed



P. nishizawae

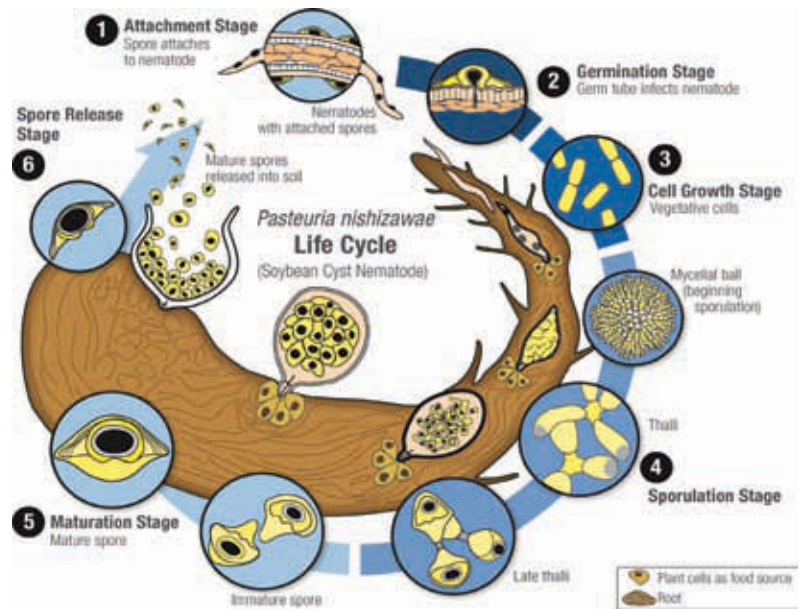
P. nishizawae is one of four nominal species belonging to the bacteria genus *Pasteuria*. The recent, successful *in vitro* production of the bacterium has enabled Syngenta to develop the seed treatment nematicide Clariva pn, which is a component of Clariva Complete Beans.

Through the active ingredient *P. nishizawae*, Clariva pn offers soybean growers revolutionary protection against soybean cyst nematode (SCN), a pest responsible for approximately \$1.5 billion in annual soybean yield loss. As an endospore-forming bacterium and natural obligate parasite of SCN, *P. nishizawae* delivers a direct mode of action that reduces SCN feeding and reproduction, ultimately killing the nematode.

How it works

Once treated seed is planted, *P. nishizawae* spores are released into the surrounding soil. The spores attach to the outer layer of second-stage juvenile SCN as they pass through the treated soil. Once attached, the spores produce germ tubes that penetrate and infect the nematode's interior body. The infection results in reduced SCN reproduction and feeding, and ultimately leads to the death of the nematode. As the remains of the deceased nematode decompose, *P. nishizawae* spores are once again released into the soil, and will infect new generations of SCN.

P. nishizawae is scientifically proven to work well under varying environmental conditions such as soil type, moisture content, pH and temperature. Clariva pn is tailored to meet the needs and challenges of soybean growers, complementing existing SCN management practices such as the use of SCN-resistant varieties and crop rotation, and helping to manage resistance.



Source: Syngenta

The cycle represented above takes approximately 25 to 30 days, depending on temperature.

Clariva Complete Beans

Clariva pn is only offered in Clariva Complete Beans, a combination of separately registered seed treatments that delivers season-long protection against SCN as well as a broad-spectrum protection against early-season insects and diseases through the active ingredients *P. nishizawae*,

thiamethoxam, fludioxonil, mfenoxam and sedaxane. The wide range of protection optimizes soybean root health, improves emergence and enhances plant stands, as well as protects the genetic potential of high-value seed from day one. Clariva Complete Beans will be available for the 2014 season.

 **Clariva™ Complete Beans**

 **syngenta®**

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