

Putting the Best On Your Seed

A Technical Look at Avicta Complete Corn with Vibrance Seed Treatment



syngenta®



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Avicta® Complete Corn with Vibrance® nematicide/insecticide/fungicide is an innovative seed-delivered technology. It starts working instantly and continues through the critical early stages of growth, when the plant is most vulnerable, to provide consistent, reliable protection from nematodes, insects and diseases. Shielding corn seedlings at this stage helps realize full genetic potential for a maximum yield boost at harvest.

Seven active ingredients work together as components of Avicta Complete Corn with Vibrance: **abamectin, thiamethoxam, mfenoxam, fludioxonil, azoxystrobin, thiabendazole** and **sedaxane**. These active ingredients, with seven unique modes of action, make Avicta Complete Corn with Vibrance the most comprehensive seed treatment package on the market.



Lesion nematodes attacking a corn root.

NEMATOCIDE

NEURAMTICIDE

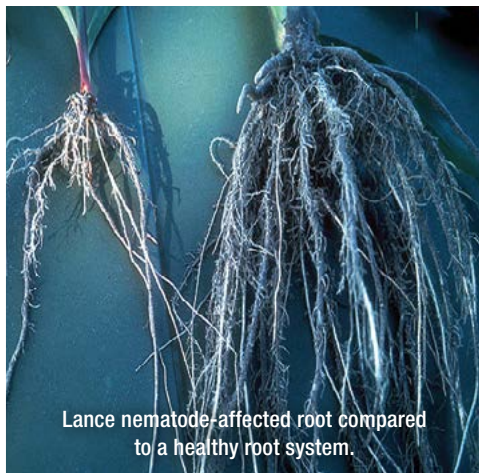
NEMATICIDE

You may not be able to see them, but corn nematodes can drastically hurt yield potential. These microscopic, thread-like roundworms feed directly on corn roots, using a pointed mouth spear called a stylet to pierce plant cells and feed on roots. Nematode damage provides an entry point for plant pathogens, such as bacteria and fungi, to invade the root and further weaken the plant.

Unlike insects and weeds, which are easily identified, these invisible below-ground pests often go undetected. It's difficult to predict nematode presence in a field, but once nematodes attack there is no rescue treatment to offset their damage.



Stunting in field caused by root-knot nematodes.



Lance nematode-affected root compared to a healthy root system.



Lesion nematodes

Protection from the following nematode species:

- Dagger
- Lance
- Lesion
- Needle
- Ring
- Root-knot
- Spiral
- Sting
- Stubby-root
- Stunt

ABAMECTIN

Abamectin is a true nematocide—it offers high intrinsic activity that kills nematodes. Immediate activity is vital in corn production because the first 40 days of crop life are critical in determining yield.

Although not systemic, abamectin works by moving along the root channels of developing seedlings, killing all key nematode species in corn. It stimulates release of the neurotransmitter GABA. Chloride ions flow into cells blocking nerve impulses, so nematodes are paralyzed irreversibly within hours.



Adult wireworm

INSECTICIDE

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INSECTICIDE

Even before a corn plant begins to emerge, early-season insects such as seedcorn maggot, white grub, grape colaspis and wireworm threaten plant stand and yield potential. These insects feed underground below the soil surface. The insecticide component of Avicta Complete Corn with Vibrance helps minimize damage from early-season insect pests from the day the seed is planted.

INSECTICIDE



Corn rootworm



Southern green stinkbug



White grub

Provides protection from the following insects:

- Wireworm
- Chinch bug
- Seedcorn maggot
- Southern corn leaf beetle
- Corn flea beetle
- White grub*
- Black cutworm
- Thrips
- Grape colaspis
- Southern green stinkbug
- Seedcorn beetle
- Corn leaf aphid
- Sugarcane beetle
- Billbug**
- Corn rootworm**

* Including Japanese beetle larvae, European Chafer larvae, true white grub, annual white grub and May/June beetle larvae.

**Requires the higher application rate of thiamethoxam (1.25 mg a.i./seed) found in Avicta Complete Corn 1250. Corn rootworm protection includes Mexican, Northern, Southern and Western species.

THIAMETHOXAM

Thiamethoxam is a systemic insecticide that offers better and longer residual for consistent early-season protection against a broad spectrum of troublesome insect pests. It targets insect pests from planting through emergence and continuing into the first weeks of plant establishment and development. In addition to its protection from early-season insects, thiamethoxam offers faster emergence, greater plant stands, increased root mass, earlier canopy, taller and greener plants, and improved plant vigor.

Thiamethoxam is a second generation neonicotinoid insecticide, belonging to the thianicotinyl subclass of chemistry.

Avicta Complete Corn with Vibrance is available in three different versions that contain varying levels of thiamethoxam:

- Avicta Complete Corn 250 (0.25 mg a.i./seed of thiamethoxam)
- Avicta Complete Corn 500 (0.50 mg a.i./seed of thiamethoxam) for enhanced insect protection
- Avicta Complete Corn 1250 (1.25 mg a.i./seed of thiamethoxam) for added insect protection against corn rootworm and billbug, and a key component in an effective integrated corn rootworm management program



Untreated corn seed affected by *Rhizoctonia*

FUNGICIDE

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Avicta Complete Corn with Vibrance offers the best combination of seed treatment fungicides on the market. The disease protection helps guard the developing plant against seed and soilborne diseases, which can cause slow emergence and damping off of the seedlings, reducing plant stand, vigor and ultimately yield.

In addition to protection against diseases, Avicta Complete Corn with Vibrance offers enhanced root health. Protecting early growth and development of corn seedlings is vital to realizing the full genetic yield potential of your corn hybrid and is critical to maximizing a plant's performance and increasing yield.

FUNGICIDE



Young corn plants affected by *Pythium*.

**Provides protection
from the following
diseases:**

- *Pythium*

MEFENOXAM

Mefenoxam has been shown to provide a high level of efficacy against *Pythium* fungi, which reside in the Oomycete class, at very low rates. This disease is typically the number one seed/seedling disease challenging U.S. corn growers. Since it moves systemically within plants and has strong activity, there is no stronger commercially available single active ingredient more active against *Pythium*. In fungal cells, it interferes selectively with the synthesis of ribosomal DNA to inhibit mycelial growth and spore formation. Mefenoxam contributes to excellent early crop vigor, which normally results in higher yield potential at harvest.

Due to its ultralow use rate, the U.S. Environmental Protection Agency classifies mefenoxam as “Reduced Risk.”

FUNGICIDE



The corn root system on the left is a non-infested root and the corn root on the right is infested with *Fusarium*. Notice the discoloration and the lack of root hairs on the *Fusarium*-infected root. Photo provided by Dr. Wayne Pedersen.

**Provides protection
from the following
diseases:**

- *Fusarium*
- *Rhizoctonia*
- Seedborne
Sphacelotheca reiliana
- *Helminthosporium*
- *Aspergillus*
- *Penicillium*

FLUDIOXONIL

Fludioxonil is a broad-spectrum contact fungicide with long residual activity. As a synthetic compound of the phenylpyrrole group of substances, fludioxonil is effective against many major corn diseases. The mode of action works by inhibiting transport-associated phosphorylation of glucose and by preventing glycerol synthesis.

FUNGICIDE



**Provides protection from
the following diseases:**

- *Pythium*
- *Rhizoctonia*
- *Penicillium*
- Seedborne
Sphacelotheca relliana

AZOXYSTROBIN

Azoxystrobin, a systemic fungicide, has the broadest spectrum of activity of all presently known antifungals and is the world's best-selling fungicide. Active at very low doses, azoxystrobin protects against a variety of diseases in four major groups of pathogenic plant fungi: Ascomycetes, Basidiomycetes, Deuteromycetes and Oomycetes.

Plants absorb azoxystrobin through the roots and translocate it into the xylem to the stem and leaves. Its mode of action works by inhibiting mitochondrial respiration in fungi to prevent spore germination, mycelial growth and spore production of fungi.

FUNGICIDE



**Provides protection
from the following
diseases:**

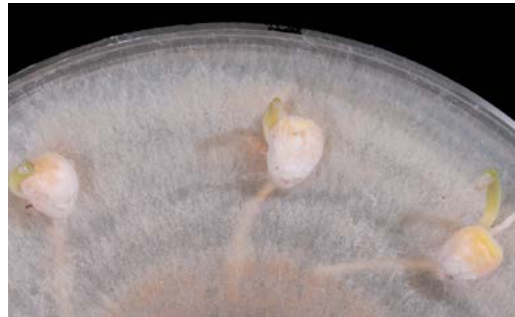
- *Fusarium*

THIABENDAZOLE

Thiabendazole is a systemic fungicide that works curatively to clean up surface and internal disease pathogens so corn seeds can produce healthier, stronger seedlings from the moment they germinate. While thiabendazole offers broad-spectrum protection against various *Fusarium* species, its singular activity against *F. verticillioides* can help with early emergence and stand establishment.

When thiabendazole is used as a component of Avicta Complete Corn with Vibrance, it helps enhance the level of nematocidal activity provided for even more protection against damaging nematode pests.

FUNGICIDE



Provides protection from the following diseases:

- *Rhizoctonia*

SEDAXANE

Sedaxane (the Vibrance component) is the first active ingredient specifically designed as a seed treatment. It offers very effective systemic performance against *Rhizoctonia*.

Rhizoctonia is sometimes classified as a root “nibbler.” Often it doesn’t kill the plant, but leaves lesions on the mesocotyl during early root development, which leads to reduced root and shoot development. This disease also often destroys the youngest, most delicate, fine root hairs so essentially these developing roots are “burned off.” This leaves the young root system with less root potential and reduced efficiency to uptake moisture and nutrients. By protecting against *Rhizoctonia*, sedaxane helps increase root surface area for more vigorous and robust root systems.

Sedaxane belongs to the new SDHI (Succinate Dehydrogenase Inhibitors) class of fungicides. It inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation.

FUNGICIDE

For more information, please visit
www.avictacompletecorn.com



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corn

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