



Agronomic Spotlight

Soybean Seed Applied Solutions Provide Protection at Planting

For optimum yield potential, soybeans must be protected from insects, diseases, and nematodes. Slow germination and establishment of soybean seeds in cool, wet soils can make them more susceptible to attack by insects, nematodes, and soil-borne seed and seedling pathogens. Controlling these pests and pathogens and increasing nutrient uptake can improve germination and emergence, enhance plant vigor, and increase yield potential. Soybean seed applied products can reduce disease infections and protect seeds from insects and nematodes, resulting in more uniform plant stands, better yield potential, less incidence of replant situations, and ultimately increase return on investment. Biological products can enhance nutrient uptake, resulting in increased yield potential.

WHAT TO CONSIDER

An early planting date can increase soybean yield potential and is often recommended for soybean production. However, soybean yield potential can be

compromised by early environmental stresses and a complex of soil-borne pathogens, which negatively affect root health, seedling vigor, and yield potential.

YIELD IMPACT

Cool (less than 60 °F) and moist soil conditions can slow germination and establishment of soybean seeds, making them more susceptible to soil-borne seed and seedling pathogens such as Pythium, Phytophthora, and Fusarium. Warm, moist soil environments favor the pathogen Rhizoctonia. These pathogens can invade plant roots causing tissue decay, pre-emergence damping off, and early post-emergence seedling death. Pythium species may cause decay before germination and seeds become soft and rotten. Infected seedlings may die prior to emerging from the soil or shortly thereafter. Phytophthora sojae also causes a wet, soft rot of the seed or seedling tissue, similar to that of Pythium. Symptoms of

Rhizoctonia solani infection appear on seedlings as dry, dark reddish-brown lesions just above the soil surface. Early-season insects such as soybean aphids and seedcorn maggots, as well as later-arriving bean leaf beetles, can significantly reduce yield potential. From emergence throughout the growing season, plant parasitic nematodes can penetrate and feed on soybean roots, reducing the plant's ability to utilize water and nutrients and may create an entry point for other pathogens. Nematodes can cause significant yield loss to soybeans without displaying any above ground symptoms, going undetected by farmers year after year.

MANAGEMENT OPTIONS

Effects of unfavorable early-season planting conditions can be minimized by using Acceleron® Seed Applied Solutions. Acceleron Seed Applied Solutions products for soybean feature multiple modes of action that provide broad spectrum control of diseases and insects and promote improved plant health through more rapid and increased emergence of seedlings under certain cold soil conditions. Acceleron Seed Applied Solutions products for soybean can protect soybean seeds and seedlings from

certain diseases and insects for up to 30 days after planting. Protecting soybean against attack by soybean aphids and bean leaf beetles is a good tactic to prevent the viral diseases soybean mosaic virus and bean pod mottle virus that can be transmitted by these pests. NemaStrike™ Technology provides up to 75 days of broad spectrum control of plant parasitic nematodes, including soybean cyst nematodes, root knot, and reniform. Four tiers of seed applied solutions

ACCELERON BASIC		ACCELERON STANDARD		ACCELERON STANDARD FN		ACCELERON ELITE	
	Protection from pests including bean leaf beetles, early-season soybean aphids and seedcorn maggot		Up to 75 days of broad spectrum control of plant parasitic nematodes that include, but are not limited to, SCN, Root Knot and Reniform		Protection from pests including bean leaf beetles, early-season soybean aphids and seedcorn maggot		Up to 75 days of broad spectrum control of plant parasitic nematodes that include, but are not limited to, SCN, Root Knot and Reniform
	More rapid and increased emergence of seedlings under certain cold conditions		More rapid and increased emergence of seedlings under certain cold conditions		More rapid and increased emergence of seedlings under certain cold conditions		More rapid and increased emergence of seedlings under certain cold conditions
	Protection against Pythium, early-season Phytophthora, Rhizoctonia and Fusarium from an exclusive combination of fungicides		Protection against Pythium, early-season Phytophthora, Rhizoctonia and Fusarium from an exclusive combination of fungicides		Protection against Pythium, early-season Phytophthora, Rhizoctonia and Fusarium from an exclusive combination of fungicides		Protection against Pythium, early-season Phytophthora, Rhizoctonia and Fusarium from an exclusive combination of fungicides

Figure 1. Acceleron® Seed Applied Solutions products.

products are available (Figure 1).

Acceleron® Seed Applied Solutions BASIC for soybeans features the exclusive fungicide combination fluxapyroxad, pyraclostrobin, and metalaxyl, which provide protection against Pythium, early-season Phytophthora, Rhizoctonia, and Fusarium.

Acceleron® Seed Applied Solutions STANDARD for soybean features the fungicide combination plus the insecticide imidacloprid for protection from pests including bean leaf beetles, early-season soybean aphids, and seedcorn maggot.

Acceleron® Seed Applied Solutions STANDARD FN with NemaStrike™ Technology for soybeans features an exclusive fungicide combination for protection against early-season diseases and NemaStrike™ Technology which offers up to 75 days of broad spectrum control of plant parasitic nematodes that include, but are not limited to, SCN, Root Knot, and Reniform.

Acceleron® Seed Applied Solutions ELITE for soybeans features an exclusive fungicide combination for protection against early-season diseases, the insecticide imidacloprid for protection from early season pests, and NemaStrike™ Technology. Acceleron® Seed Applied Solutions products for soybean have been selected to maximize the performance of Roundup Ready 2 Xtend® soybeans, but can be used with other soybean products to

help protect soybean seeds and seedlings from disease and insect damage.

Introducing NemaStrike™ Technology.

The damage nematodes inflict doesn't always show up above or below ground but it can open the door for bacterial and fungal diseases, as well as viruses.

When signs of damage do show up above-ground, they're often mistaken as drought, malnutrition or disease. Typical symptoms of a nematode infestation can include wilting, yellowing, and stunting.

NemaStrike™ Technology by Acceleron® Seed Applied Solutions is a seed treatment technology that provides broad spectrum nematode control for soybeans. With a novel mode of action and low water solubility, NemaStrike™

Technology defends the crop from the start and stays in the root zone as plants grow - for up to 75 days. Plus, it has demonstrated consistent yield protection in hundreds of field trials, over 3 years of testing, in all soil types where nematode presence is at a damaging level.

Additional Products:

Acceleron® E-007 SAT is a dry seed finisher that allows for faster drying of treated seeds and reduces the stickiness of treated seeds, thereby improving seed flow through seed handling and planting equipment.

Acceleron® B-200 SAT is a biological product for soybeans that contains plant-derived flavonoids. Flavonoids attract and stimulate the growth of beneficial microbes in the soil, which promotes their colonization on soybean roots, nodule formation, and nitrogen fixation. This results in enhanced nutrient availability and uptake, which can lead to a healthier crop and increased yield potential.

ILeVO® is the first and only solution for Sudden Death Syndrome.

Products with Optimize® XC and TagTeam® LCOXC

Technologies: Dual- and triple-action soybean inoculants that provide enhanced nutrient uptake capabilities.

Products with QuickRoots® Technology: Microbial seed inoculants that can improve nutrient availability by increasing the availability and uptake of nitrogen, phosphate, and potassium.

Sources

Hartman, G.L., Sinclair, J.B., and Rupe, J.C. (editors). 1999. Compendium of soybean diseases, 4th edition, American Phytopathological society. St. Paul, MN. 140421060204.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. For soybeans, each Acceleron Seed Applied Solutions offering is a combination of separate individually registered products containing the active ingredients: BASIC Offering: metalaxyl, fluxapyroxad, and pyraclostrobin. STANDARD Offering: metalaxyl, fluxapyroxad, pyraclostrobin, and imidacloprid. STANDARD FN Offering: metalaxyl, fluxapyroxad, pyraclostrobin, and tioxazafen. ELITE Offering: metalaxyl, fluxapyroxad, pyraclostrobin, imidacloprid, and tioxazafen. **Always read and follow pesticide label directions. PRODUCTS FEATURING NEMASTRIKE™ TECHNOLOGY MAY NOT BE APPROVED IN ALL STATES.** The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Please visit nemastrike.technology.com/state for approvals regarding approval status of tioxazafen products for application to seeds in your state. Acceleron®, NemaStrike™, Optimize®, QuickRoots® and TagTeam® are trademarks of Monsanto Technology LLC. ILeVO® is a registered trademark of Bayer. All other trademarks are the property of their respective owners. ©2017 Monsanto Company. 140421060204 102017JEH.