



PRODUCT AND APPLICATION GUIDE | 2021



Thank you for your interest in and use of Acceleron® portfolio products at your treating site. We have designed this guide as a quick start to your treating season and to assist you in making your seed treatment decisions.

If you are just learning about the benefits of the Acceleron portfolio, you will find this Product and Application Guide to be a good first step in getting the information you will need. Other useful documents can be provided by your SeedGrowth™ Advisor/Field Sales Representative.

This document does not replace EPA-approved labels attached to the products and other essential documents such as the Seed Treatment Application Guidelines for Acceleron® Seed Applied Solutions for soybeans. Please refer to EPA-approved labels for each product prior to first use and follow all label directions. All products may not be registered for use in all states.

To request additional copies of this document, call the Crop Protection/Bayer SeedGrowth™ Customer Service team at 800-325-1224.

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Contact Customer Service

If you have questions or need help with Acceleron® products, call the Crop Protection/SeedGrowth Customer Service team toll free at **800-325-1224** or email us at **cpsgcustomerservice@bayer.com**.

There are other documents you may find helpful this season. You can request them from the Crop Protection/SeedGrowth Customer Service Team.

Documents available:

- Acceleron® Seed Applied Solutions programs
- Price sheets for all Acceleron Seed Applied Solutions for soybeans
- Acceleron Soybean Mix Calculator
- Application Guidelines for Acceleron Seed Applied Solutions for Soybean

Acceleron® Portfolio

This guide is a good place to start gaining knowledge about seed treatments and how they can add value to your seed dealership and your farmer customers. Let's begin with looking at each of the Acceleron® portfolio products you will be using and learn why they are a great choice.

Acceleron® Portfolio Products for Soybeans



FUNGICIDES All offerings of Acceleron® Seed Applied Solutions for soybeans will include three fungicides to provide broad protection of common seedling diseases while helping farmers to maximize profitability on their soybean acres. When your customers ask for Acceleron Seed Applied Solutions on their soybeans, you will be providing them with a premium fungicide seed treatment package offered exclusively through qualified Acceleron treating sites.

Exclusive Fungicide Combination

Acceleron® DX-109 Fungicide Seed Treatment/Acceleron® D-109 Fungicide Seed Treatment - Active ingredient is pyraclostrobin. Activity for *Rhizoctonia solani*, *Pythium* spp., *Fusarium* spp. and *Phomopsis* spp.

Acceleron® DX-309 Fungicide Seed Treatment - Active ingredient is metalaxyl. Activity for *Pythium* spp. and early-season *Phytophthora*.

Acceleron® DX-612 Fungicide Seed Treatment/Acceleron® D-612 Fungicide Seed Treatment - Active ingredient is fluxapyroxad. Activity for *Rhizoctonia solani*, and *Fusarium* spp.



INSECTICIDES If your customers desire a defense against early-season insects, they can choose to include Acceleron® IX-409 Insecticide Seed Treatment.

Active ingredient is imidacloprid for protection from bean leaf beetles, aphids and seed corn maggots.



NEMATODE PROTECTION Hard-to-detect nematodes pierce and infect roots, causing a loss of nutrients and water - which can compound other issues like disease and environmental stress. Treating seed with a broad-spectrum nematicide provides protection in the seed zone during critical early development stages. ILEVO®* seed treatment protects against key pests in opposing weather conditions. While nematode damage increases in hot, dry conditions, SDS thrives in cool, wet conditions. With ILEVO Seed Treatment, your soybean crop is protected against both.



BIO-ENHANCERS

TagTeam® LCO XC Inoculant is an inoculant containing rhizobia, Lipo-chitooligosaccharides (LCO) and the phosphate solubilizing benefits of *Penicillium bilaiae* to aid in making phosphorous more readily available to the plant.

Optimize® XC Inoculant is a low-use rate inoculant containing *Bradyrhizobium japonicum* and LCO (Lipo-chitooligosaccharides) to provide high-quality and rapid nodulation.

ADDITIONAL OFFERINGS

Acceleron® B-200 SAT Contains flavonoids to aid in initiating communication to rhizobia, which begins the nodulation process of the soybean plant.

Acceleron® E-007 SAT (Dry Seed Finisher) Provides an improved flow of treated seed, decreases sticking inside treating drum and enhances seed appearance.

*ILEVO® product information from BASF.

Please visit agriculture.basf.com for further information about ILEVO.

Package Types and Options

All Acceleron® portfolio products for soybeans will be delivered to you in packaging that has been developed to be as convenient for applicators as possible. All product options will include red colorant required for treated seed.

| Acceleron® Seed Applied Solutions BASIC | Number of seed units* to be treated | Product Packaging |
|--|-------------------------------------|---|
| Pallet Pak (F 1600) | 1,600 | 1.5 & 2.5 gal containers |
| Acceleron Seed Applied Solutions BASIC plus custom blending service | 1,800 / 3,600 | 14.06 & 28.1 gal drums |
| | 600 | 2 X 2.34 gal jugs |
| Acceleron Seed Applied Solutions STANDARD | Number of seed units* to be treated | Product Packaging |
| Pallet Pak (FI 1600) | 1,600 | 1.5 & 2.5 gal containers |
| Acceleron Seed Applied Solutions STANDARD plus custom blending service | 900 / 1,800 | 14.06 & 28.1 gal drums |
| | 300 | 2 X 2.34 gal jugs |
| Acceleron B-200 SAT | Number of seed units* to be treated | Product Packaging |
| Case of 2 X 1.3 gal 15 gal drum | 1,800 / 10,435 | 2.6 gal & 15 gal jugs |
| Acceleron E-007 SAT | Number of seed units* to be treated | Product Packaging |
| BOX | 900 | Two 22 pound bags packaged into one box |

*Unit=140,000 seeds with a seed count of 2,800 seeds per pound

Package Types and Options *(continued)*

| Microbial Seed Inoculants | Number of seed units* to be treated | Product Packaging |
|---|--|---------------------------------|
| Optimize® XC Inoculant | 400 | Case of 5X2X40 Case of 1X400 |
| TagTeam® LCO XC Inoculant | 400 | Case of 5X2X40 Case of 1X400 |
| QuickRoots® Wettable Powder Soybean Multi-crop | 500 | Case of 10X50 |
| ILEVO® | Number of seed units* to be treated | Product Packaging |
| Case of 2 X 2.5 gal | 542 | 2 X 2.5 gal of ILEVO® |
| Drums | 1,627 | 15 gal drums |

*Unit=140,000 seeds with a seed count of 2,800 seeds per pound

Application Rates

| Acceleron® Seed Applied Solutions Offerings | Active Ingredient(s) | Use Rate (Fl. Oz./100 lbs. Seed) | Use Rate (Fl. Oz./140K Seed Unit) | Density (Lbs./Gal.) |
|---|--|-------------------------------------|-----------------------------------|---------------------|
| Acceleron® Seed Applied Solutions BASIC plus custom blending service | Pyraclostrobin Metalaxyl Fluxapyroxad | 2.00 | 1.00 | 9.33 |
| Acceleron® Seed Applied Solutions STANDARD plus custom blending service | Pyraclostrobin Metalaxyl Fluxapyroxad Imidacloprid | 4.00 | 2.00 | 9.81 |
| Acceleron® DX-109 Fungicide Seed Treatment | Pyraclostrobin | 0.60 | 0.30 | 9.10 |
| Acceleron® D-109 Fungicide Seed Treatment | Pyraclostrobin | 0.60 | 0.30 | 9.10 |
| Acceleron® DX-309 Fungicide Seed Treatment | Metalaxyl | 0.375 | 0.19 | 9.12 |
| Acceleron® DX-612 Fungicide Seed Treatment | Fluxapyroxad | 0.24 | 0.12 | 9.46 |
| Acceleron® D-612 Fungicide Seed Treatment | Fluxapyroxad | 0.24 | 0.12 | 9.46 |
| Acceleron® IX-409 Insecticide Seed Treatment | Imidacloprid | 2.00 | 1.00 | 10.27 |
| TagTeam® LCO XC Inoculant | <i>Bradyrhizobium japonicum</i> + LCO + <i>Penicillium bilaiae</i> | 1.5 | 0.75 | 9.25 |
| Optimize® XC Inoculant | <i>Bradyrhizobium japonicum</i> + LCO | 1.5 | 0.75 | 9.09 |
| QuickRoots® Wettable Powder Soybean Multi-crop | <i>Bacillus amyloliquefaciens</i> + <i>Trichoderma virens</i> | 8 grams | 4 grams | N/A |
| Acceleron® B-200 SAT | Flavonoids | 0.368 | 0.184 | 8.40 |
| Acceleron® E-007 SAT (Dry Seed Finisher) | N/A | 44 grams | 22 grams | - |
| ILEVO® (Nematode Protection Rate) | Fluopyram | 0.075 mg active ingredient per seed | 0.59 | 10.35 |
| ILEVO® (Nematode + SDS Protection Rate) | Fluopyram | 0.15 mg active ingredient per seed | 1.18 | 10.35 |

Soybean Mix Calculator

Soybean Mix Calculator - Application Planning Tool

- The 2021 calculator can be requested from the Crop Protection/Bayer SeedGrowth™ Customer Service Team and saved on your computer for easy access when you need it.
- Allows applicators to develop mix recipes, calibrate seed treatment equipment and check for accurate treating.
- Allows applicators to add customized products to the mix tank such as polymers, inoculants, etc.

How to use the Soybean Mix Calculator:

Select the desired tab at the bottom of the spreadsheet

- “Enter Gallons to Mix” - Using this sheet, you will be asked how many gallons of total mix you want to make. All calculations will be based on this.
- “Enter Units to Treat” - Using this sheet, you will enter how many units of seed you want to make a tank mix for, and all formulas will adjust to that.
- “Pallet Paks” - Use this sheet if you are using Acceleron® Seed Applied Solutions from Pallet Paks.
- “Application Record Sheet” -Use this to help design your own seed treatment application records.

Soybean Mix Calculator

Begin with the top left section titled as “Mix Batch Planning Section.” You will fill in areas shaded in yellow with information about the treatments you desire to apply. You can decide how you would like to apply the products and what your total application rate should be. If you desire to add additional products such as soybean oil or polymers, you can type them into the yellow boxes just below this section and they will be added into your mix recipe.

The section titled “Components to add to MIX TANK” area will automatically calculate and populate the appropriate fields below. You can add products to your mix tank using standard volume or weight measurements.

The section titled “Treater Calibration Section” can be used to understand how to adjust your seed treating application equipment.

The “Seed Treatment Use Section” will allow you to verify that you have applied the correct amount of seed treatment to your seeds.

Labels on Jugs and Drums

All products will be labeled. Read and understand all label instructions prior to use.

- EPA-approved product Label - Will contain information specific to the individual product.
- Statement of Composition Label - For products plus a custom blending service, this label will show the amount of each product that was blended per your order. This label is always applied in addition to copies of the EPA product labels for each of the products that were blended.
- Best Management Practices - Information for an improved customer experience.

Statement of Composition Label

Custom blended fungicide and insecticide statements of compositions are YELLOW.
 Custom blended fungicide only statements of compositions are GREEN.

Acceleron® Seed Applied Solutions STANDARD plus Custom Blending Service*

Custom Blend Statement of Composition

| | |
|---|----------------------|
| Acceleron® DX-109 Fungicide Seed Treatment <small>EPA Reg. No. 7969-266-524</small> | 4.22 gallons |
| Acceleron® DX-309 Fungicide Seed Treatment <small>EPA Reg. No. 264-935-524</small> | 2.64 gallons |
| Acceleron® IX-409 Insecticide Seed Treatment <small>EPA Reg. No. 264-968-524</small> | 14.06 gallons |
| Acceleron® DX-612 Fungicide Seed Treatment <small>EPA Reg. No. 7969-308-524</small> | 1.69 gallons |
| Color Coat Red | <u>5.52 gallons</u> |
| TOTAL Volume: | 28.13 gallons |

NOT FOR RESALE

This custom blend of the Acceleron® Seed Treatment Products identified above is prepared to the order of the customer for use on the customer's property (including leased or rented property). Application at a rate of 4.00 fluid ounces per 100 pounds of soybean seed is within the labeled rate range of each of the above Acceleron® Seed Treatment Products. Different application rates may not be within the labeled range of each of the above Acceleron® Seed Treatment Products. Read and follow the pesticide labels for each of the above Acceleron® Seed Treatment Products, which are included with this shipment.

This document constitutes a "Statement of Composition" according to custom blend rules and regulations.

For customer inquiries regarding Acceleron® Seed Treatment Products call: 1-877-775-8787
 For Incident Response or Medical Emergencies Call: Collect Day or Night: 1-314-694-4000
 Acceleron® is a registered trademark of Monsanto Technology LLC. ©2013 Monsanto Company

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Acceleron® Seed Applied Solutions BASIC plus Custom Blending Service*

Custom Blend Statement of Composition

| | |
|--|----------------------|
| Acceleron® DX-109 Fungicide Seed Treatment <small>EPA Reg. No. 7969-266-524</small> | 8.44 gallons |
| Acceleron® DX-309 Fungicide Seed Treatment <small>EPA Reg. No. 264-935-524</small> | 5.27 gallons |
| Acceleron® DX-612 Fungicide Seed Treatment <small>EPA Reg. No. 7969-308-524</small> | 3.38 gallons |
| Color Coat Red | 10.34 gallons |
| Atlox 4913 | <u>0.70 gallons</u> |
| TOTAL Volume: | 28.13 gallons |

NOT FOR RESALE

This custom blend of the Acceleron® Seed Treatment Products identified above is prepared to the order of the customer for use on the customer's property (including leased or rented property). Application at a rate of 2.00 fluid ounces per 100 pounds of soybean seed is within the labeled rate range of each of the above Acceleron® Seed Treatment Products. Different application rates may not be within the labeled range of each of the above Acceleron® Seed Treatment Products. Read and follow the pesticide labels for each of the above Acceleron® Seed Treatment Products, which are included with this shipment.

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*Labels included in this guide are for example purposes only. Always refer to the product labels provided.

PRODUCT LABELS

Acceleron® Portfolio Best Management Practices

Product Management

End the season with as little products in storage as possible. If it is necessary to carry over products, manage them to use products from the previous season first. When in season, evaluate your short- and long-term needs and schedule deliveries a few weeks ahead of need. *First In, First Out* is always the best policy.

Storage of Acceleron® Seed Applied Solutions

How products are stored will have an impact on how long the products may remain in usable condition. Store Acceleron® portfolio products in an area that will have stable temperatures as defined on each product label to help maintain quality throughout the treating season. Heat in the summer months can reduce the chance for successfully carrying over products. Storage at ground level would be better than up high in a building during the summer. Do not store outside for any period of time. Each drum will have the following label attached:

Best practices for managing this custom blend of products include:
 (1) storing this product out of direct sunlight and storing it between 35° and 80° F
 (2) using during the current treating season. Refer to individual product labels attached to this container for specific storage instructions.
 (3) Use custom blend in a timely manner after mixing

Preparing Transfer Pumps

Clean and rinse transfer pumps prior to first use each season and before any maintenance or repiping.

Mixing Prior to Use

Seed treatments need to be well mixed to ensure that the active ingredients are evenly dispersed throughout the container before they are measured into a mix tank. Jugs should be shaken well. Product in drums should be mixed by the agitator motor provided.



15 & 30 Gallon Drums containing custom blended Acceleron® Seed Applied Solutions have a fitting installed prior to shipment to allow for easy mixing. This mixing capability will ensure all Acceleron Seed Applied Solutions are completely blended prior to use at your site. The drive motor has a bayonet fitting to connect to the drum mixer coupling with locking tabs equipped with a slotted drive pin on the shaft (**Figure A**).

Figure A



Figure B

The drum mixer coupling incorporates a T fitment on the shaft that nests within the slotted pin drive (**Figure B**).

If you purchased Acceleron Seed Applied Solutions in prior seasons, you should already have a mix motor with timer which looks like the **Figure C** picture. If you already have a mix motor on hand, ensure the drive pin looks like the yellow slotted drive pin in **Figure C**.

If the pin does not match, you will need a retro fit kit. If you require a retro fit kit, please contact the Acceleron Operations team.



Figure C

This retro fit kit has simple instructions included to switch out the pins. If you are a new customer this season, contact the Crop Protection/Bayer SeedGrowth™ Customer Service Team to arrange shipment of a new motor. If you have additional sites, request a motor for each site. The new motors will come assembled and equipped with the slotted drive pin.

Retro fit Kit



DO NOT OVER-MIX

INITIAL MIX TIME OF 10-15 MINUTES
Subsequent DAILY MIX TIME OF no more than 5 MINUTES

Dilute Prior to Use

Acceleron® Seed Applied Solutions need to be diluted; they are not considered Ready-To-Apply. It is recommended to dilute with water. Each seed treatment applicator will need to determine the appropriate amount of water to be used at their site. Once seed treatments are diluted, mixing will be needed to keep the solid particles from settling out on the bottom of the mix tank. Mix only what you think you will need for the immediate treating session. If you plan to add soybean oil to reduce buildup remove an equal amount of water from your recipe. **Note:** This is a treater operator preference and not recommended by Bayer.

Acceleron® Seed Applied Solutions STANDARD combined via the custom blending service has a use rate of 4.00 fluid ounces per 100 pounds of seed; add 2.00 fluid ounces of water for a total application rate of 6.00 fluid ounces per 100 pounds of seed.

Acceleron® Seed Applied Solutions BASIC combined via the custom blending service has a use rate of 2.00 fluid ounces per 100 pounds of seed; add 2.00 fluid ounces of water for a total application rate of 4.00 fluid ounces per 100 pounds of seed.

Acceleron Seed Applied Solutions for Soybean are water based formulations. Other water based products should mix easily, but prior to mixing large batches containing products other than Acceleron Seed Applied Solutions always conduct a mixing compatibility test in a small container and observe for any incompatibility.

Using Bio-Enhancers

Bio-Enhancers, such as liquid inoculants, can be considered as dilution materials for treating seeds. Most liquid inoculants are compatible with seed treatments and are tested in anticipated use conditions. For compatibility please reference the Acceleron® Bio-Enhancer Compatibility guide on our website for information on seed stability/viability of bio-enhancers.

- **Simultaneous** - This application method is the most widely used and is the preferred method when an application of liquid inoculant occurs at the same time as fungicides and insecticides are being applied. The liquid inoculant is mixed and placed in a separate tank dedicated to the inoculant and then pumped or metered onto the flow of seeds as they pass through the treating equipment. This allows both the inoculant and chemistries to be applied at the same time without being tank mixed. If additional water is added to the seed treatment, please use water from a non-chlorinated source.
- **Sequential** - This application method is when the liquid inoculant is applied to seeds that have been treated but the seed treatment chemistries have been allowed to dry before the inoculant is applied. This requires two passes through treating equipment. This is the least common method but may be useful when inoculants with a short planting interval are used.

Storage

Many Bio-Enhancers contain living microorganisms that rely on applicators to exercise good storage practices before and after application. In general, cooler temperatures will favor survival of the living microorganisms found in inoculants. 50°F to 70°F is an ideal target temperature for both packaged products and treated seeds. Avoid temperatures above 80°F.

Dedicated Tank

Use a tank and pump system dedicated to liquid inoculants. This will allow for easy management of both your Acceleron® Seed Applied Solutions and Acceleron® Bio-Enhancer products. While some standard seed treatment chemistries are fine if left in a mix tank for a few days until consumed, this is not true for inoculants. A dedicated tank will allow you to open and mix only what you need for immediate use, keeping your inoculant source as fresh and viable as possible. Even with a dedicated tank, you may be required to apply any opened product; making planning ahead critical. Optimize® XC Inoculant must be used within 24 hours and TagTeam® LCO XC Inoculant within 4 hours after opening and mixing. Clean your inoculant tank weekly at minimum to maintain good sanitation throughout the treating season. Refer to the Acceleron Bio-Enhancer Best Practice Pump Guide for more information on use of correct pump hoses.

Water Quality

Under some treating conditions you may find it desirable to add a small amount of water to your seed treatment or your inoculant when using bio-enhancers. You will need to use non-chlorinated water, as chlorine added into most public water supplies will kill the live rhizobia in the inoculant. You can install a water filter designed to remove chlorine or use a spare tank to hold water for 24 hours, allowing the chlorine to dissipate out of the water.



Adding Soybean Oil

Some dealers have found that they experience less seed treatment buildup in the application equipment by adding a small amount of soybean oil to their Acceleron® Seed Applied Solutions. This practice does not harm the living organisms in liquid inoculants such as Optimize® XC Inoculant and TagTeam® LCO XC Inoculant. If a treater experiences “sticky seed” in the seed treater mixing drum or excessive seed treatment buildup, and chooses to use soybean oil, add soybean oil into the seed treatment mixture per the chart below:

| Seed Applied Solutions Tier | Recommended Rate of Soybean Oil to be added <i>(fluid ounces per 100 lbs of seed)</i> |
|--|--|
| Acceleron® Seed Applied Solutions BASIC | 0.2 - 0.5 |
| Acceleron® Seed Applied Solutions STANDARD | 0.4-0.5 |

If using soybean oil, we suggest using a food-grade soybean oil, most commonly sold in grocery stores as “vegetable oil.” Look at the ingredient list on the side panel to confirm.

Cleanup and Personal Protective Equipment

Read the individual products labels of the Acceleron(R) offerings for required Personal Protective Equipment (PPE), handling, safety and disposal practices.

Minimum worker PPE consists of a long-sleeved shirt, long pants, coveralls, shoes and socks and chemical resistant, waterproof gloves with a thickness of > 14 mil. **Acceleron® DX-109 Fungicide Seed Treatment and Acceleron® D-109 Fungicide Seed Treatment:** In addition to PPE requirements for handling treated seed, the label also states that a “dust/mist respirator with MSHA/NIOSH approval number prefix TC-21 or any N, R, P, or HE filter” is required for all workers who perform more than one seed treatment activity as part of their jobs. **Acceleron® E-007 SAT:** The label states that workers wear a respirator when ventilation is inadequate.

If some of the seed treatment is dripped or spilled, wipe up with paper towels and use cleaners to remove red coloration. Refer to the labels for specific PPE requirements for cleaning and maintenance. For more information on the stewardship of treated seed, see page 19.

Hard Side Boxes and Seed Tenders

Treated seeds can stick together and create “seed bridging” when treated directly into hard side boxes and seed tenders. This situation is created when freshly treated seeds, still damp, come to rest and are allowed to dry while the seed is not moving. To address bridging, once dry, the seed can be disturbed and the treated seeds will flow more similarly to untreated seeds.

Suggested Best Practices include:

- Reducing the amount of water, adding soybean oil to the treatment slurry.
- Adding Acceleron® E-007 SAT (Dry Seed Finisher).
- Using a fan to blow dry air into the treater drum.
- Remind farmers that the freshly treated seeds must be dry before placing them into a planter. Follow planter manual for the use of seed lubricants as needed.

Planting Treated Seed

Treated seeds may move more freely within the seed meter and produce better singulation when some type of planter box seed lubricant is used. The amount needed will depend on the planter type and climatic variables such as temperature and humidity, and how well the lubricant is mixed into the seeds. If needed, the lubricant must be evenly coated on the treated seeds for the best benefit. Simply scooping and dumping the lubricant on top of seeds in a planter box will not provide best results.

Use of Talc During Seed Treating

Some treating sites add talc as the seed exits the seed treater to have less bridging in tenders and planters. Most inoculant manufacturers caution against this practice to allow the freshly treated seeds to dry normally. Always read and follow product labels.

An alternative would be to apply Acceleron® E-007 SAT in place of the talc. If including liquid inoculant products such as Optimize® XC Inoculant or TagTeam® LCO XC Inoculant, do not increase the rate of Acceleron E-007 SAT to speed drying. If planting will not occur within 60 days of application, reduce the rate of Acceleron E-007 SAT by 10% to further protect the health of the live bacteria in the inoculant. Also, remember to store inoculated seed in a cool (50° F -70° F) area away from direct sunlight and other heat sources.



Seed Treating Equipment

Bayer SeedGrowth™ has established standards for equipment used to treat soybeans with Acceleron® Seed Applied Solutions. The intent of these standards is to ensure proper and accurate treating of seed leading to high satisfaction for customers. Minimum standards for seed treating equipment must have chemical metering, chemical atomization and secondary coating of seed to comply with Bayer SeedGrowth standards.



- Chemical metering - The seed treater must be equipped with a pump that can be accurately controlled. A variable speed pump will allow the operator to easily match the chemical flow to the seed flow.
- Chemical atomization - Atomizing the liquid chemicals during the application process will allow the relatively small amount of chemical to be evenly distributed on as much seed surface as possible, making the mechanical mixing step more efficient.
- Secondary coating - This is easily accomplished by gently rolling the freshly treated seeds in a coating chamber (or drum) for a few seconds prior to placing them in final packaging.

Recommended Equipment

Seed metering - Bayer SeedGrowth considers seed metering an important part of accurate seed treatment dosage. Sites with seed metering will have the advantage of simplifying the calibration process, leading to accurate treating. The seed meter allows the operator to know the quantity of seed that is passing through the treater.

Application of seed treatment products labeled in milligrams of active ingredient per seed, such as ILEVO®, will require the use of a seed meter (seed wheel, weigh belt, loss-in-weight) to allow for accurate chemical dosing.

If a treating facility has equipment that does not comply with the Bayer SeedGrowth standards, the facility is expected to upgrade or replace their equipment. If equipment needs to be upgraded, Bayer SeedGrowth recommends contacting the equipment manufacturer to consider upgrade options available for the specific model.

Bayer On Demand™ offers a fully automated seed treatment application system giving downstream customers an easier, faster, more accurate and more sustainable method to apply seed treatment.

Seed Treating Equipment *(continued)*

Powder Applicator for Acceleron® E-007 SAT *(Dry Seed Finisher)*

Acceleron® E-007 SAT (Dry Seed Finisher) is a powder that is applied at the same time as the Acceleron® Seed Applied Solutions using an auger type applicator inserted into the treating drum. It will enhance the appearance of treated seeds and provide an improved experience for a treating dealer and their farmer customers.

You will need a specialized applicator to accurately and easily apply Acceleron E-007 SAT (Dry Seed Finisher) to your seeds. It is recommended to purchase an applicator compatible with your treater. The controls will connect to standard control panels on the treater to function in the auto on/off mode.

Easy Steps for Success with Acceleron® E-007 SAT (Dry Seed Finisher):

1. Tank mix Acceleron® Seed Applied Solutions with water for a total use rate of six fluid ounces per 100 lbs of seed.
2. Determine how many pounds of seed per minute you will treat (such as 1,200 lbs per minute).
3. Calibrate the powder applicator for 44 grams of Acceleron E-007 SAT (Dry Seed Finisher) per 100 lbs of seed. Example: 1,200 lbs per minute would be $12 \times 44 \text{ grams} = 528 \text{ grams per minute}$.
4. Ensure all equipment is started and begin treating seeds.

Fluency Agent Advanced

Fluency Agent Advanced is a seed lubricant for corn and soybeans that improves planting performance while reducing the amount of dust potentially released during planting.

It is an alternative to talc, graphite and talc-/graphite-blended seed lubricants.

Key Benefits:

- Better Flowability and Singulation - Improves seed flow from the central fill hopper to row units for more efficient planting and more uniform stands
- Less Dust for Better Stewardship - Reduces the amount of dust and active ingredient potentially released during treated seed planting
- Measures, pours and mixes easily
- Convenient low use rate
- Can be used in all makes and types of planters
- Application rate for soybeans: 23 cc or .29oz/140,000 seeds



Crop Protection/SeedGrowth Customer Service

Ordering Options and Key Contacts

Crop Protection/SeedGrowth Customer Service: 800-325-1224

Email: cpsgcustomerservice@bayer.com

Or contact your local SeedGrowth™ Advisor or Field Sales Representative

Incident Response: For MEDICAL and TRANSPORTATION Emergencies ONLY Call 24 Hours a Day 1-800-334-7577.

Delivery Options

- To schedule a delivery, please contact Crop Protection/SeedGrowth Customer Service.
- Schedule delivery of products for 7-10 days of treating at a time.
- Schedule staged shipments from our just-in-time blending sites to minimize the amount of blended products left over at the end of the season.

Stewardship

Innovative seed treatment technology represents a targeted and effective means of crop protection – reducing the number of spray applications of insecticides, helping increase yields and supporting a sustainable means of crop production. Acceleron® Seed Applied Solutions are an option farmers can choose to maximize the potential performance of the seed and traits they plant right from the start.

Appropriate stewardship practices should be followed to maximize the benefits of these products and reduce any off-site movement of the products during seed treatment and planting. Any time a product has the potential to be harmful to a non-target organism, the risk can be reduced by decreasing their potential exposure to the product.

To minimize exposure, treaters and farmers that use seed treatments must handle treated seeds responsibly. Please share the following online resources and stewardship reminders with customers to increase their awareness of effective seed treatment use and treated seed stewardship best management practices. Effective product stewardship maintains customer access to these products.

Online Resources

The American Seed Trade Association (ASTA) and Crop Life America (CLA) have established an excellent online resource, featuring an all-in-one guide for handling and managing treated seeds effectively. Access the guide at seed-treatment-guide.com.

Recommended best management practices for handling and application of seed treatment products:

- Always read and understand the label attached to the product container(s) and applicable safety data sheet (SDS) prior to opening the applicable product container.
- Always wear the appropriate PPE listed as a requirement of use for each product. PPE generally **consists of** a long-sleeved shirt, long pants, coveralls, shoes and socks and chemical resistant, waterproof gloves with a thickness of > 14 mil. Respiratory and eye protection may also be required.
- Note any restrictions related to the use of the product.
- Use seed treatment products in closed systems to minimize worker exposure.
- Be prepared to discuss proper handling of treated seed with your customers.

Recommended best management practices for handling and planting of treated seed:

- Practice environmental stewardship by avoiding off-site movement of dust from treated seeds during planting or when opening seed containers by observing wind speed and direction.
- Be aware of the presence of honeybee hives, crops or weeds in the flowering stage within or adjacent to the field, which could attract pollinators and fill the planter at least 10 yards inside the field to be planted.
- Avoid shaking the bottom of the treated seed bag when filling planter. This reduces the release of dust that could have accumulated during transport.
- For pneumatic planters, direct air exhaust downward toward the soil surface if possible to decrease the potential for dust drift.
- Properly dispose of any spilled treated seed to minimize exposure to people, livestock, wildlife and the environment.
- Return leftover treated seed to its original seed lot containers, if treated seed is intended for storage and use at a later date.
- Note that there is zero tolerance for treated seed kernels in the commodity grain channel when the seed tag states that the treated seed is not to be used for food, feed or oil purposes.



Directions for Use and Personal Protective Equipment (PPE)

Always read all product labels prior to treating seed. Precautionary information, including required PPE for handling, and Directions for Use, including application rates, are listed on each label attached to the product container and must be followed.

Seed Labeling Available

Each treating site will be shipped a package of the tags to assist with proper labeling of treated seeds. It is essential to use the correct tag for your treated seeds. Additional tags as well as Safety Data Sheets (SDS) can be requested from the Acceleron® Operations Team.

When treatments are applied to seeds, the treated seeds require additional labeling in compliance with state and federal laws.

Bayer will provide labels to downstream treating sites.

The treating sites must complete the top portion with needed information.

Attach label to mini bulk or hard-side box inserts. If inserts are included on two sides of the bag/box, be sure to attach this labeling to both inserts.

If seed is bulk, attach it to the delivery paperwork.

The top portion of the tag is carbonless copy paper, and the front flap can be removed for your records.

| | | |
|--|-----|----|
| Acceleron® B-200 SAT applied? If "Yes" then Acceleron B-200 SAT, a biological, has been applied to this seed. | Yes | No |
| Acceleron B-200 SAT Batch #: | | |

| | |
|--|---|
| ONE SEED-APPLIED TECHNOLOGY A Metolalyl F Fluazifopamid P Pyraclostrobin G Imidacloprid | WARNING: TREATED SEED. DO NOT USE TREATED SEED FOR FOOD, FEED OR OIL PURPOSES. This seed has been treated at the manufacturer's recommended rate with the products identified by code on this seed tag, and decoded in the table in this section. If Acceleron B-200 SAT is checked "yes", a biological has also been applied to this seed. General Information: Handle treated seeds in ventilated areas. Avoid breathing or making contact with dust. If contaminated, remove clothing and launder before reuse. Wash hands and face before eating, drinking, or smoking. Personal Protective Equipment: Wear long pants, long-sleeved shirt, shoes and socks, and chemical resistant gloves made of any waterproof material when opening this bag or handling (e.g., loading, pouring) treated seed or seed pieces. Hazards to Humans and Animals: Harmful to humans if swallowed, inhaled, or absorbed through skin. Treated seed exposed to soil surface may be hazardous to wildlife. Cover or collect treated seeds that spilled during loading, unloading, and in areas (such as me ends and field corners). FIRST AID - Eyes: Hold eye open and rinse gently with water for 15 minutes. If wearing contact lenses, remove after first 5 minutes and continue rinsing. Skin or clothing: Remove contaminated clothing. Rinse skin immediately with plenty of water. Use soap if available. Swallowed: Call poison center or doctor immediately for treatment advice. Sip water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person. Inhaled: Move to fresh air. If not breathing, call 911 or ambulance, and then give artificial respiration. Call poison center or doctor for further treatment advice. FOR EMERGENCY MEDICAL TREATMENT INFORMATION, CALL COLLECT DAY OR NIGHT: 1-800-324-7377. Storage and Disposal: Store treated seed away from food and feed, and do not allow access by children, pets, or livestock. Do not reuse or refill empty seed bags. Surplus treated seed or empty treated seed containers should be stored or disposed according to local requirements. Do not contaminate bodies of water when disposing of excess treated seed or wash water of planting equipment. Dispose of them in accordance with local requirements. Left over treated seed may be double bagged around the household or buried away from water sources in accordance with local requirements. Excess treated seed may be used for ethanol production only (E-1) by-products are not used for livestock feed, and (2) no measurable residues of pesticides remain in ethanol by-products that are used in agronomic practice. PRODUCT SPECIFIC ADDITIONAL INFORMATION: Fluazifopamid: Treated seed must be planted into the soil at a depth equal to or greater than 1 inch. In the event of a crop failure or harvest of a crop grown from this seed, the field may be replanted immediately with barley, berries and small fruits, Brassica leafy vegetables, bulb vegetables, corn (all types), cotton, cucurbit vegetables, dried shelled peas and beans, edible-seeded legume vegetables, fruiting vegetables, grapes, leafy vegetables, mint (spearmint and peppermint), nongrass animal feeds (straw, hay, and), oat, related crops (including flax seed, rapeseed and sunflower), peanut, pome fruits, rice, root vegetables, soy, sorghum and millet, soybean, stone fruits, stoneberries, succulent shelled peas and beans, sugar beet, sugarcane, tree nuts, tuberos and corn vegetables (including potato), wheat and triticale or any other crop for which a tolerance for Fluazifopamid exists. For all other crops, the minimum plant back interval is 12 months from the date this seed was planted. A cover crop without a tolerance for Fluazifopamid may be planted for purposes of erosion control or soil improvement however, the crop must not be grazed or harvested for food or feed. Plant treated seed into the soil to the recommended minimum depth or greater to minimize exposure. Imidacloprid: Treated seed must be adequately covered with soil at planting. Treated areas may be replanted with any crop specified on the imidacloprid label, or any other crop for which a tolerance exists for imidacloprid, as seen as practical following the last application. Areas planted with treated seed may be replanted immediately with arctic/ice, barley, Brassica (bale) leafy vegetables, brorage, bulb vegetables, canola, clover, corn (field), corn (pop), corn (sweet), cotton, cranberry, cranberry, cucurbit, eggplant, flax, ground cherry, leafy vegetable, legume vegetables (succulent or shelled, including soybean), millet, mustard seed, oats, oil, papaya, papaya, potato, rapeseed, soy, sunflower, sorghum, soybean, strawberry, sugarcane, sugarcane, sweetpotato, tobacco, nut and tuber vegetables, watermelon, wheat. These areas may also be replanted after 30 days with cereals including buckwheat, rice. Do not plant any other crop in the treated area for at least one year after treated seeds are planted. Metolalyl: Metolalyl is a systemic fungicide seed dressing specifically for control of systemic downy mildew, Phythium, and Phytophthora spp. Do not use with other seed treatment products unless previous experience assures compatibility. Pyraclostrobin: After the seeds have been planted, do not enter or allow worker entry into the treated area during the restricted entry interval (REI) of 12 hours. Exception: Once the seeds are planted in soil or other planting media, the Worker Protection Standard allows workers to enter the treated area without restriction if there will be no worker contact with treated seeds in soil or with the planting media. Plant treated seed into the soil to the recommended minimum depth or greater to minimize exposure. In the event of a crop failure or harvest of a crop grown from this seed, the field may be replanted immediately with alfalfa, barley, Brassica vegetables, bulb vegetables, citrus, corn, cotton, cucurbit, dried shelled peas and beans, edible-seeded legume vegetables, flax, fruiting vegetables, grass grown for seed, leafy vegetables, leaves of root and tuber vegetables, mint, oat, peanut, pecan, rapeseed (includes canola and cranberry), root vegetables, soy, sorghum, soybean, succulent shelled peas and beans, sugar beet, sugar cane, sunflower, tuberos and corn vegetables (including potato), wheat and triticale, or any other crop for which a tolerance for pyraclostrobin exists. For all other crops, the minimum plant back interval is 30 days from the date this seed was planted. A cover crop without a tolerance for pyraclostrobin may be planted no later than the 30 day interval for purposes of erosion control or soil improvement however, the crop may not be grazed or harvested for food or feed. Acceleron® is a registered trademark of Bayer Crop. Bayer CropScience LP, 800 N. Lindbergh Blvd., - St. Louis, MO 63167 ©2020 Bayer Group. All rights reserved. 1311604-04 |
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BASIC




STANDARD


Acceleron® Seed Applied Solutions offerings


We have included this information to allow you to learn more about the Acceleron® portfolio and to gain knowledge that will allow for better conversations between you and your seed customers.

All offerings of Acceleron® Seed Applied Solutions for soybeans will include three fungicides to provide broad protection of common seedling diseases while helping soybean farmers to maximize profitability on their soybean acres. When your customers ask for Acceleron® Seed Applied Solutions on their soybeans, you will be providing them with premium fungicide seed treatments offered exclusively through qualified Acceleron® treating sites.


If your customers desire a defense against early-season insects, they can choose to include **Acceleron® IX-409 Insecticide Seed Treatment** for protection from bean leaf beetle, aphids and seedcorn maggot.







Fungicides



Insecticides


FUNGICIDES

Protection against *Pythium*, early-season *Phytophthora*, *Rhizoctonia solani* and *Fusarium* with an exclusive combination of fungicides and more rapid and increased emergence of seedlings under certain cold conditions.

INSECTICIDES

Protection from pests including bean leaf beetles, early-season soybean aphids and seedcorn maggots.

ADDITIONAL OFFERINGS



ILEVO® Seed Treatment

ILEVO® Seed Treatment offers protection against damage caused by plant pathogenic nematodes – including Soybean Cyst Nematodes (SCN) and Sudden Death Syndrome (SDS).

Bio-Enhancers: Acceleron® B-200 SAT, TagTeam® LCO XC Inoculant, Optimize® XC Inoculant
Dry Seed Finisher: Acceleron® E-007 SAT
Seed Lubricant: Bayer Fluency Agent Advanced

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. 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. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Not all products are approved in all states.

More Coverage from Unpredictable Threats

The Acceleron® Seed Applied Solutions portfolio delivers coverage on four fronts to help protect soybeans against unpredictable threats.

| ACCELERON® SEED APPLIED SOLUTIONS | MODES OF ACTION | | | | | ENHANCEMENT PRODUCT |
|--------------------------------------|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---|
| | <i>Pythium</i> | Early Season <i>Phytophthora</i> | <i>Rhizoctonia solani</i> | <i>Fusarium</i> | Insecticides | Dry Seed Finisher |
| ACCELERON® STANDARD | 1 Metalaxyl | 1 Metalaxyl | 2 Pyraclostrobin Fluxapyroxad | 2 Pyraclostrobin Fluxapyroxad | 78gm ai/100kg seed Imidacloprid | Acceleron® E-007 SAT Growers Choice |
| CLARIVA® Elite Beans | 1 Mefenoxam | 1 Mefenoxam | 2 Fludioxonil Sedaxane | 1 Fludioxonil | 50gm ai/100kg seed Thiamethoxam | ⊘ |
| INTEGO® SUITE Soybeans | 2 Metalaxyl Ethaboxam | 2 Metalaxyl Ethaboxam | 1 Ipconazole | 1 Ipconazole | 50gm ai/100kg seed Clothianidin | ⊘ |

Early-Season Pests

Pests that attack during the first 30 days after planting may impact early-season vigor and stand establishment. These early pests can impact yield potential.

NEMATODES



DESCRIPTION

- Nematodes are microscopic, worm-like organisms with over 4,000 species known to be parasitic to plants.
- Parasitic nematodes typically feed on the exterior (ectoparasites) or interior (endoparasites) of plant roots.
- Nematode life cycles have multiple stages, beginning with the egg stage, then four juvenile stages (J1-J4), followed by the adult stages. Depending on the spaces and environmental conditions, the life cycle of a nematode can be completed in 3 to 4 weeks.

DAMAGE

- Crop damage typically results from root damage from feeding and reallocation of resources from plant tissues to the nematode.
- Nematodes can also provide openings for other pathogens to enter and cause disease.



BEAN LEAF BEETLE



DESCRIPTION

- Adults are 1/4 inch in length.
- They vary in color from red, orange, yellow or tan.
- Beetles always have a black triangle at the base of the forewings, but the spots and stripes are variable.

DAMAGE

- Early-season injury occurs when adults feed on young soybean plants from emergence to development of first trifoliolate (V1).

SOYBEAN APHIDS



DESCRIPTION

- Wingless aphids are $\frac{1}{16}$ inch in length and light green to pale yellow and have two dark cornicles (tail pipes) near the end of the abdomen.
- Winged aphids are $\frac{1}{8}$ inch in length and have a dark brown head. Cornicles are black.

DAMAGE

- Damage occurs through direct feeding on plant tissue. Aphids remove plant sap, which causes leaves to discolor and wilt.
- Early-season damage will occur only if beans are planted late and aphids arrive early. Aphids usually do not infest fields until mid to late June.

SEEDCORN MAGGOT



DESCRIPTION

- Larvae are $\frac{1}{4}$ inch in length, legless and white to yellow in color.
- Only the first-generation larvae are problematic on corn.
- The adult is a fly that resembles a house fly but is smaller in size.

DAMAGE

- Larvae feed on newly planted corn seeds either prior to germination or soon after germination. Feeding results in responses ranging from delayed development to plant death.

Early-Season Diseases

PYTHIUM



DESCRIPTION

Seed decay, damping off or seedling blight, root rot caused by *Pythium* spp.

SYMPTOMS

- Seeds appear rotted; infected seedlings are rotted.
- Older seedlings are yellow and stunted.

CONDITIONS

- Cool wet soils prior and after planting.
- Usually occurs in low and wet spots in field.

PHYTOPHTHORA

DESCRIPTION

Seed decay, damping off or seedling blight, root and stem rot caused by *Phytophthora sojae*.

SYMPTOMS

- With early infection, seeds appear rotted; infected seedlings rotted and easily pulled from soil.
- With later infection, roots rotted and lower stems have brown lesions that develop from the soil line.

CONDITIONS

- Occurs in wet, waterlogged soils and compacted or heavy soils, especially after planting.
- Periods of wet weather followed by dry, warm weather; optimum for disease.

RHIZOCTONIA



DESCRIPTION

Damping off or seedling blight, and root and stem rot caused by *Rhizoctonia solani*.

SYMPTOMS

- With early infection, infected seedlings rotted and easily pulled from soil.
- With later infection, infected seedlings have reddish brown lesions on the stem at or just below the soil line.

CONDITIONS

- Usually occurs with cool, wet weather followed by hot, dry conditions.

SUDDEN DEATH SYNDROME (SDS)



DESCRIPTION

Caused by the soil borne fungus, *Fusarium virguliforme*

SYMPTOMS

- Initial symptoms of SDS are chlorotic mottling and crinkling of leaves. Leaf tissue between major veins turns yellow, then brown as it dies. Entire leaflets may shrivel and die and, in severe cases, leaflets drop off, leaving petioles attached. Splitting the stem and taproot of an SDS-infected plant will reveal tan to light brown streaks in the cortical tissue while the pith tissue remains white or slightly cream-colored.

CONDITIONS

- Soybean plants have a higher risk for SDS infection when planted into cool, wet soils and low-lying areas, and when soybean cyst nematodes are present.



Contact Info

Crop Protection/SeedGrowth™ Customer Service

Phone: 800-325-1224


Email: cpsgcustomerservice@bayer.com

Equipment Service: 855-363-3152

Online: AcceleronSAS.com

Or contact your local SeedGrowth™ Advisor

**In case of emergency call Bayer Crop Science
Emergency Response toll-free: 1-800-334-7577.**



ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Not all products are approved in all states. Tank mixtures: The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Not all tank mix product formulations have been tested for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance.

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