

The best genetics alone can't shield against many causes of delayed emergence and slow early growth.

LumiGEN® seed treatments help maximize the potential for fast, even, early growth, which results in more FULL-VALUE soybean plants at harvest.

Maximize your potential for more FULL-VALUE soybeans at harvest

	Protection Comparison			
Potential causes of yield loss from slow emergence	Untreated soybean seed	LumiGEN Seed Treatments	Lumiderm INSECTICIDE SEED TREATMENT	ILEVO HL Seed Treatment
Cool, wet soils (soil temperatures below 50°F)	✗	✓		
Phytophthora root rot for which no genetic resistance exists	✗	✓		
Pythium	✗	✓		
Fusarium	✗	✓		
Rhizoctonia	✗	✓		
Phomopsis	✗	✓		
Grape colaspis	✗	✓		
Early season aphids	✗	✓	✓	
Bean leaf beetles	✗	✓	✓	
Seedcorn maggots	✗	✓	✓	
Thrips	✗	✓	✓	
White grubs	✗	✓	✓	
Wireworms	✗	✓	✓	
Cutworms	✗		✓	
Sudden death syndrome	✗			✓
Soybean cyst nematode	✗			✓

¹ Luciano Antônio Ebone, et al. "Soybean Seed Vigor: Uniformity and Growth as Key Factors to Improve Yield." Agronomy 10, no. 4 (April 10, 2020): 545. <https://doi.org/10.3390/agronomy10040545>.

² Alejandra Masino, et al. "Spatial and Temporal Plant-to-Plant Variability Effects on Soybean Yield." European Journal of Agronomy 98 (August 2018): 14–24. <https://doi.org/10.1016/j.eja.2018.02.006>.

³ Vann, R., Dunphy, J., and Buffaloe, M. "How Important is Uniform Emergence in Soybeans?" NC State Extension, NC Soybean Producers Association, NC State University Crop and Soil Sciences. Accessed October 2, 2024. <https://soybeans.ces.ncsu.edu/wp-content/uploads/2019/04/Soybean-Uniform-Emergence-Extension-Publication.pdf?fwf=0>.

⁴ Data based on an average of comparisons from Corteva Agriscience field trials from 2021–2023 from 100 locations across the major soybean growing region of North America. The data is taken from Unmanned Aircraft System (UAS) imagery and analyzed for gaps within the inner two rows of the plot. The two were a total of 1066.8 cm and gaps were subtracted from the total. LumiGEN consisted of a base FST + IST. ILEVO HL was applied at 0.99 fl oz/140k and Lumiderm was applied at 0.57 fl oz/140k on top of the LumiGEN FST/IST base.

⁵ Data is based on average of comparisons in Pioneer Agronomy Science trials from 2012–2015 at 165 locations. Fluopyram use rate of 0.15mg ai/seed.

⁶ Data generated by Corteva Agriscience from 103 locations from 2021 – 2023 indicate a broad acre 1 bu/A advantage under standard field conditions when Lumiderm is paired with Phalanx. With higher insect pressure locations, >3 bu/A advantages were observed.

* ® Trademarks of Corteva Agriscience and its affiliated companies. Components of LumiGEN® seed treatments are applied at a Corteva Agriscience production facility, or by an independent sales representative of Corteva Agriscience or its affiliates. Not all sales representatives offer treatment services, and costs and other charges may vary. See your sales representative for details. Seed applied technologies exclusive to Corteva Agriscience and its affiliates. Seed applied technologies may not be registered for sale or use in all states. Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state. ILEVO® is a registered trademark of BASF. Sebring® is a registered trademark of Nufarm. Always read and follow label directions. © 2024 Corteva.



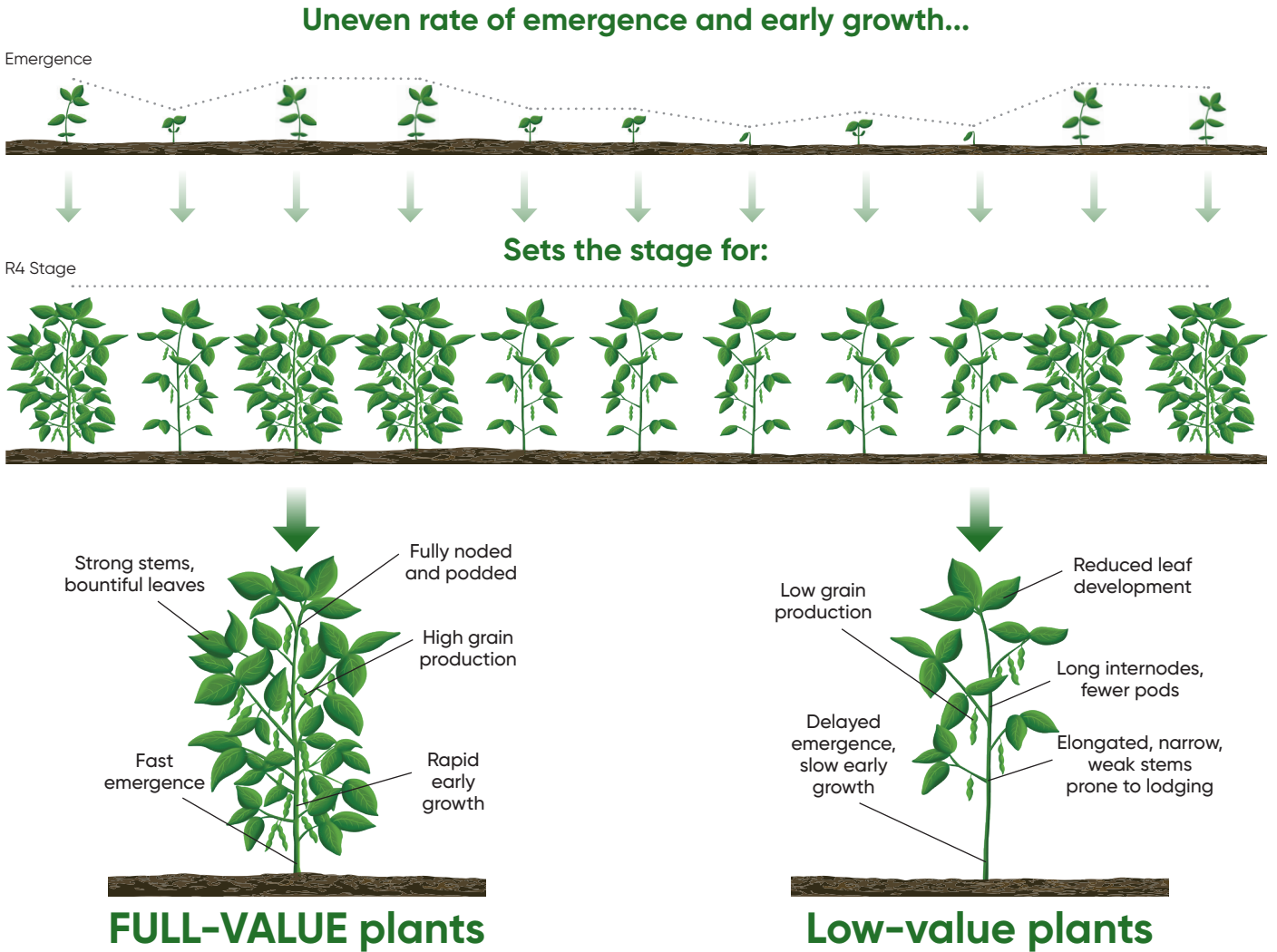
LumiGEN® seed treatments increase your potential for:
More FULL-VALUE plants at harvest

Planting soybeans early extends the growing season to maximize pod and grain production. But this often exposes seed and seedlings to harsh environmental conditions and soilborne pests that reduce emergence and lead to uneven early growth.

Stems, stretch the distance between nodes and produce fewer trifoliates and fewer pods.

While they eventually catch up in height, these spindly plants never produce as much grain as faster-emerging plants.

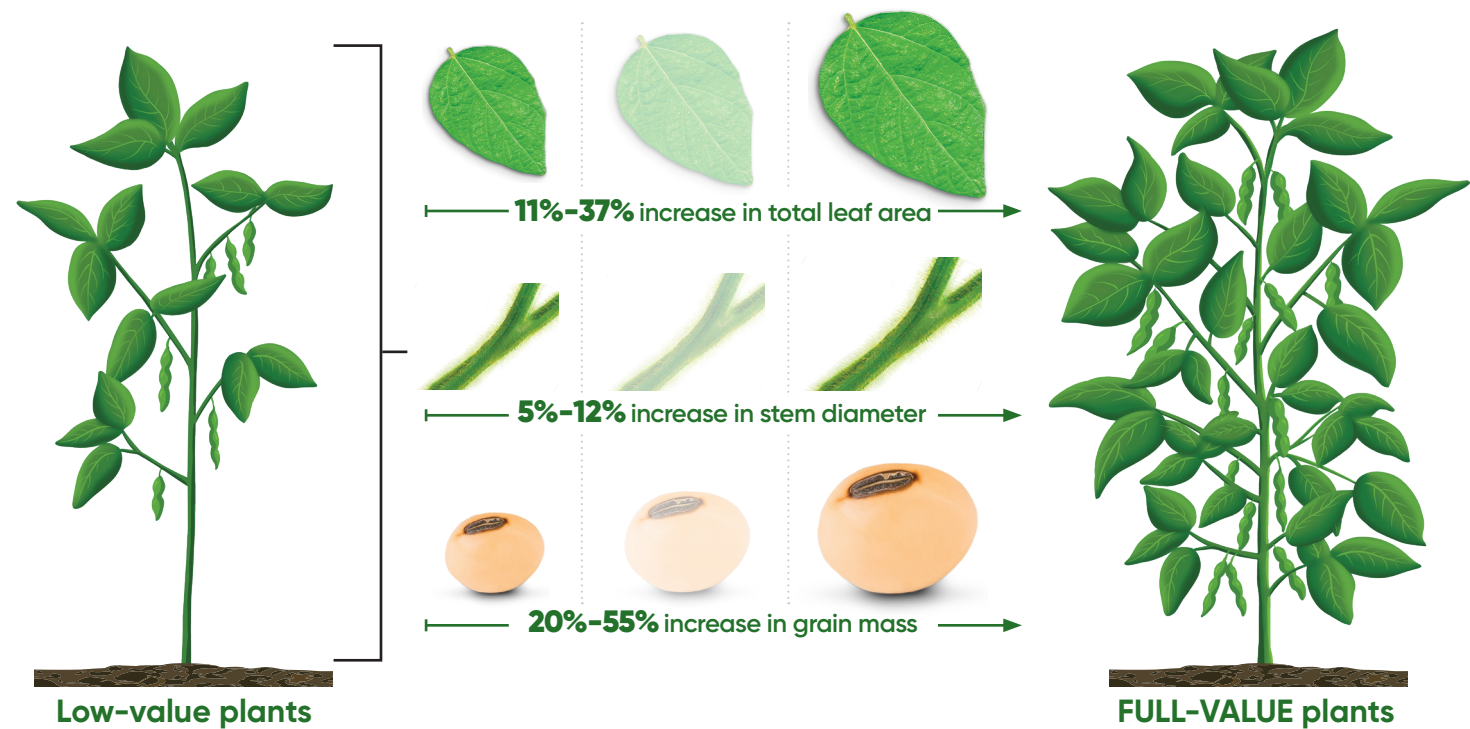
You know Pioneer breeds soybeans for vigor, fast emergence and rapid early growth. But did you know you can boost your potential for more FULL-VALUE plants by adding LumiGEN® seed treatments to your Pioneer genetics?



Rapid, uniform emergence helps produce more FULL-VALUE soybean plants.¹

The latest research shows just a two-day improvement in emergence speed and uniformity can lead to significant gains: a 5%–12% increase in stem diameter, 11%–37% increase in total leaf area and grain mass increase ranging from 20%–55% – the very definition of a high-value plant. The Iowa Soybean Association's (ISA) Research Center for Farming Innovation (RCFI) studies show that late-emerging soybean plants produce 20% fewer pods and have more than 30% fewer three-bean pods.

As it turns out, evenness of emergence speed is more important to yield than uniformity of plant spacing in the row.² And researchers note this problem cannot be overcome by increases in seeding rates.² Safeguarding seed from soilborne pests that can damage speed of emergence and early growth is the proper management strategy to maximize the number of FULL-VALUE plants.



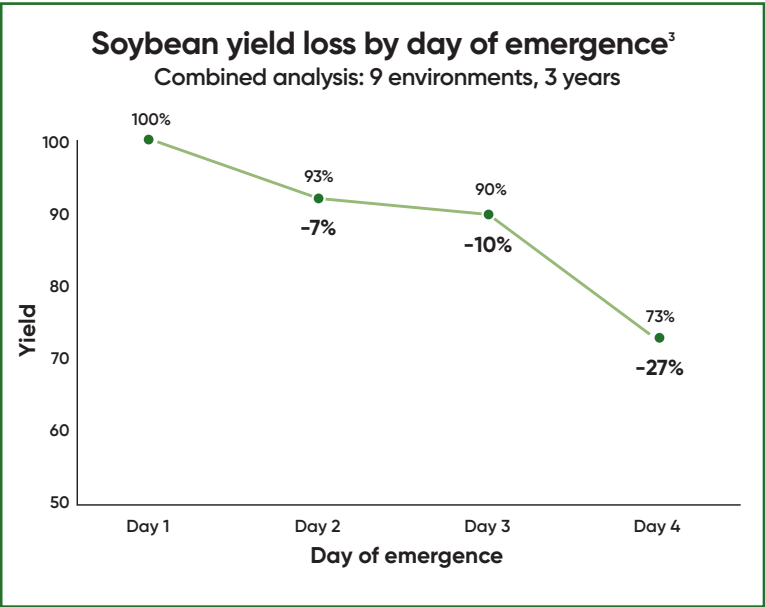
A look at the data:

Yield loss from delayed emergence

Three-year research (2016–18) was conducted in nine locations by North Carolina State University to determine yield loss caused by uneven emergence. In the trials, plants were flagged by day of emergence and individually threshed at harvest. Adjusting to a common population of 102,777 plants/A, researchers came to this conclusion about the yield loss caused by delayed emergence:

“...on average, there was a 14 bu/A yield drag penalty for soybean(s) that emerged on the fourth day, compared to those that emerged the first day.”

These results confirm the importance of uniform emergence to producing full-value plants at harvest. And it's powerful evidence for investing in LumiGEN® seed treatments to protect your Pioneer® brand genetics from emergence delays caused by soilborne pests and early season environmental stress.



LumiGEN Seed Treatments

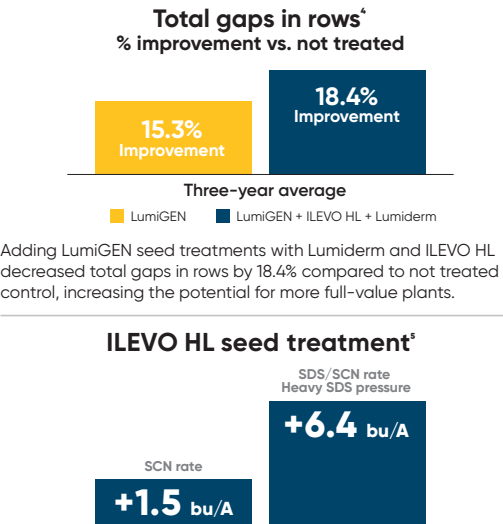


LumiGEN® soybean seed treatment package: Fungicides + Insecticide + Biologicals				
Diseases controlled: <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Phomopsis</i> and seed rot fungi				
Products	<div>LumiTreo™</div> <div>FUNGICIDE SEED TREATMENT</div> <div>Three active ingredients to protect against <i>Phytophthora</i>, <i>Pythium</i> (suppression), <i>Fusarium</i>, <i>Rhizoctonia</i> and <i>Phomopsis</i></div> <div>Active ingredients: 1. Oxathiapiprolin (Lumisena® fungicide seed treatment) 2. Ipconazole 3. Picoxystrobin</div>	<div>Lumiante®</div> <div>FUNGICIDE SEED TREATMENT</div> <div>Additional mode of action against <i>Phytophthora</i> and metalaxyl-resistant <i>pythium</i> strains</div> <div>Active ingredient: • Ethaboxam</div>	<div>Sebring® fungicide</div> <div>Additional mode of action against <i>Pythium</i></div> <div>Active ingredient: • Metalaxyl</div>	<div>L-2030 G biofungicide</div> <div>Two biologicals provide an integrated approach to managing seedling and root pathogens such as <i>Rhizoctonia</i> and <i>Fusarium</i></div> <div>Active ingredients: • <i>Bacillus subtilis</i> • <i>Bacillus pumilus</i></div>
	Early-season insects controlled: Early season aphids, bean leaf beetles, grape colaspis, seedcorn maggots, thrips, white grubs and wireworms			
Product	<div>Phalanx™ insecticide seed treatment</div> <div>Broad-spectrum protection against sucking and chewing insects</div> <div>Active ingredient: Thiamethoxam</div>			
Three optional enhancements:				
	<div>1</div> <div>Additional insect control: Cutworms + enhanced control of early season aphids, bean leaf beetles, seedcorn maggots, thrips, white grubs and wireworms</div>	<div>2</div> <div>Additional disease and nematode control: • Sudden death syndrome • Soybean cyst nematode</div>	<div>3</div> <div>Beneficial rhizobia: Increases nodulation and atmospheric nitrogen fixation • Reduces need for nitrogen inputs on other crops in the rotation</div>	
Product	<div>Lumiderm®</div> <div>INSECTICIDE SEED TREATMENT</div> <div>More MOA against key insects vs. Phalanx alone</div> <div>Active ingredient: Cyantraniliprole</div>	<div>ILEVO® HL</div> <div>Seed Treatment</div> <div>Nematicide/fungicide Protection against yield-robbing diseases and soybean cyst nematodes</div> <div>Active ingredient: Fluopyram</div>	<div>L-120+</div> <div>RHIZOBIAL INOCULANT PLUS INOCULANT EXTENDER</div> <div>Cost-effective way to promote beneficial rhizobia Extender helps prolong rhizobia up to 120+ days post-application</div> <div>Active ingredient: <i>Bradyrhizobium japonicum</i></div>	

LumiGEN seed treatments: uniform stands, fewer gaps and more yield

Gaps in the rows – Is there a more visible cue to consider adding seed treatments to your soybean management program? Superior genetics alone can't always fend off harsh, stand-reducing early season weather and soilborne pests.

The latest three-year replicated research from Pioneer validates the benefits LumiGEN seed treatments – and the extra value of two optional enhancements: Lumiderm insecticide seed treatment and ILEVO® HL.



Lumiderm insecticide seed treatment

1–3 bu/A YIELD ADVANTAGE*

when paired with Phalanx vs. a neonicotinoid insecticide alone