

# CeraMax<sup>®</sup>

## Biological Seed Treatment



## A Revolutionary Breakthrough for SDS Prevention in Soybeans

CeraMax<sup>®</sup> is a biological seed treatment for the prevention of soil-borne fungal diseases like *Rhizoctonia* spp and *Fusarium virguliforme*, the causal agent of Sudden Death Syndrome (SDS).

A first-of-its-kind technology, CeraMax has an environmental profile with stewardship and seed safety attributes not offered with most synthetic seed treatments - plus better return on investment for both grower and seed retailer.

### The CeraMax Difference

- Equivalent in SDS protection to ILevo<sup>®</sup> and Saltro<sup>®</sup>
- Biological profile that is better for seed, plant, and soil
- No phytotoxicity, seedling stress, or 'Halo' effect
- Active ingredient that shows no signs of resistance
- Easy-to-use formulation, low use rates, broad compatibility

### First-of-its-Kind Biological Solution

CeraMax contains the active ingredient Natamycin, a biological molecule produced by soil bacteria that prevents soil-borne fungi from attacking plant roots.

CeraMax stimulates defensive capabilities of the seed immediately. Its activation of defensive pathways happens prior to fungal infection, allowing the seed (and plant) to utilize its genetic resistance to prime its physiology to a ready state before disease sets in.



The active ingredient in CeraMax promotes biostimulant-like characteristics that are beneficial to plant growth, resilience to abiotic stresses, and root and shoot development. Unlike many synthetic seed treatments, CeraMax equips seed and plant to fight off pathogens early without negatively impacting soil microbial activity.

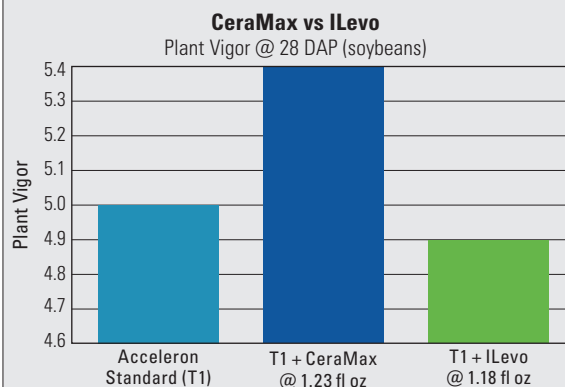
### Data-Driven Results

In multi-year research trials across 10 states, soybeans treated with CeraMax plus a base treatment of Acceleron<sup>®</sup> Standard showed significantly lower SDS disease incidence with an average yield increase of 4.3 bushels per acre compared to Acceleron Standard used alone. In today's prices, that equates to a \$50 per acre increase for growers.

### Product Specifications

<b>Active Ingredient</b>	Natamycin
<b>Category</b>	Fungicide / Seed Treatment
<b>Crops</b>	corn / soybeans / wheat
<b>Site of Action</b>	Group 48 / Ergosterol binding
<b>Formulation</b>	Suspension concentrate
<b>AI/Gallon</b>	1.25 lbs of AI/gallon
<b>Signal Word</b>	Caution

### Better Plant Vigor



2019 AgriThorty. IA, IL, IN, MI, MN, MO, NE, OH, WI. 15 field trials. Evaluation scale: 1-9. CeraMax rate in fluid ounces per 140,000 seeds. Avicta<sup>®</sup> added to all CeraMax treatments.

### No Phytotoxicity

In side-by-side trials, CeraMax-treated seed showed no phytotoxic stress. ILevo treated seed showed Halo Effect and necrosis on majority of seedlings in all plots.



CeraMax @ 1.23 fl oz + Avicta + commercial seed treatment



ILevo @ 1.18 fl oz + commercial seed treatment

**2022 Greenhouse Study**  
Evaluation of Emergence & Plant Health



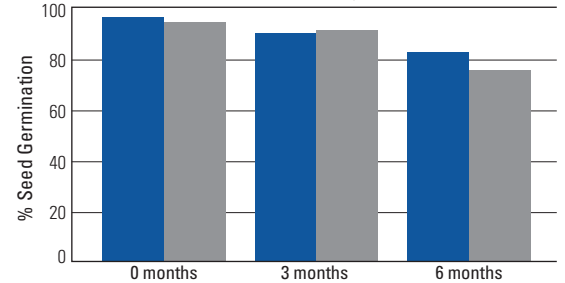
2022. Greenhouse Study, Westfield IN. Photo taken at 12 weeks of growth.

A powerful defense tool against SDS without plant stress, phytotoxicity, or stunting, CeraMax delivers healthier soybean plants with more biomass.

**Better Seed Safety**

CeraMax shows no negative impact on seed germination even at the highest allowable dose rate.

**CeraMax vs Untreated**  
% Seed Germination (soybeans)



Stress test at cold and warm temperature shows similar results.

2017 SGS. Brookings SD. Replicated trial averages from 6 month seed safety and germination study. CeraMax rate at 40 grams active ingredient per 100 kg seed.

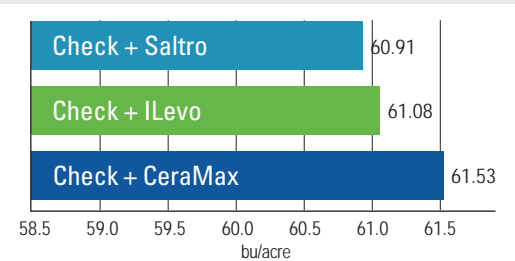
**PROVEN PERFORMANCE**

over **200** <sup>10 states</sup> <sub>5 years</sub>  
field trials

**SOYBEAN YIELD IMPACT**

CeraMax + Acceleron<sup>®</sup> Standard  
increased yield by **4.3 bu/A**  
vs Acceleron Standard alone

**Higher Yield Potential**

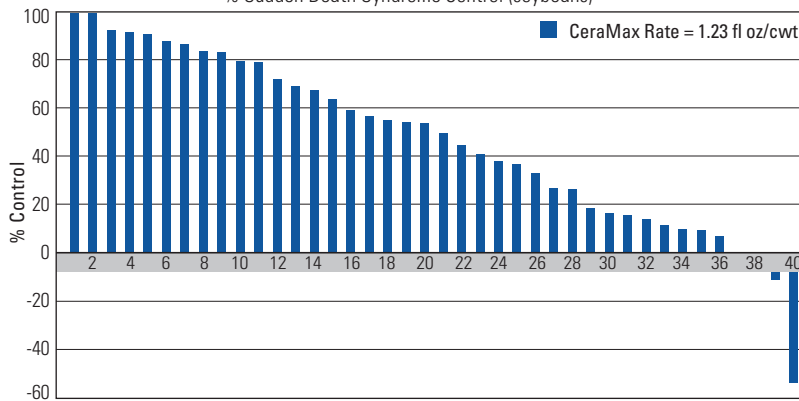


2022. Yield Comparison Field Trial. 10 Midwest locations.

**Better SDS Control**

Soybeans treated with CeraMax + Acceleron Standard showed lower SDS incidence vs Acceleron Standard across all SDS disease classifications.

**CeraMax + Acceleron Standard vs Acceleron Standard alone**  
% Sudden Death Syndrome Control (soybeans)



In field trials where CeraMax was used in combination with Acceleron Standard, better SDS control was obtained in 91% of the cases vs Acceleron Standard alone.

Treatment	SDS Control (%)	Win (%) vs Acceleron Standard
Acceleron Standard + CeraMax	46.8%	95.0%
Acceleron Standard + ILevo*	39.5%	77.5%

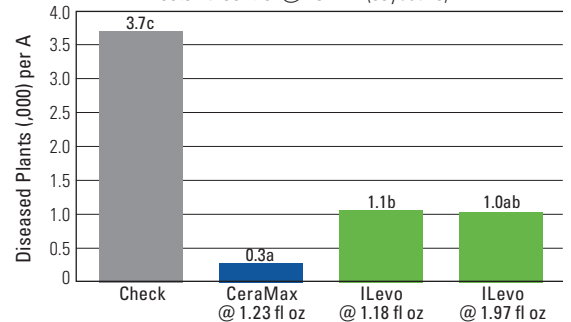
2019 AgriThority T8 & F13. IA, IL, IN, MI, MN, MO, NE, OH, WI. 44 test plots at 11 locations. Avicta added to all CeraMax seed treatments. \*ILevo data not shown in above chart. In heavy disease pressure areas, CeraMax can be used up to 2.46 fl oz per cwt.

**Better Fungal Disease Control**

CeraMax shows improved control versus ILevo for Rhizoctonia spp seedling disease.

**CeraMax vs ILevo**

Rhizoctonia Control @ 28 DAP (soybeans)



2019. Iowa State University. Ames IA. CeraMax rate in fl oz per 140,000 seeds. In heavy disease pressure areas, CeraMax can be used up to 2.46 fl oz per cwt.