



W12

CORN

PRODUCT PORTFOLIO

biotinsic
by indigo

 **SATISFACTION
GUARANTEE**
100% with replant policy.

INDIGO'S BIOLOGICAL SEED TREATMENT

Plant for Performance and Grow with Confidence

biotrinsic® W12

biotrinsic® W12 is a powerful combination of two live microbes that enhance drought protection during the critical flowering and grain fill stages. These microbes work with the corn plant to optimize root growth and help improve the amount of water the plant can take in and use.

HOW OFTEN DO YOU EXPERIENCE LEAF ROLLING AND TIP BACK IN YOUR CORN DUE TO DROUGHT STRESS?



Effects of drought on leaf and ear development

Drought stress during critical stages is becoming more common leading to decreased yields. What if there was a product that could help your corn plant withstand drought stress during the critical flowering and reproductive stages?

- W12 STARTS WORKING FROM THE MOMENT YOU PLANT THE SEED AND WORKS FROM THE ROOTS TO THE SHOOTS ALL SEASON LONG TO PREPARE THE PLANT TO BETTER WITHSTAND THE STRESS OF LEAF ROLLING, TIP BACK, AND YIELD LOSS.
- WHEN DROUGHT HITS AT THE WORST TIME POSSIBLE, MAKE SURE YOUR CORN IS PROTECTED WITH W12.



By the time leaf rolling is visible, the plant has already reduced its photosynthesis and you've lost a day of yield.



+4.5
Avg bu/a

Drought stress during flowering and grain fill

■ W12 IS COMPRISED OF TWO LIVE MICROBES THAT FORM A SYMBIOTIC RELATIONSHIP WITH THE PLANT TO HELP PROVIDE DROUGHT PROTECTION THROUGH FLOWERING AND GRAIN FILL MAXIMIZING THE POTENTIAL OF A GREATER RETURN ON YOUR INVESTMENT

■ IMPROVED DROUGHT TOLERANCE THAT LEADS TO INCREASED YIELDS

- Flowering and grain fill are two critical growth stages when more than 1/3 of the corn plant's water use occurs
- Research spanning 3 years showed an increase in tolerance to drought stress during grain fill and 2 years it showed during flowering

■ 5 TRIAL YEARS OF TESTING WITH W12 COMPONENTS ACROSS THE CORN BELT

■ EASY TO USE FLOWABLE FORMULATION IMPROVES SEED FLOWABILITY AND CAN BE APPLIED IN THE PLANTER BOX, PRO BOX, MINI BULK, OR SEED TENDER

*Product performance information based on third-party field trials. Results will vary across growers and farm operations. A number of variables may affect agronomic outcomes. Indigo does not make any representations, warranties or guarantees as to any specific results or outcomes. Product may not be available in all areas. Limitations, terms, and conditions apply.

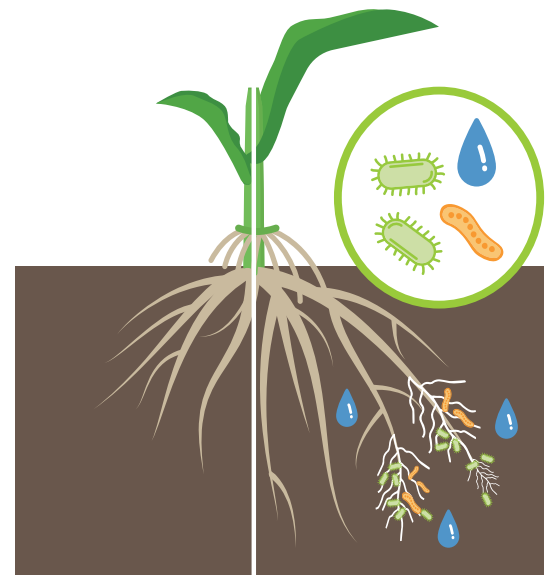
IMPROVED DROUGHT PROTECTION

biotrinsic® W12 enhances drought protection during the critical flowering and grain fill stages. It improves root volume and surface area which allows the plant to intercept more water in the soil profile by giving the plant roots more opportunity for the root to encounter water. It then acts as a bridge to help the plant reach water beyond the root zone.

- IT IMPROVES THE PLANT'S ROOT ARCHITECTURE AND SURFACE AREA. EACH ROOT IS LIKE A WATER WELL SO THE MORE ROOTS THE PLANT HAS, THE MORE WATER RESOURCES IT CAN USE DURING TIMES OF DROUGHT.
- BUT, IT DOESN'T STOP THERE. IT HELPS TO INCREASE THE AMOUNT OF WATER THE PLANT CAN ABSORB AND UTILIZE TO SUPPORT GROWTH AND YIELD. THINK OF THE PLANT'S ROOTS AND XYLEM AS WATER PIPELINES. BIOTRINSIC™ W12 INCREASES THE NUMBER OF ROOTS (PIPELINES) AND THE SIZE OF THE PIPELINE LEADING TO INCREASED WATER ABSORPTION AND TRANSPORT TO THE LEAVES TO SUPPORT PHOTOSYNTHESIS.
- THIS ALLOWS THE PLANT TO INCREASE WATER UTILIZATION DURING FLOWERING AND GRAIN FILL STAGES WHICH INCREASES YIELDS.

What if there was a product that could help your corn during these two drought critical developmental stages?

CORN is not a compensatory crop like soybeans. Having one bad day in a water limited situation impacts yield because the moisture or yield that was lost cannot be made up by the plant the following day.



Untreated

biotrinsic® W12

EAR AND KERNEL DEVELOPMENT

Incomplete ear fill problems resulting from drought stress may also be related to kernel abortion. If plant nutrients are limited during the early stages of kernel development, then kernels at the tip of the ear may abort. Kernels at the tip of the ear are the last to be pollinated and cannot compete as effectively for nutrients as kernels formed earlier.¹ biotrinsic® W12 works during the flowering and reproductive stages to help shield the plant from drought stress.

¹<https://agcrops.osu.edu/newsletter/corn-newsletter/ear-development-impacted-drought-conditions>

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INCREASED SHOOT VOLUME UNDER DROUGHT STRESS

Making the most of every day from the time you plant the seed is important to maximizing your yield. biotrinsic® W12 starts working from the moment that seed is planted and on average we see a 12% increase under drought stress in shoot volume after emergence with bacillus simplex. That means it is improving the plant's ability to optimize yield throughout the rest of the season.

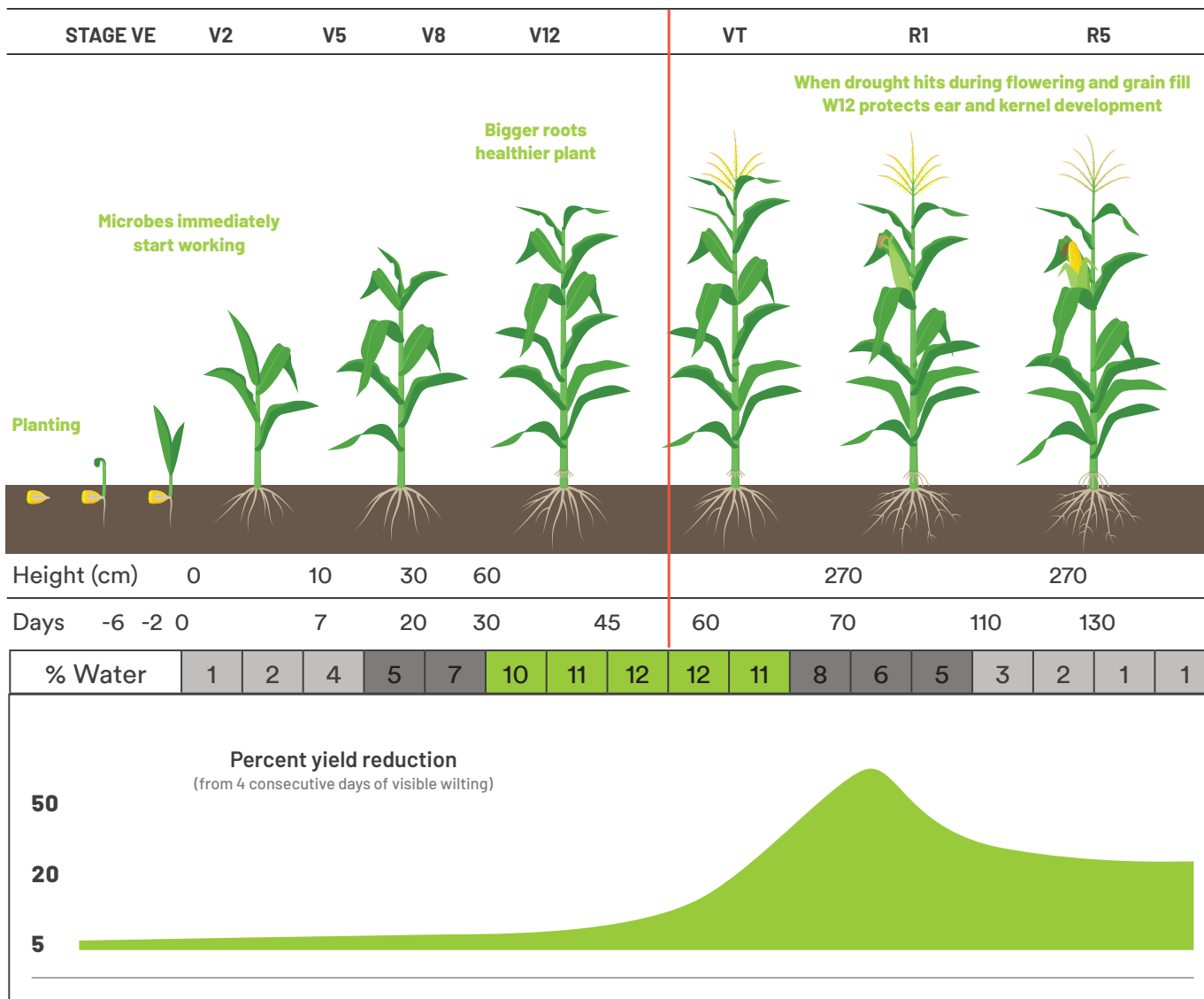
+12%

Shoot volume under drought with bacillus simplex

DROUGHT TOLERANCE DURING CRITICAL FLOWERING AND GRAIN FILL STAGES PROTECTS YIELD POTENTIAL

Farmers are no strangers to drought. The past few years have seen extreme lulls in rain at the growing season’s critical moments. Every year across the corn belt, fields are impacted by drought and heat stress.

A farmer’s greatest vulnerability to drought stress occurs during the flowering and grain fill stages. Your yield potential during these critical growth stages can be compromised as much as 10–40% during flowering and 20–30% during grain fill. biotrinsic® W12 is helping to provide drought protection during these stages.



Classen, M.M., and R.H. Shaw. 1970. Water deficit effects on corn. II. Grain components. Agron. J. 62:652

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CONSISTENT YIELD ADVANTAGES

biotrinsic® W12 has proven to consistently generate improved yield response. We have studied the two active ingredients over the past 3 years and have combined them to improve drought tolerance. When you experience drought during flowering and grain fill W12 helps protect your yield, but if you don't experience it your crop can still see a potential yield uplift.

	No Stress	Drought Stress
biotrinsic® W12 <i>Coniochaeta nivea</i> + <i>Bacillus simplex</i>	0.91 bu/a	4.5 bu/a flowering and grain fill
	1 year average	
<i>Coniochaeta nivea</i>	1.01 bu/a	6.3 bu/a grain fill
	2 year average	
<i>Bacillus simplex</i>	0.95 bu/a	2.9 bu/a grain fill
	3 year average	



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PRODUCT DETAILS

CAN BE USED ON

- › Dryland fields where rain fed crops are limited by moisture
- › Irrigated fields where irrigation is limited in amount of water that can be applied or efficiency of applied water
- › Fields where elevation changes make water infiltration into the soil profile difficult
- › Fields where soil texture limits water holding capacity
- › Crops that are planted in an ideal or late planting window
- › All corn hybrids and traits, including hybrids with drought technology

HOW TO USE IT

- › Can be applied to corn seed at any time in the pro box, mini bulk bag, seed tender, or planter hopper (always follow recommended on seed stability guidelines).
- › The low use rate allows additional room on the seed so it can be applied with other products like talc and graphite due to its low use rate.
- › The low dust formulation allows it to be used with equipment and operators where dust off is a problem.
- › No expensive additional equipment is needed to apply and it can be used with any planter.
- › Application to the seed, creates an immediate team between microbes and plants positively improving plant and root growth with no wasted time. Our seed treatment starts working the moment you plant because it's on the corn seed. With other in-furrow treatments on the market, the roots must grow to the treatment which could take many days.
- › 90 days on-seed stability provides the flexibility you need during the planting season.
- › Broad chemical compatibility so it can be used with your existing treatments. Always reference Indigo's compatibility guide.
- › By applying it directly to the seed the microbes adhere to the roots where it starts working immediately supporting plant health and nutrition. You don't have to worry about weather events stripping away your investment.



Pkg Treats	Pkgs/ Case	Case	Case Treats	Unit Measures
20 units	5	5x1x20	100 units	50 lbs
50 units	5	5x1x50	250 units	50 lbs

FP Application Rate: 1 vol oz/CWT



5X

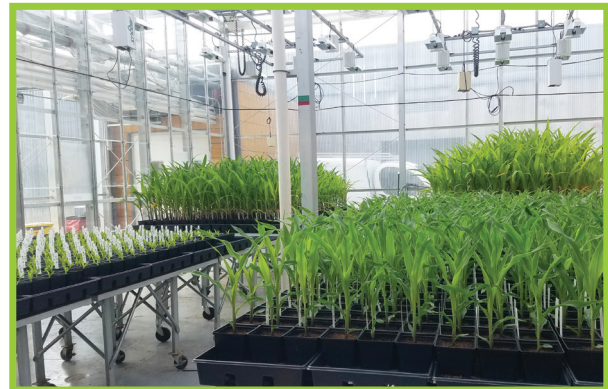
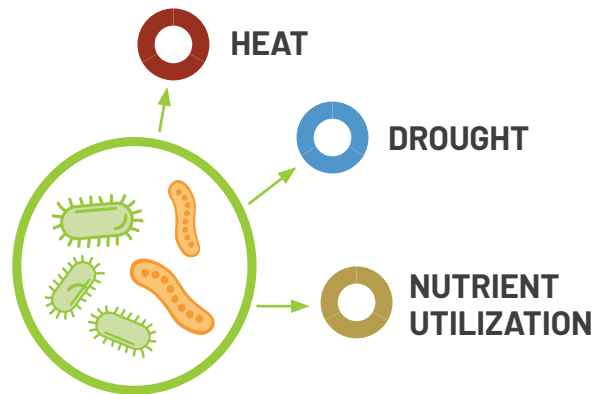


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THE SCIENCE BEHIND THE DIFFERENCE

Microbiomes, or communities of microbes, help maintain internal processes for all living things – Indigo focuses on identifying microbes that have evolved in conjunction with plants over time to optimize health and maximize their productivity.

At Indigo, we identify which of these microbes are most beneficial to a plant's health through the application of algorithms and machine learning. We further prove their performance at our research laboratories and greenhouses in Boston, Massachusetts, and Research Triangle Park, North Carolina along with extensive field trials throughout the United States. Our resulting seed treatment products complement a plant's natural process to improve health and development across each phase of life, while boosting crop yields.



WHAT MAKES BIOTRINSIC® DIFFERENT

More Beneficial for Your Crop

Microbes are selected to address the key stresses that limit crop yield potential. This allows you to select the right biotrinsic® products based on the stresses that have the greatest impact on your farm.

From Plants for Plants

biotrinsic® is a collection of over 30,000 naturally occurring microbes that have been extracted from plants thriving in stressful conditions. We isolate microbes that are abundant in plants that are thriving under stress while other plants around them are not. This allows us to tailor our products to a specific crop and set of stresses.

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