# NEXTA™

# STRESS LESS.
# YIELD MORE.

PIONEER®

CORTEVA™ agriscience

# WHY BIOLOGICALS?

We know that yield potential is highest before seed goes into the ground. NEXTA™ Biologicals protect and preserve this yield potential all season long with our **START, GROW, FINISH** approach.

Maximum yield is a function of genetics, environment and management. While growers have realized numerous advances in genetics and management, mitigating environmental stress has been largely out of their control. Until now.

Using NEXTA Biologicals, farmers can minimize yield losses due to environmental stress factors and unlock the next frontier in yield potential.

# MAXIMIZE YOUR ACRE WITH NEXTA BIOLOGICALS

One of the biggest challenges farmers face is the unpredictability of weather. NEXTA biologicals help address this challenge by adding synthetic hormones to your plants. These hormones work with your crop's natural processes to help it better withstand environmental stresses.

The result? Your plants are better equipped to handle whatever the season throws at them, whether that's a cold snap in the spring, a dry spell in the summer, or heavy rains at any point in the season. By using NEXTA biologicals, you're not just protecting your crop—you're also protecting your peace of mind. You can stress less, knowing your plants are better equipped to handle challenges, and focus on what matters most: maximizing your yield potential. The NEXTA pipeline will continue to develop and test products that:

## BOOST PERFORMANCE:

Activate the plant and its environment to maximize crop yield by enhancing its ability to efficiently utilize soil, nutrients, water and sunlight.

## BUILD RESILIENCE:

Empower crop vigour to withstand adversity and stress by enabling crops to thrive in the face of abiotic stresses and unfavourable weather.

## PROTECT POTENTIAL:

Shield crops from pests and diseases to ensure viability by incorporating powerful and flexible solutions in crop protection programs.

# PLANT HORMONE FUNDAMENTALS

Protecting yield potential with NEXTA™ biologicals products is straightforward and rooted in science. When plants are stressed, growth hormones are thrown out of balance. Instead of getting growth messages, plants receive stress messages. Growth messages preserve yield potential; stress messages take away yield potential.

Supplemental applications of NEXTA products help ensure growth messages are sent at key yield determining growth stages. To fully understand how this approach works so effectively, it's important to know what plant hormones do. We'll focus on five major plant hormones—three of which are growth hormones, and two that are stress hormones.

# BALANCE AND RATIOS ARE KEY

Although the concentration of major plant hormones is important, remember these hormones are messengers, and it is their **ratio** inside the plant that regulates all physiological processes from planting to harvesting.

# PLANT HORMONE CYCLE




| Ca, Fe, Mg, Mn, Zn, P, N | B, Ca, Cu, Fe, K, Mg, Mn, Zn, Amine N | B, Ca, Cu, K, Mg, Mn, Mo, Amine N | B, Cu, K, Mg, Mn, Mo, P, Amine N |
|---|---|---|---|
| **Abscisic Acid (ABA):** Keeps the seed dormant before going into the soil. | **Gibberellic Acid (GA):** Promotes cell elongation and stem growth. | **Gibberellic Acid (GA), Cytokinin, & Auxin:** Combination of all growth hormones regulate seed set and overall seed development. | **Gibberellic Acid (GA), Cytokinin, & Auxin:** Growth hormone levels are completely depleted. |
| **Gibberellic Acid (GA):** Breaks dormancy and promotes germination. | **Cytokinin:** Produced in the roots and, along with Auxin, promotes cell division and lateral stem development. | **Ethylene:** Triggers ripening and initiates senescence. | **Abscisic Acid (ABA):** Promotes crop senescence and initiates seed dormancy. |
| **Cytokinin:** Promotes shoot development. | **Auxin:** Produced in the shoot and, along with Cytokinin, promotes cell division and influences root development. | | |
| **Auxin:** Promotes root development. | | | |

# KEY MICRONUTRIENTS

**Ca** — **Calcium** is crucial for plants as it strengthens cell walls, regulates cell processes, aids enzyme function, enhances nutrient uptake, and boosts plant resilience against environmental stressors.

**Mg** — **Magnesium** is vital for plants as it's a core component of chlorophyll, enabling photosynthesis, and activates enzymes essential for energy production, nutrient uptake, and protein synthesis, all of which are critical for plant growth and development.

**Mn** — **Manganese** is important for plants because it helps with photosynthesis and nutrient uptake. It acts as a helper, making sure plants have the energy and nutrients they need to grow and stay healthy.

**B** — **Boron** is essential for plants as it supports cell wall formation, pollen tube growth, nutrient uptake, sugar transport, enzyme activation, and regulates water uptake through stomatal function, all of which are vital processes for plant growth and development.

# KEY MICRONUTRIENTS

**Zn**

**Zinc** is important for plants because it helps enzymes work properly. These enzymes are like the workers in a plant's factory, and they help with tasks like making DNA, proteins, and chlorophyll (which plants use for photosynthesis). Zinc also helps control plant growth and development. It's like a plant's regulator, making sure things run smoothly. Overall, zinc is crucial for keeping plants healthy and helping them cope with tough situations.

**Cu**

**Copper** is vital for plants as it activates enzymes, aids in photosynthesis through chlorophyll production, regulates iron uptake, contributes to cell wall formation, all essential for plant health and growth.

**Mo**

**Molybdenum** is crucial for plants because it plays a central role in nitrogen metabolism. It is an essential component of enzymes that convert nitrogen from the soil into forms that plants can use to make proteins and grow. Without molybdenum, plants cannot efficiently use nitrogen, leading to nitrogen deficiency and poor growth. In essence, molybdenum ensures that plants can access and utilize the nitrogen they need to thrive and develop properly.

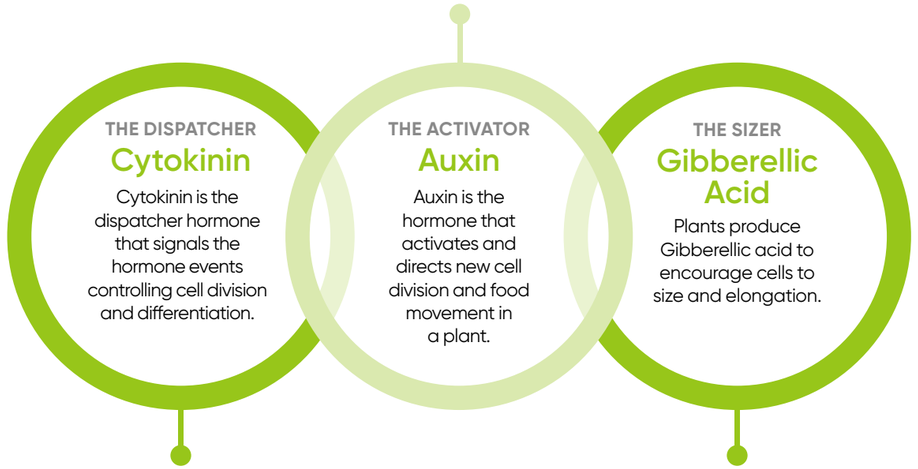
**Fe**

**Iron** is essential for healthy plant growth. It plays a key role in chlorophyll production to support photosynthesis, helps legume roots fix nitrogen from the air into a form the plant can use, and iron-containing proteins are essential for energy conversion. Without enough iron, plants struggle to grow and function properly.

# GROWTH HORMONES

Plant growth hormones, also known as phytohormones, are essential chemical messengers that govern various aspects of plant growth and development. These hormones include Auxins, Gibberellins, and Cytokinins, each with its unique functions.

**Auxins regulate phototropism, the bending of plant stems and leaves towards light. This response is crucial for optimizing photosynthesis and is controlled by the redistribution of Auxin in response to light.**




**Cytokinins are involved in regulating many stress-responsive genes in plants, including those related to heat stress. They can help plants adapt to challenging environments and improve their overall stress tolerance.**

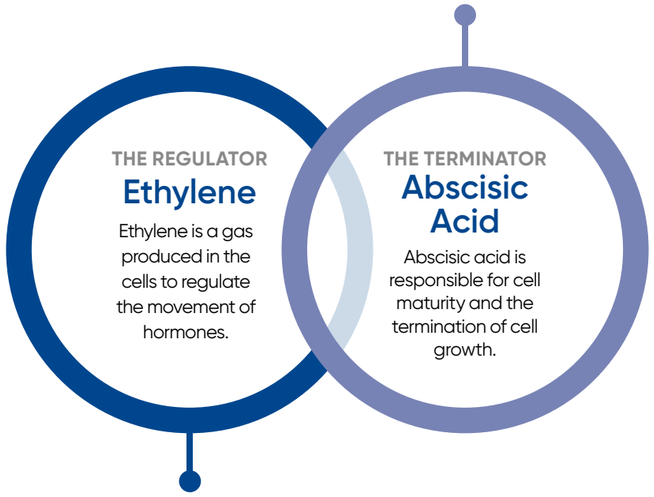
**Seed has a natural dormancy period, a protective mechanism that prevents them from germinating in unfavorable conditions. Gibberellic Acid (GA) helps break this dormancy by stimulating the synthesis of enzymes that convert stored nutrients into forms usable for germination.**

These hormones work together to coordinate vital processes such as seed germination, flowering, and responses to environmental cues, ensuring that plants adapt and thrive in their surroundings.

# STRESS HORMONES

Stress hormones in plants are signaling molecules that play a vital role in helping plants respond and adapt to various environmental stresses. When a plant encounters stress, stress hormones increase, leading to physiological responses like stomatal closure to reduce water loss, the synthesis of stress-related proteins to enhance resilience, and altered root growth patterns to seek water sources.

**Abscisic Acid** plays a key role in regulating seed dormancy. It inhibits germination in many seeds, preventing them from sprouting prematurely. This dormancy mechanism ensures that seeds only germinate when environmental conditions are favorable for survival.

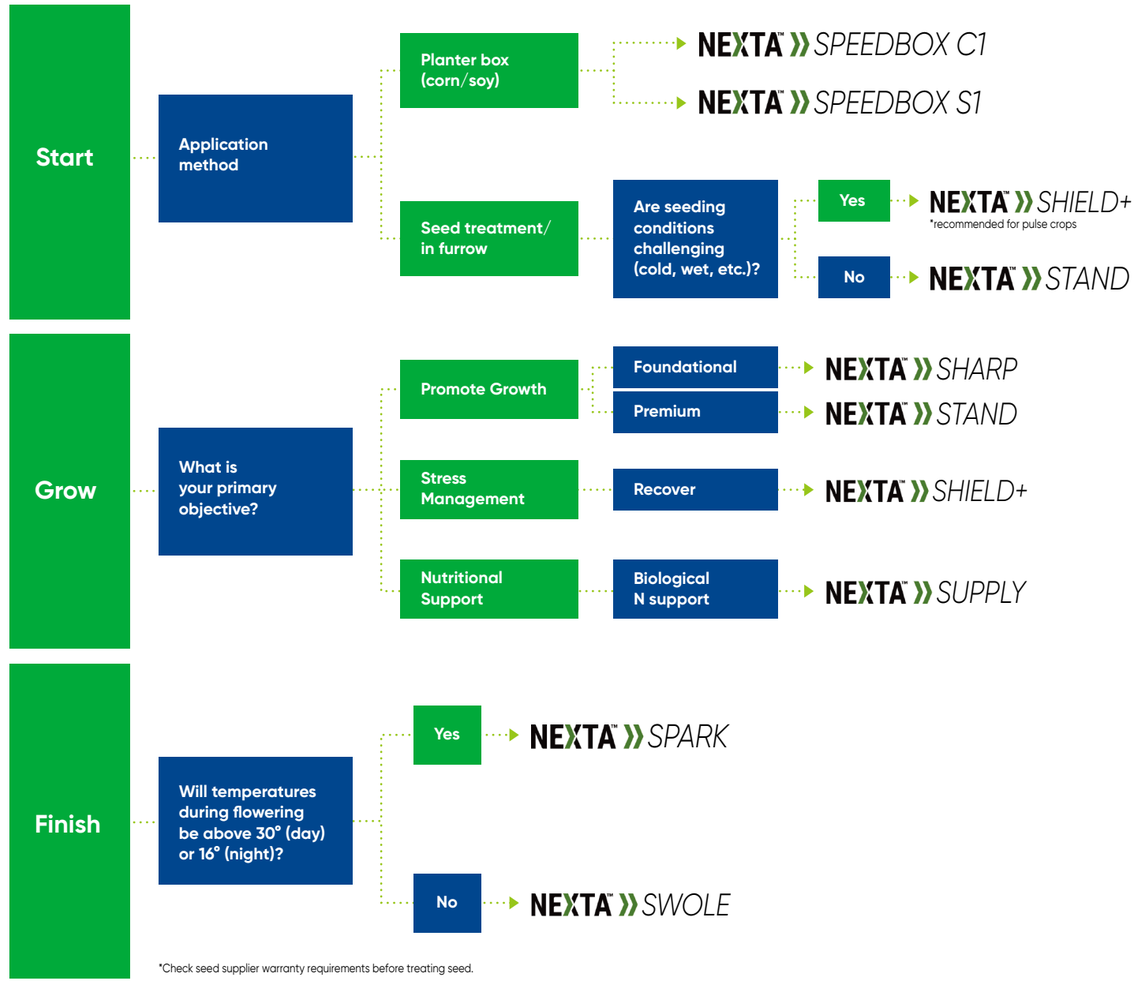



**Ethylene** plays a role in plant responses to various stresses, including mechanical stress, pathogen attack, and environmental stressors like drought and high salinity.

These stress hormones act as critical mediators, allowing plants to survive and thrive in challenging conditions by initiating protective mechanisms and enhancing their overall stress tolerance.

# START. GROW. FINISH.

NEXTA™ biologicals are built on a simple but powerful philosophy: **START. GROW. FINISH.** This approach is designed to support your crop at every critical stage, from the moment the seed is planted, through vegetative growth, all the way to harvest. By supporting your crop throughout its lifecycle, NEXTA products help ensure that the yield potential you start with is the yield potential you finish with.




*Check seed supplier warranty requirements before treating seed.

# NEXTA™ STAND

NEXTA™ STAND accelerates root development, promoting bigger and more robust plants that are more resilient to stress–increasing plant productivity and yield potential. Strategically formulated to ignite robust plant growth and optimize yield, NEXTA STAND increases the levels of naturally occurring hormones to improve essential plant functions and maximize growth potential. NEXTA STAND is a CFIA registered yield stimulant and plant growth regulator.

## Crops*:

Canola, **cereals, corn**, soybeans

## Product Features and Benefits:

- Contains a patented formulation of four critical plant growth hormones: Cytokinin, Gibberellic acid (GA), and Auxins (IBA and IAA).
- The only biostimulant that contains four plant growth hormones–strategically formulated to enhance plant growth and development by stimulating cell division, cell differentiation and enlargement, nutrient uptake and nutrient utilization.
- Accelerates and increases root and shoot development, improving plant competitiveness to boost plant growth, maximize crop potential.
- Built with the highest quality ingredients, resulting in guaranteed analysis of actives for consistent performance, extensive tank-mix compatibility.

*see label for additional crop registrations

## Ingredients:

| | |
|---|---|
| Cytokinin, as kinetin | 0.009% |
| Gibberellic acid | 0.005% |
| Indole-3-butyric acid | 0.005% |
| Indole-3-acetic acid | 0.005% |

## Recommended Application Timing:

Start (Seed treatment)
Grow (Foliar at herbicide timing)

## Application Rate:

Seed treatment rate: 65–125 mL/CWT
In-furrow rate: 125–200 mL/ac
Foliar rate: 125–250 mL/ac

## Water Volume:

Ground: 20 L/ac – 40 L/ac (5 – 10 US gal/ac)
Aerial: 10 L/ac – 20 L/ac (3 – 5 US gal/ac)

## Product Size:

2 x 10 L case
1,000 L tote

# NEXTA™ SHIELD+

NEXTA™ SHIELD+ enhances plant resilience and protects yield potential by supporting physical stress recovery. From the moment a plant germinates, it is challenged with abiotic stress, such as cold, heat, hail, excessive rain, frost, and drought. NEXTA SHIELD+ ensures the plant is more equipped to efficiently recover from stress and quickly resume growth rather than focus on recovery–leading to greater plant productivity and yield potential. NEXTA SHIELD+ is a CFIA registered yield stimulant and plant growth regulator.

## Crops*:

**Canola,** cereals, dry beans, **lentils, peas, soybeans**

## Product Features and Benefits:

- Enhances plant resilience and protects yield potential by employing three distinct modes of action to support physical stress recovery.
- Aids in the recovery of crop stress caused by cold, frost, herbicides, insects, and hail.
- Increases plant productivity by enabling the plant to quickly resume growth and spend less time recovering, resulting in less days lost during the growing season.
- Built with the highest quality ingredients, resulting in guaranteed analysis of actives for consistent performance, extensive tank-mix compatibility, and reliable shelf-stability.

*see label for additional crop registrations
**see label for specific crop recommendations

## Ingredients:

| | |
|---|---|
| Cytokinin, as kinetin | 0.0075% |
| Nitrogen | 3% |
| Soluble potash | 1 % |
| Cobalt | 1 % |
| Molybdenum | 1 % |

## Recommended Application Timing:

Start (Seed treatment)
Grow (Foliar at herbicide timing, or 24-72 hours after physical damage or stress event)

## Application Rate:

Seed treatment rate: 120 mL/100 lbs of seed**
Foliar rate: 250 mL/ac up to 500 mL/ac following physical damage

## Water Volume:

Ground: 20 L/ac – 40 L/ac (5 – 10 US gal/ac)
Aerial: 10 L/ac – 20 L/ac (3 – 5 US gal/ac)

## Product Size:

2 x 10 L case
1,000 L tote

# NEXTA™ SHARP

NEXTA™ SHARP provides two essential growth-promoting plant hormones to optimize crop development and yield. NEXTA SHARP contains indole-butyric-acid (IBA) for fast, vigorous root growth and cytokinin for optimal vegetative and reproductive development. NEXTA SHARP is a CFIA registered yield stimulant and plant growth regulator.

## Crops*:

**Cereals**, **canola, corn**, soybeans

## Product Features and Benefits:

- Contains key ingredients to optimize season-long plant development, leading to higher yield.
- Enhances cell division and nutrient uptake to boost root growth, setting the stage for maximum yield.
- A CFIA-registered yield enhancer product, NEXTA™ SHARP enhances naturally occurring hormones within the plant to optimize genetic expression.

*see label for additional crop registrations

## Ingredients:

| | |
|---|---|
| Cytokinin, as kinetin | 0.15% |
| Indole-3-butyric acid | 0.85% |

## Recommended Application Timing:

Start (In-furrow)
Grow (Foliar at herbicide timing)

## Application Rate:

Foliar rate: 60–120 mL/ac

## Water Volume:

Ground: Minimum 55 L/ac (15 US gal/ac)

## Product Size:

2 x 10 L case
1,000 L tote

# NEXTA™ SUPPLY

NEXTA™ SUPPLY is a naturally occurring bacteria strain that colonizes the entire plant and enables conversion of atmospheric nitrogen ($N^2$) into ammonium ($NH^{4+}$) that can be metabolized by the crop. This unique conversion process supplies essential nitrogen to the crop when the existing in-ground nitrogen levels are not enough to maximize yield potential.

## Crops*:

**Cereals**, canola, **corn**, **soybeans**

## Product Features and Benefits:

- Maximizes crop potential by providing supplemental nitrogen, resulting in healthier and more resilient plants.
- Compliments and diversifies a conventional nitrogen fertilizer program by providing nitrogen at critical times during the plant's life cycle.
- Contains a natural bacteria, providing a sustainable source of nitrogen that reduces dependency of nitrogen uptake from the soil.

*see label for additional crop registrations

## Ingredients:

*Methylobacterium symbioticum*

## Recommended Application Timing:

Grow (Foliar at herbicide timing)
Canola, cereals, corn - 4 leaf stage until pre-senescence
Soybeans - 3 or 4 leaf

## Application Rate:

Foliar rate: 135 g/ac

## Water Volume:

Ground: 20 L/ac – 40 L/ac (5 – 10 US gal/ac)
Aerial: 10 L/ac – 20 L/ac (3 – 5 US gal/ac)

## Product Size:

2 x 5.39 kg case

# NEXTA™ SPARK

NEXTA™ SPARK is designed to increase plant resilience and safeguard yield by proactively protecting crops from heat blast, reducing flower/kernel abortion and pod loss caused by heat stress. NEXTA SPARK supplements the plant with additional Cytokinin to boost cell growth, improving photosynthesis and preventing plant tissues from maturing too quickly. As a result, the plants sustain photosynthetic activity and maintain nutrient and water uptake for continued plant growth and optimized yield potential.

## Crops*:

**Canola, cereals, corn, soybeans**

## Product Features and Benefits:

- Protects yield potential by reducing flower/kernel abortion during times of excess heat.
- Improves overall crop resilience by delaying premature senescence caused by heat stress.
- Built with the highest quality ingredients, resulting in guaranteed analysis of actives for consistent performance, extensive tank-mix compatibility.

*see label for additional crop registrations

## Ingredients:

| | |
|---|---|
| Cytokinin, as kinetin | 0.04% |

## Recommended Application Timing:

Finish (Foliar at fungicide timing)

## Application Rate:

Foliar rate: 500 mL/ac

## Water Volume:

Ground: 20 L/ac – 40 L/ac (5 - 10 US gal/ac)
Aerial: 10 L/ac – 20 L/ac (3 - 5 US gal/ac)

## Product Size:

2 x 10 L case
1,000 L tote

# NEXTA™ SWOLE

NEXTA™ SWOLE improves sugar distribution within the plant, promoting larger, more robust seeds and boosting flower production for increased yield potential. By enhancing naturally occurring hormone levels and providing key nutrients to the plant, NEXTA SWOLE accelerates the transport of sugars produced through photosynthesis in the leaves to essential growth areas. NEXTA SWOLE is a CFIA registered yield stimulant and plant growth regulator.

## Crops*:

**Canola**, cereals, **corn**, lentils, **peas, soybeans**

## Product Features and Benefits:

- Promotes uniform seed development by improving sugar distribution to developing seed, resulting in higher yield.
- Stimulates cell division and promotes flower development for increased yield potential.
- Built with the highest quality ingredients, resulting in guaranteed analysis of actives for consistent performance, and excellent tank mix flexibility.

*see label for additional crop registrations

## Ingredients:

| | |
|---|---|
| Cytokinin, as kinetin | 0.003% |
| Boron | 8% |
| Copper | 0.2% |
| Molybdenum | 0.004% |
| Monoethanolamine (MEA) | 16% |
| Total Nitrogen | 3% |

## Recommended Application Timing:

Finish (Foliar at fungicide timing)

## Application Rate:

Foliar rate: 500 mL – 1 L/ac

## Water Volume:

Ground: 20 L/ac – 40 L/ac (5 - 10 US gal/ac)
Aerial: 10 L/ac – 20 L/ac (3 - 5 US gal/ac)

## Product Size:

2 x 10 L case
1,000 L tote

# NEXTA™ SPEEDBOX

## A GAME-CHANGING DELIVERY SYSTEM

There are three primary soil components. The first two are near and dear to classically-trained agronomists. The third is an entirely new realm that we're continuing to discover.

### 1) CHEMICAL.

Soil chemical properties like cation exchange capacity, soil pH, and base saturation.

### 2) PHYSICAL.

Soil physical properties like soil texture, colour, structure, porosity, and density.

### 3) BIOLOGICAL.

The health and vibrance of soil microbiology, which is the engine that drives it all!

Several products featuring supplemental microorganisms to improve soil microbiology have been introduced, but they all share a common challenge. Keeping the microorganisms viable long enough to get them efficiently delivered to the soil. The NEXTA SPEEDBOX, powered by Bio-Capsule™ Technology, is a game changer.*

Microorganisms are stored in a food-grade, sealed Bio-Capsule absent of oxygen and water, until right before you're ready to plant. Even if you've tried other supplemental microorganisms before, the convenience, consistency, and performance of the NEXTA SPEEDBOX is a whole new ballgame.







* Bokmeyer, J. (2024). Bio-Capsule Delivery System coverage of Active Ingredients: A field study of delivery of dry seed actives through commercial planter equipment. Indianapolis, IN, Ag Ingenuity Partners.

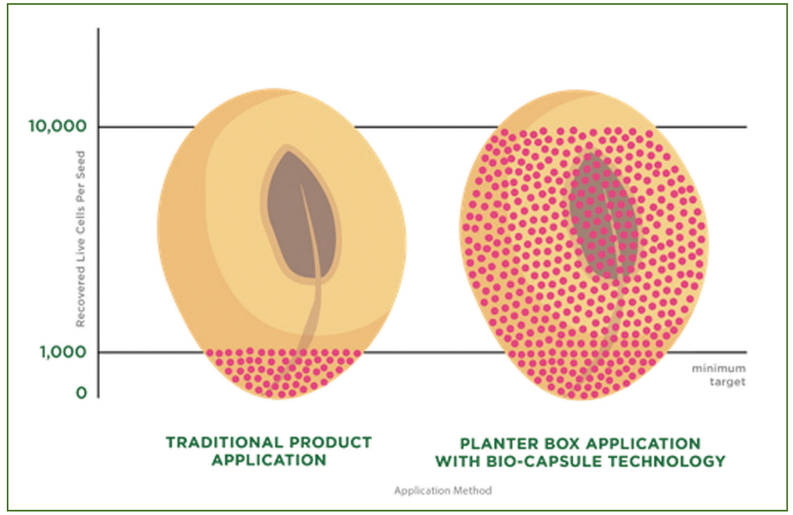
## NUTRIENT & MICROBIAL PLANTER BOX DELIVERY SYSTEM FOR SOYBEANS

POWERED BY BIO-CAPSULE™ TECHNOLOGY
INNOVATION DELIVERY SYSTEM

**Bio-Capsule™ Technology:** a unique tool to deliver biologicals safely to the furrow. The patented delivery system makes it happen–delivering more bushels for less.

## BIO-CAPSULE = MORE LIVE CELLS PER SEED

To confirm even product distribution, seed lubricant plus the Terrasym® biological was applied per grower standard practice. Ag Ingenuity Partners' agronomists collected seed samples at various progress points during planting (20%, 50%, and 80% completion). And NewLeaf Symbiotics scientists assessed the seed samples to confirm the living microbes found in Terrasym products were evenly distributed across large-scale commercial fields. Over 10,000 live cells per seed were found at each stage of planting, 10x more than traditional applications.*




**OVER 10,000 LIVE CELLS PER SEED AT EACH STAGE OF PLANTING**



**LIVE CELLS PER SEED WITH TERRASYM FOR SOYBEAN**

20% planted = 39,914
50% planted = 38,312
80% planted = 38,591

* Bokmeyer, J. (2022). Microbial Delivery System Effectiveness on Seed Treatments: A field study of planter box delivery coverage on seed through commercial planter equipment. Indianapolis, IN, Ag Ingenuity Partners.

NEXTA™

PIONEER®

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