

BECK'S Seed Treatment Study on Soybeans – 2010

Purpose: We have yield data from 22 different locations with 4 of these locations being Beck's PFR sites, where we evaluated Escalate™, other traditional fungicides along with biological control treatments, plant growth stimulants and inoculants.

Treatment	Emerged Population	Plant Height (IN.)	Pod Height (IN.)	Standability 1 = Erect 5 = Flat	Bushels [†] Per Acre
Inovate	137,660	37.8	2.3	1.0	60.6
Escalate + Optimize	136,031	38.2	1.9	1.0	60.1
Escalate + QuickRoots B	137,512	37.5	2.2	1.1	59.9
Escalate + Cue	132,930	38.9	2.3	1.0	59.9
Escalate + YEA	132,445	36.9	2.1	1.0	59.7
Escalate + HeadsUp	134,745	38.4	2.6	1.1	59.6
Escalate + Myconate	130,140	37.5	2.3	1.1	59.4
Escalate + QuickRoots	139,358	38.1	2.1	1.1	59.3
Escalate + Excalibre SA	125,273	37.6	2.3	1.1	59.3
Escalate	125,420	36.8	2.3	1.1	59.1
Escalate + Protinus	134,923	36.3	2.3	1.1	59.1
Escalate + ProSurge	136,662	36.5	2.3	1.1	58.9
Escalate + B28	138,652	37.4	2.3	1.0	58.8
Rancona + Sebring	141,142	38.1	2.7	1.1	58.5
Rancona + Sebring + Senator	135,567	37.8	2.5	1.1	58.4
Untreated	<u>137,711</u>	<u>37.5</u>	<u>2.3</u>	<u>1.0</u>	<u>57.3</u>
AVERAGE	134,761	37.6	2.3	1.1	59.2

[†]Bushels per acre and test weight are corrected to 13% moisture.

Summary: This year, we saw an advantage to all seed treatments in this study when compared to the untreated check. Escalate provided a 1.8 Bu./A. increase in yield compared to the untreated seed. Studies such as these are one way that we constantly evaluate new leading edge treatments for possible addition to our Escalate *yield enhancement system*. The following is a brief description for each treatment.

- Escalate™:** Beck's Superior Hybrids *yield enhancement system* is a proprietary mix of products that offer insect protection, improve stands, seedling health, and yield. This unique blend is sealed onto each seed using Beck's exclusive polymer.
- Excalibre™:** Advanced Biological Marketing's triple strain rhizobia formulation provides on strain for hot, dry soils; one for cool, wet conditions; and a third strain for aggressive nodulation in nitrate-carryover conditions.
- Myconate®:** Myconate is a seed treatment designed to stimulate the growth of vesicular-arbuscular mycorrhizae (VAM) on plant roots. VAM increases the ability of the plant to absorb water, nitrogen and essential minerals by significantly increasing the effective absorbing surface area of the root system. This improved water and nutrition aids the plant in managing stress, such as soil and mineral deficiencies and salinity. Increased phosphorus absorption and utilization by mycorrhizal plants also increases nodulation of legumes by nitrogen-fixing bacteria.
- Optimize®:** Features LCO Promoter Technology® which is a natural occurring molecule that activates a cascade of plant genes which begins and enhances cell division in both the root and shoot, independent of soil and weather conditions. Optimize utilizes Cell-Tech® Soybean, a premium liquid inoculants, as a carrier.
- Protinus™:** A seed treatment that promotes early plant health and growth by delivering zinc, magnesium and iron right to the seed. This can lead to increased root mass, better vigor and early emergence. Protinus helps to lower the pH in the zone immediately around the seed thus allowing important nutrients to be more early absorbed.
- ProSurge™:** A seed treatment that contains a catalyst for stimulation of the biosynthesis of nucleic acids and proteins of soybeans, and a food grade film-forming polymer for seed encapsulation. ProSurge can enhance plant stand, early plant vigor, and yield.
- B28:** An experimental product from Precision Laboratories intended for use as a seed treatment enhancement. B28 works to promote early season seedling growth to aid in stand establishment and contribute to a healthy, robust plant better suited to defend itself against stress and a potential harsh growing environment.
- HeadsUp®:** An all natural bio-fungicide for use as a preventative systemic disease control in plants. This activation of the natural defenses is a systemic effect protecting all parts of the plant and can extend throughout the growing season.
- CUE™:** A plant signal compound for soybeans that triggers beneficial fungi in the root zone before the plant can activate them naturally. CUE enhances the root structure, improving nutrient, water and phosphorus uptake to overcome environmental stress.

BECK'S Seed Treatment Study on Soybeans – Continued

- YEA®:** A Yield Enhancing Agent that uses a chitosan proprietary elicitor to boost seed germination and vitality, stimulate emergence and sprouting, enhances plant vigor, promote growth, suppress diseases and pathogens, activate the plant resistances to environment stress and disease pressures, including the suppression of parasitic nematodes, improve crop yields and quality.
- QuickRoots®:** QuickRoots is composed of live microorganisms which can quickly colonize and grow with the root as a plant develops. These microorganisms have been shown to increase availability of certain soil plant nutrients. QuickRoots can release plant available phosphorus from sources in the soil which has been shown to increase root mass, allowing the plant to explore a greater volume of soil. Increased plant nutrient availability will often lead to increased plant health and vigor which can translate into a yield response.
- QuickRoots B:** QuickRoots B is an experimental version of QuickRoots that is the same formulation but with a 9 month life on seeds instead of 18 months.
- Rancona®:** Contains a new active ingredient, ipconazole, a novel triazole fungicide. Provides more uniform emergence, improved early season plant health and helps maximize yield potential.
- Sebring™
480FS:** A seed-applied systemic fungicide containing matalaxyl that offers excellent control of select diseases, protecting the seed, roots and emerging plants against systemic downy mildew, Phythium spp. and Phytophthora spp.
- Senator®
600FS:** An Imidacloprid based insecticide is proven highly effective in protecting crops from soil-dwelling and early season insects that impact foliage. Applied as a seed dressing, Senator kills insects on contact and/or ingestion by disrupting the nervous system, leading to paralysis and death. The material is readily absorbed through the plant's root systems and transferred to seedling and leaf tissue to promote continuing protection for emerging crops for up to 70 days.
- Inovate™:** Inovate Systems is a promotional combination of NipIt INSIDE™ Insecticide and RANCONA™ Xtra Fungicide that provides both contact and triple-systemic protection against a broad spectrum of insects and diseases.

BECK'S Seed Treatment Study on Corn – 2010

Purpose: In this plot, we evaluate many types of seed treatments, such as fungicides, insecticides, biologicals, plant growth stimulants and micronutrients, on BECK 5454HXR™*.

Treatment	Harvested Population	Test† Weight	Percent Broken Stalks	Percent Moisture	Bushels† Per Acre
Maxim XL / Apron XL + Dynasty + Poncho 500 + YEA	31,117	56.9	0.2	17.8	199.7
Maxim XL / Apron XL + Dynasty + Poncho 250	31,099	56.8	0.2	18.1	199.4
Maxim XL / Apron XL + Dynasty + Poncho 500 + QuickRoots	31,099	56.8	0.1	18.2	199.0
Maxim XL / Apron XL + Dynasty + Poncho 500	31,026	56.5	0.2	18.3	198.6
Maxim XL / Apron XL + Dynasty + Poncho 500 + QuickRoots B	30,466	56.6	0.2	18.4	198.4
Maxim XL / Apron XL + Stamina + Poncho 500	30,882	56.7	0.2	18.0	198.3
Maxim XL / Apron XL + Dynasty + Avicta Duo 250	31,025	56.5	0.1	18.3	198.1
Maxim XL / Apron XL + Dynasty + Poncho 500 + Myconate	31,018	56.9	0.3	17.9	197.2
Maxim XL / Charter / Acquire + Stamina + Poncho 500	30,990	56.5	0.0	18.3	196.4
Maxim XL / Apron XL + Dynasty + Poncho 500 + Votivo	30,703	57.0	0.6	18.0	196.4
Maxim XL / Apron XL + Dynasty + Poncho 500 + ProSurge	31,037	56.8	0.3	17.9	196.2
Maxim XL / Apron XL + Dynasty + Poncho 500 + Protinus	30,992	56.8	0.0	18.1	195.5
Untreated	<u>30,676</u>	<u>56.7</u>	<u>0.2</u>	<u>18.2</u>	<u>195.3</u>
AVERAGE	30,933	56.7	0.2	18.1	197.6

†Bushels per acre and test weight are corrected to 15% moisture.

*XL™ brand seed is distributed by Beck's Superior Hybrids, Inc.

™XL is a trademark of Pioneer Hi-Bred.

Summary: Seed treatments typically provide small increases in yield that are difficult to measure and be confident in without many locations of data. This year we are able to provide you with 28 different locations worth of data, 4 of which are the PFR sites. In this year's study, average yields only differed by 4.4 Bu./A. from top to bottom. We saw a benefit to all the seed treatments when compared to the untreated entry. These plots are published to show farmers the types of seed treatments we are evaluating and the commitment we have to finding the best products for Beck's Escalate™ *yield enhancement system*.