2010 Demonstration Report

THE LEARNING CENTER

at Scott, Mississippi

Sustainable Yield Initiative

Monsanto Company has a world-wide commitment to the Sustainable Yield Initiative (SYI). As a component of the SYI, Monsanto is committed to doubling yield in its three core crops of corn, soybeans and cotton by 2030 as compared to a base year of 2000 in countries where farmers have access to current and anticipated new seed choices offered by the company. Several variables work together as part of an agronomic system to help increase and/or protect yield potential. The amount that each variable contributes to the final yield varies depending on the year and environment. A comparison of agronomic practices from 2000 and 2010 indicates that advancements in germplasm, traits, seed treatments, and planting populations can help increase final yield through increasing and/or protecting yield potential.

Study Guidelines

A replicated trial was conducted at the Monsanto Learning Center at Scott, Mississippi in 2010 to compare agronomic systems from 2000 with those of 2010. Four systems representing various advancements in agronomic management options for germplasm, traits, seed treatments, and planting populations, were evaluated for their effect on yield potential (Table 1). The most basic system, Year 2000, used dated germplasm common in 2000, conventional or YieldGard® Corn Borer corn, the basic seed treatment of Poncho® 250, and planting populations of 29,000 seeds/acre. Each system added advancements in one or more of these areas. Region appropriate fertility and weed control practices were standard throughout all plots, with a final yield goal of 240 bu./acre.

Results

The Year 2010—Early Adopter system, which implemented new germplasm, Genuity® VT Triple PRO™ technology, Poncho® 1250 seed treatment, and a planting population of 38,000 kernels/acre yielded 66 bu./acre more than the system representing practices from 2000 (Table 1). Comparing the Year 2010-Early Adopter system to the Year 2010– Innovator system showed a 22 bu./acre increase that could likely be attributed to increasing the planting population by 4,000 kernels/acre, and possibly the use of Poncho® 1250 seed treatment versus Poncho® 250. Comparing the Year 2010-Innovator to Year 2010-Status Quo systems, a 6 bu./acre

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Table 1. Characteristics of various agronomic systems evaluated.

System Name	Germplasm	Traits	Seed Treatment	Planting Population (kernels/acre)	Yield (bu./acre)
Year 2000	Typical for 2000	Conventional or YGCB	Poncho® 250	29,000	154
Year 2010—Status Quo	Available for a few years	RR2/YGCB or VT3	Poncho® 250	34,000	192
Year 2010—Innovator	Available for 1 or 2 years	GENVT3P	Poncho® 250	34,000	198
Year 2010—Early Adopter	Available for 1 or 2 years	GENVT3P	Poncho® 1250	38,000	220

YGCB = YieldGard® Corn Borer; RR2/YGCB = YieldGard® Corn Borer with Roundup Ready® Corn 2; VT3 = YieldGard VT Triple®; GENVT3P = Genuity® VT Triple PRO™. Monsanto data 2010.

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increase was observed, which is likely due to advancements in germplasm and increased insect protection traits. A comparison of the Year 2010-Status Quo to the Year 2000 systems revealed an impressive yield increase of 38 bu./acre that can be attributed to improved germplasm, increased population, and increased trait protection.

Conclusions

- Higher yields are a result of improvements of several agronomic aspects, that result in more kernels harvested per acre.
- Harvesting more kernels per acre is possible due to a combination of being able to produce more kernels per acre as well as protect them once they develop.
- Improvements in germplasm have made considerable contributions to producing more kernels per acre. The number of kernels per ear has not changed greatly, however the number of ears per acre, or planting population, has. Germplasm advancements allow for better plant health, stalk quality, stability across environments, and much more. These germplasm advancements made it feasible to increase planting populations to help realize higher yield potentials.
- Development of biotech traits has allowed for unprecedented protection of yield potential. Herbicide safety, stalk protection from southwestern corn borer, and kernel protection from corn earworm are only some of the benefits of Genuity® VT Triple PRO™ technology.
- In addition to yield protection, the traits often contribute to yield stability across environments, which can allow for consideration of higher planting populations to help maximize yield potential.
- The advancements made in germplasm, traits, and seed treatments have allowed for adaptation of other agronomic practices, such as planting populations, to help maximize yield potential.
- Monsanto is continually striving to improve germplasm, traits, and agronomic practices to help fulfill its commitment to the SYI to double yields in its core crops, including corn, by 2030.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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