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# Maximizer Hybrid Corn: Performance Update

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## **MAXIMIZER™ HYBRID CORN: PERFORMANCE UPDATE**

**David L. Dornbos, Jr., Ph.D.**  
**Ciba Seeds, Director of Product Development**

Results of 1996 field tests with Maximizer™ hybrid corn confirm the results from the previous two years, indicating that these products offer an innovative solution to growers, enabling them to maximize grain yield, test weight, standability, and performance consistency in spite of damage otherwise caused by the European corn borer (ECB). Responses from the approximately 9,000 growers who had the opportunity to plant the 135,000 units available in 1996 are overwhelmingly positive. In addition, feedback supporting rapid market growth of this technology is being received from 800-plus on-farm company-sponsored tests, and those from university and USDA researchers. Rapid market growth is expected in 1997.

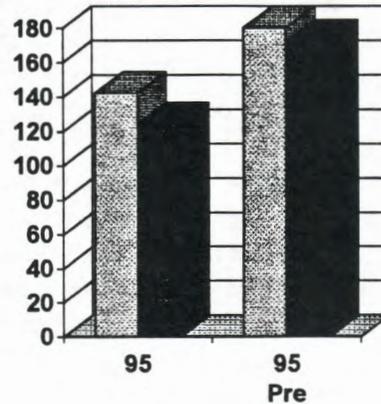
The objective of this report is to share performance summaries from 1994 through 1996, thus concluding the third year of on-farm testing of elite hybrids with KnockOut™ built-in ECB control. During the past three years, growers and Ciba agronomists evaluated 22 corn hybrids in 64 on-farm tests in 1994, 230 in 1995, and 811 in 1996. From this extensive testing program it can be concluded that Maximizer offers improved grain yield, test weight, standability, and performance consistency. Indeed, this is the technology that delivers!

What are the results? Maximizer corn hybrids outyielded the isolines tested in 1994 by 14 bu/a, and market-leading competitive products by 11 bu/a in 1995, and with 116 of 811 Midwestern locations reported as of October 28, 7 bu/a in 1996. All results are included regardless of ECB level or whether the trial was sprayed with an insecticide to control ECB in non-Maximizer hybrids. These results do not mean that Maximizer hybrids will win every trial or side-by-side, however, it does accurately portray that Maximizer hybrids have performed admirably in most trials, thereby giving the multi-location yield advantage record it has had each year.

You may have heard that all Bt-genes are not created the same. This is certainly true. In fact, hybrids are not all created the same either! Growers tell us they need a gene that works in a hybrid which is consistently capable of producing high yields. Two years of extensive field testing demonstrates that Maximizer hybrid corn delivers. Consider three examples in comparison to the generally recognized competitive market-leaders of the same maturity: MAX454 (112-day RM), MAX21 (108-day RM), and MAX88 (100-day RM).

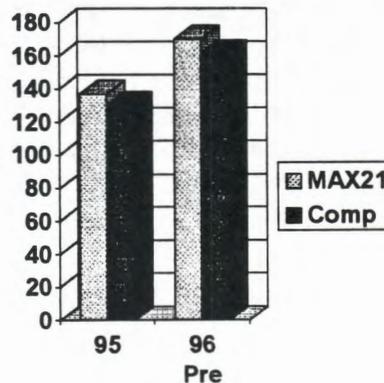
## MAX454 Compared to 112-Day Marketshare Leader

- Yield: +13 bu/a
- Moisture: -1.0 %
- Test Weight: -1.1 lb
- Standability: +1.3 %
- 148 Locations in 1995
- 84 Locations in 1996, with many to come!



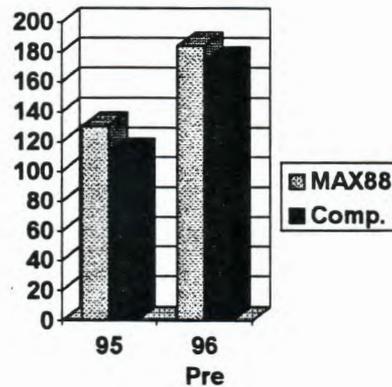
## MAX21 Compared to 105-Day Marketshare Leader

- Yield: +8 bu/a
- Moisture: -1.0 %
- Test Weight: -1.1 lb
- Standability: +1.3 %
- 148 Locations in 1995
- 10 Locations in 1996, with many to come!



## MAX88 Compared to 100-Day Competitive Marketshare Leader

- Yield: +14 bu/a
- Moisture: -1.3 %
- Test Weight: +0.6 lb
- Standability: +2.9 %
- 36 Locations in 1995
- 6 Locations in 1996, with many to come!



Consider once again that Bt-genes are not all created the same. Ciba Seeds' *KnockOut* gene does offers a different Bt-protein expression than the alternative, but is yield affected differently? A question has been raised about late-season feeding occasionally noted with Maximizer corn. In fact, the "Insect Control" section of Ciba Seeds' Grower Guide for Maximizer corn it states: "It is not uncommon to find some ECB larvae on Maximizer hybrid corn, particularly late in the season, when levels of insect control protein in the plants decline, or on plants adjacent to conventional corn." Consider how the *KnockOut* gene works. The *KnockOut* gene was used with a unique promoter that causes the Bt-protein to be expressed in green leaf tissues and pollen. Bt-protein levels in Maximizer hybrids are very high prior to pollination and during grainfill. Bt-protein levels decline rapidly at the time corn black-layers (indicating the completion of grainfill). Just prior to blacklayer, leaf proteins are rapidly degraded and remobilized to the maturing grain, adding to the potentially harvestable yield. It is after the concentration of Bt-protein declines that ECB occasionally are found to survive on Maximizer plants. This feeding has not had a negative effect on yield because grainfill is being completed by the time feeding begins.

It has been suggested that greater late-expression of the Bt-protein represents an advantage to the grower by reducing the level of ECB feeding on Bt plants late in the growing season, after the plant is mature. However, does late-season feeding by ECB affect yield? Two years of field trials indicate that the two Bt-genes improve corn yields equally when compared with their isolines, suggesting that the two Bt genes protect from yield loss similarly. Therefore, regardless of expression pattern, the *KnockOut* gene offers an effective and consistent solution to production problems associated with the ECB, maximizing yield, moisture, test weight, and standability.

Ultimately, it still comes down to having both a quality hybrid and a gene that consistently gives the grower what is needed: increased dollar return per acre. Many growers took the opportunity to plant Maximizer hybrids in 1996 and reported positive results. Their observations are consistent with the many on-farm test results collected during the last three years. To the degree that ECB pressure develops and that the corn hybrids are managed appropriately, increasingly positive performance of Maximizer corn hybrids is expected in 1997. Meanwhile, the

track record is proven and dramatic: Maximizer hybrids offer improved stay-green, standability, yield, test weight, and consistency in performance. Will Maximizer<sup>TM</sup> hybrid corn have a place on your farm in 1997?