



Result Demonstration Report

Year: 2004

Efficacy of MON 88017 and YieldGard (MON 863) Corn Rootworm Events, Force 3G and Poncho 1250 on Mexican Corn Rootworm, Ellis County, Texas

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Summary: A trial was conducted during 2004 in Southwest Ellis County to evaluate the efficacy of Corn Rootworm Protected Events; MON 88017 and YieldGard (MON 863), Force 3G and Poncho 1250 on Mexican Corn Rootworm, *Diabrotica virgifera zea*.

All treatments were compared to an untreated check. Although the trial was conducted in a field of fourth year corn, Mexican Corn Rootworm pressure was relatively light across all replications except number four. There was no significant difference in root injury between any of the treatments and the untreated check. Numerically, the least root injury was observed in the MON 88017 treatments with a rating of 0.023 followed by Poncho 1250 and Force 3G with ratings of 0.049 and 0.204 respectively. Highest injury from Mexican Corn Rootworm feeding was observed in the untreated check.

Objective: The trial was conducted to evaluate the efficacy of Monsanto's MON 88017 (Corn Rootworm Protected Event) as a stand alone against Mexican Corn Rootworm. Additionally, the treatment was compared to YieldGard MON 863 Corn Rootworm Protected corn, Force 3G, Poncho 1250 and an untreated check.

Material & Methods: On March 30, 2004, a corn trial evaluating leading treatments against Mexican Corn Rootworm was planted in Southwest Ellis County on the Van Perry Farm. Treatments included: MON 88017 (Corn Rootworm Protected), YieldGard MON 863, Force 3G @ 5 ozs./1000 ft. of row (t-band), Poncho 1250 seed treatment and an untreated check.

The trial was planted to 40 inch rows using an International two row plot planter. The trial was planted in a randomized complete block design with each treatment replicated 4 times. Plots measured 4 rows wide and 30 ft. in length. Regulated plants were destroyed prior to anthesis as a means of isolation to assure containment of the regulated plant material.

The fertility program consisted of 400 lbs./acre of 32-0-0 and 120 lbs./acre of 32-0-0. Winter weeds were controlled with Atrazine @ the rate of 1.0 lb./acre, applied in January. A burn down application of Roundup WeatherMAX at 22 ozs./acre was applied prior to emergence. In season weed control was provided with Dual at 1 qt./acre and an “over the top” post-emergence application of Peak at 0.8 oz./acre.

Root injury ratings were taken on May 31, 2004. Plant growth stages ranged from V 10 to V12. Roots from 5 randomly selected plants were excavated from each replication. Attached soil was dislodged by vigorously shaking roots. Remaining soil was removed from roots with a high pressure washer. Once plants were free of soil and debris they were carefully scrutinized for feeding by Mexican Corn Rootworm larvae and a root injury rating was assigned based on the 0 to 3 Iowa State Node Injury Scale (Oleson 1998). The Iowa State Node Injury Scale is a linear scale used to describe corn rootworm feeding and provides a rating for the total number of roots eaten within 2 inches of the corn plant. The Iowa State Node Injury Scale is referenced (Table 1). Data were analyzed using the ANOVA statistical package, alpha = 0.05.

Table1. Iowa State Node Injury Scale numerical ratings assigned for injury to corn roots by feeding from corn rootworm.

Roots Eaten within 2 inches of Plant Base		
Full Node	Partial Node	Root Ratings
0	0	0.01 (no damage)
0	5-10%	0.05, 0.10
0	11-99%	0.25, 0.50, 0.75, 0.90
1	1-99%	1.0, 1.1, 1.25, 1.5, 1.75, 1.90
2	1-99%	2.0, 2.1, 2.25, 2.5, 2.75, 2.9
3	-----	3.0

Results & Discussions: Pressure from Mexican Corn Rootworm was light across all replications of treatments, except replication number four. The field had been planted to continuous corn for 4 seasons and considerable rootworm injury was observed during 2002. There was no significant difference in plant population between any of the treatments and the untreated check. Additionally, no significant differences were observed in root injury between any of the treatments and the untreated check (Figure 1). Numerically, the least root injury was observed in the MON 88017 treatment with a rating of 0.023 followed by Poncho 1250 and Force 3G with ratings of 0.049 and 0.204 respectively. Highest injury from Mexican Corn Rootworm feeding was observed in the untreated check.

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Figure 1. Efficacy of MON 88017 Corn Rootworm Event on Mexican Corn Rootworm, Perry Farm - Ellis Co. TX. 2004

