



# Result Demonstration Report

Year: 2004

## Efficacy of two Commercial Seed treatments; Cruiser 1.25 and Poncho 1250 in Comparison to Standard Soil Insecticides Force 3G and Aztec 2.1G on Mexican Corn Rootworm, Ellis County, Texas

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**Summary:** A trial was conducted during 2004 in southern Ellis County to evaluate the efficacy of Force 3G, Aztec 2.1G and two commercial seed treatments; Cruiser 1.25 mg/kg 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 light across the test site, except for replication number three. There was no measurable difference in plant population between any of the treatments and the untreated check. Because of a high level of variability, there were no significant difference observed relative to root injury or yield between any of the treatments and the untreated check. Numerically, the highest root injury rating (1.092) and lowest yield (101 bushels/acre) was observed in the untreated check. The highest yields were recorded from Force 3G at 137 bushels/acre and Aztec 2.1G at 129 bushels/acre, which were 36 and 28 bushels/acre above the untreated check respectively.

**Objective:** The trial was conducted to evaluate the efficacy of two commercial seed treatments; Cruiser 1.25 mg/kg and Poncho 1250 as stand alone treatments in comparison to an untreated check on Mexican Corn Rootworm. Additionally, these treatments were compared to standard soil insecticides Force 3G and and Aztec 2.1 G.

**Material & Methods:** On March 16, 2004, a corn trial evaluating seed treatments and select soil insecticides against Mexican Corn Rootworm was planted in southern Ellis County on the Van Perry Farm. The corn hybrid was Garst 8270RR. Treatments included; Cruiser 1.25 mg/kg and Poncho 1250 seed treatments, the soil insecticides Force 3G @ 5 ozs./1000 ft. of row (t-band) and Aztec 2.1G @ 6.7 ozs./1000 ft. of row (t-band). The trial was planted to 30 inch rows using a single row plot planter. Experimental design was a randomized complete block with each treatment replicated 3 times. Plots measured 4 rows wide and 25 ft. in length.

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. In season weed control was provided with a post-emergence application of Roundup WeatherMAX at 22 ozs./acre.

Root injury ratings were taken on May 27, 2004. Plant growth stages ranged from V 15 (upper ear shoot development) to VT (last branch of tassel is completely visible). 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 water hose. 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). The test was harvested on July 29, 2004 by removing the ears from plants on 17' 5" of row from each plot. A mechanical hand corn sheller was used to remove kernels from ears. Samples of grain from all treatments were weighed and yields converted to 15.5 percent moisture. Data were analyzed using AGSTATS - 02 web through Oregon State University, ANOVA - alpha = 0.05.

Table 1. Iowa State Node Injury Scale numerical ratings assigned for injury to corn roots by feeding from corn rootworm.

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**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

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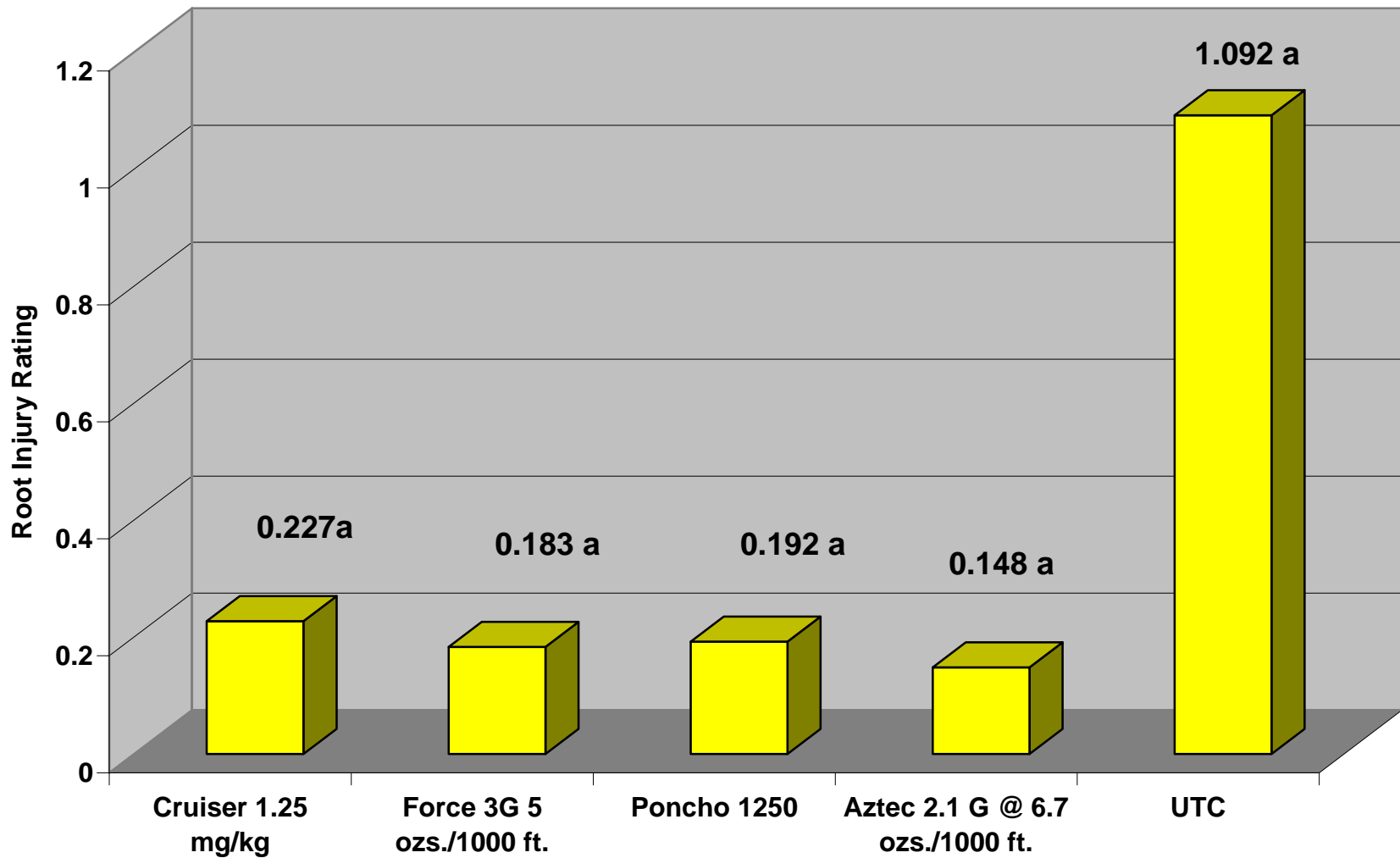
**Results & Discussions:** Pressure from Mexican Corn Rootworm was light across all replications of treatments, except replication number three. The field had been planted to continuous corn for 4 seasons and considerable rootworm injury was observed during 2002. There was no measurable difference in plant population between any of the treatments and the untreated check. Because of a high level of variability, there were no significant difference observed relative to root injury or yield between any of the treatments and the untreated check. However, measurable differences in yield was observed between treatments, and though they may not be statistically

significant they are significant to a producer who strives for maximum production. Numerically, the highest root injury rating (1.092) and lowest yield (101bushels/acre) was observed in the untreated check (Figure 1). The highest yields were recorded from Force 3G at 137 bushels/acre and Aztec 2.1G at 129 bushels/acre, which were 36 and 28 bushels/acre above to untreated check respectively (Figure 2). Numerical comparisons for root injury relative to treatments in replication number 3, where Mexican Corn Rootworm injury was heaviest is illustrated in (Figure 3). A root injury rating of 2.2 was assigned to the untreated check.

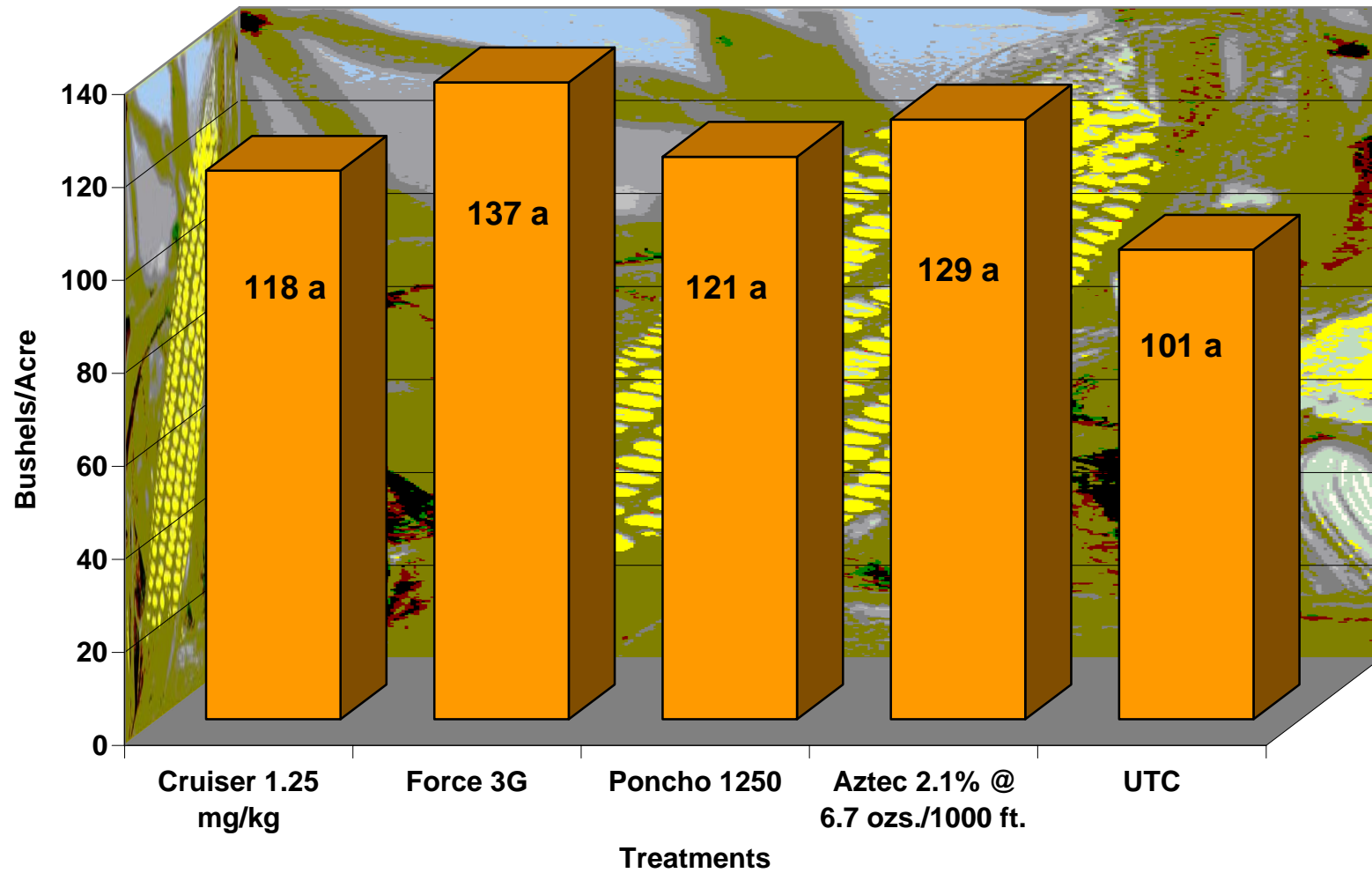
**Acknowledgments:** Much gratitude is expressed to Mr. Van Perry for serving as cooperating demonstrator. Also, special thanks is due Dr. Gary Schwartzlose, Bayer and Mr. Tony Driver, Syngenta for providing resources and technical information.

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**Figure 1. Root Injury Rating, Mexican Corn Rootworm Trial, Perry Farm, Ellis Co. Texas 2004**



**Figure 2. Yields, Mexican Corn Rootworm Trial, Perry Farm, Ellis Co.  
Texas 2004**



**Figure 3. Root Injury Rating (Rep 3) Mexican Corn Rootworm Trial,  
Perry Farm, Ellis Co. Texas 2004**

