



# Dryland Sorghum Trial

Roosevelt County Cooperative Extension Service • 2018

## Introduction

New Mexico State University Cooperative Extension Service assisted the New Mexico Sorghum Growers Association with a summer dryland sorghum trial to evaluate Sugar Cane Aphid (SCA) tolerance. The purpose of this trial was to evaluate SCA tolerance in a large scale dryland production setting. All varieties planted are marketed by their respective companies as being SCA tolerant. A typical dryland sorghum farm in Curry County, NM was used as the trial site and management was considered realistic to any eastern NM production scheme.



## Method

Eight varieties of grain sorghum from four different seed companies were planted in mile-long rows with a control variety (Garst 390B) common to the entire field planted in between each variety. The population count per variety was recorded. The variety trial was planted on June 6, 2018 on John Fury's farm 23 miles north of Clovis. The soil type consisted of Pullman loam and Mansaker loam. Fourteen tons of dairy manure was applied in the winter of 2017-18. Rainfall was adequate prior to planting to allow for seeds to be deposited in good moisture. Germination was good on all varieties and stand growth was adequate early. Rainfall amounts decreased during the growing season until Mid-August at which time rainfall amounts increased. A killing freeze was recorded on October 15, 2018. The field was harvested on November 20, 2018. Varieties were cut individually and offloaded into separate compartments on a truck. The truck was dumped one variety at a time to allow for weigh back. The plots amounted to seven acres per variety and the entire plot was combined in order to evaluate production. A miscalculation occurred that caused the Alta 1201 variety to only have half of the plot harvested. All numbers from that plot were multiplied by two to allow for even comparison of all other varieties.

**Table 1 Yield Results by Variety**

Brand	Variety	Population Count	% Moisture	Test weight	Lbs. Of Production	Lbs/Acre	Bushels/Acre
Dekalb	33-07	30600	15.1	53.3	16200	2314.3	41.3
Golden Acres	390W	31600	14.6	52.7	15220	2174.3	38.8
Alta	1203	30400	14.3	56.3	14700	2100.0	37.5
Dekalb	29-07	29900	14.9	53.6	14220	2031.4	36.3
Richardson	Swift	31800	13.1	52.5	12420	1774.3	31.7
Golden Acres	2950B	30200	13.7	51.6	11980	1711.4	30.6
Richardson	320W	29700	13.7	56.6	11160	1594.3	28.5
Alta	1201	28500	14.8	53.2	3520	1005.7	18.0

\*\*Alta 1201 – only half the plot was harvested

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**Table 2 Variety Comparison Within Brand**

Brand	Variety	Population Count	% Moisture	Test weight	Lbs. of Production	Lbs/Acre of Production	Bushels/Acre
Alta	1201	28500	14.8	53.2	3520 **	1005.7	18.0
Alta	1203	30400	14.3	56.3	14700	2100.0	37.5
Dekalb	29-07	29900	14.9	53.6	14220	2031.4	36.3
Dekalb	33-07	30600	15.1	53.3	16200	2314.3	41.3
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## Discussion

In hind sight to make the trial better it would have been good to establish when the aphids showed up, which varieties had more pressure, and which varieties handled the pressure better. All varieties did have aphid pressure on August 28, 2019 when a plot tour was made with representatives from the NM Sorghum Growers group and the Sorghum Check-Off. Estimations were made by those in attendance as the field was walked. In fairness to the trial because the aphid pressure data was not collected and summarized during the summer, no data was reported. A definite hole in this data is not being able to determine how much pressure each variety received and which handled it better. The other complicating factor to the trial was whorl and leaf damage from head worm pressure. Discussion was made by the planning committee as to how to handle this issue but the ultimate call was left to the producer. The decision was made to not treat, which is a realistic decision for any sorghum producer due to the cost of treatment and the value of the crop. With tight margins and unknown yield potential in dryland situations producers are often faced with this type of decision.



## Conclusion

This trial offered a large scale evaluation of SCA tolerant varieties suited to the NM cropping system. The NM Sorghum Growers Association wanted to see results from a dryland setting and that was accomplished with this trial. In evaluating varieties, it appears that the Dekalb had the greatest success as a group although both varieties had lighter test weights. All varieties demonstrated decent yields given the growing conditions for the year. The strongest point conveyed by this trial was that all varieties could tolerate aphid pressure and still present a decent yield without having a pesticide applied to control insect damage.

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