



Dryland Sorghum Trial

Roosevelt County Cooperative Extension Service • 2019

Introduction

New Mexico State University Cooperative Extension Service assisted the New Mexico Sorghum Growers Association for the second year in a row, 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

Six varieties of grain sorghum from four different seed companies were planted in one half mile-long rows with a control variety (Dekalb 37-07) common to the entire field planted in between each variety. The population count per variety was recorded. The variety trial was planted on June 4, 2019 on Ted Rush's farm 12 miles northwest of Grady. The soil type consisted Olton Clay loam. The trial site had one pound of Atrazine and four oz. of Banvel applied in February and the same amounts and mixture of herbicides applied again at planting to control weeds. The site was grain sorghum planted following a fallow season in 2018. 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 were varied during the growing season with a total of 10.23 inches received on the site. A killing freeze was recorded on October 15, 2019. The field was harvested on November 1, 2019. Varieties were cut individually and offloaded into separate compartments on host farm's truck. The truck was dumped one variety at a time to allow for weigh back. The plots amounted to two acres per variety and the entire plot was combined in order to evaluate production.

Table 1 Yield Results from 2019 by variety

Brand	Variety	Population Count	Moisture	Test weight	Production	lbs./ac	bu/ac
Golden Acres	390 W	26000	13.7	58.2	4540	2203.9	39.4
Dekalb (Control)	37-07	19500	14.0	58.1	4440	2155.3	38.5
Richardson	320 W	26000	13.6	56.4	4160	2019.4	36.1
Richardson	Prime	27000	13.6	58.6	3980	1932.0	34.5
Golden Acres	3960 B	27000	13.9	59.2	3660	1776.7	31.7
Alta	1203	26000	13.8	59.2	3540	1718.4	30.7

**Alta 1201 – only half the plot was harvested

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Results

All five varieties and the control were harvested to determine production. Yields and test weights did vary by company and variety. Table 1 presents total production, production converted to pounds per acre and bushels per acre. Also included were initial population counts, moisture at harvest and test weights as recorded at elevator. Only one swath of the control variety (Dekalb 37-07) was harvested. That plot was taken from between trial varieties to determine production. The control variety was included in the tables for comparison. As noted by producer as he combined the field, the Alta 1203 did have an undetermined number of stalks that had fallen thus impacting reported production.

Table 2 Variety Comparison from 2018

Brand	Variety	Population Count	Moisture	Test weight	Production	lbs./ac	bu/ac
Dekalb	33-07	30600	15.1	53.3	16200	2314.3	41.3
Golden Acres	390 W	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	2950 B	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 due to mechanical error

Discussion

The trial was conducted to evaluate varieties of sorghum marketed at Sugarcane Aphid tolerant in a large scale dryland production setting. The cooperating farm has a long standing history of grain sorghum production and provided a typical dryland scenario to conduct this trial. In 2019 no aphids were found on the variety trial, thus tolerance to pressure was not evaluated. Although SCA pressure was not tested, the side by side comparisons have demonstrated interesting results. Improved SCA tolerant varieties are very beneficial for insect management and when grown in real world production settings provide for useful information for producers to make management decisions.

Conclusion

This trial offered a large scale evaluation of SCA tolerant varieties suited to the NM cropping system. The first year saw Sugarcane Aphid pressure that impacted plant health and growth. The operator chose not to spray for insects which is a realistic production decision due to cost. In the second year no aphids were detected, which canceled the trials ability to determine tolerance but in the end still provided useful production data. The New Mexico Sorghum Growers Association commissioned the trial to evaluate SCA tolerant varieties in a typical Eastern New Mexico dryland setting. Although the results varied by year their initial intentions were accomplished with the production trial. After two years of data and evaluating multiple varieties, it appears that the Golden Acres 390 W and Dekalb varieties have proven reliable varieties for Eastern New Mexico. All varieties demonstrated varying yields depending on the year and the growing conditions provided during that year.

**The Roosevelt County Extension Office would certainly like to thank everyone involved for their help and support in funding and hosting these trials for the last two years.

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