Grain Sorghum Variety Trials in Greenlee County, 1990

Lee J. Clark

Abstract

Seven grain sorghum hybrids were compared in replicated tests where full season hybrids were compared against each other and with mid-full season hybrids. The full season hybrids yielded from 600 to greater than 1000 pounds per acre more than the mid-full season hybrids. DeKalb 69 was the highest yielding hybrid with a yield of 8784 lbs/acre, but all three full season hybrids yielded greater than 4 tons per acre.

Introduction

Seed sources indicate that DeKalb 69, the main variety grown in Greenlee county, will soon be replaced by a hybrid with a shorter growing season. The concern was that the replacement by DeKalb might not yield as much as the DK 69. The last grain sorghum variety trial in the county was in 1986 (1), so it was felt that another test was in order. This test was conducted to take a look at some mid-full season hybrids to compare with the full season hybrids.

Methods and Materials

Seven grain sorghum hybrids, comprising of three full season and four mid-full season hybrids, were planted in one field with two replicates. Three of those hybrids, comprising of two full season and one mid-full season hybrids, were placed in another comparison with two replications, several miles from the first. The two fields were treated essentially the same, the soil in the second field being a bit stronger than the first. Plots were field length (1170 feet) and six-38" rows wide (19 feet). Planting and harvesting were done with the cooperators equipment. Plots were weighed in the field where samples were taken and percent moisture and bushel weights determined. Plant heights and populations were measured just prior to harvest.

Crop History (field 1)

Cooperator: Ray Tyler
Soil type: Pima silty loam
Elevation: 3450 (1st field) and 3500 (2nd field)
Planting date: 4 May 1990 Rate: 7 lbs per acre
Fertilizer: 300 lbs 16-20-0 preplant
200 lbs of NH3 injected on 30 May
Foliar Fe applied 19 and 29 June
Herbicide: Banvel and weedar
Insecticide: Parathion two times
Irrigation: By furrow 8 times, including pre-irrigation
Harvest: 30 October
Results and Discussion

Yield and agronomic data are shown in Tables 1 and 2. The data show statistically different yields between the full and mid-full season hybrids, with the full season hybrids yielding from 600 to 1000 pounds per acre higher. The yields in Table 2 are higher than those in Table 1, but the relative yield differences between varieties are the same. There seems to be little correlation between percent moisture at harvest and the length of season. This is possible because some heads open up to allow a quicker drydown. There were differences in plant height with two of the full season hybrids being taller than the rest. The extra height did not contribute to lodging and was not considered to be detrimental. Plant populations also varied, probably due to different seed size at planting. The differences were not deemed to be large enough to adversely affect yields.

References


Acknowledgments

Appreciation is expressed to DeKalb-Pfizer Genetics for the use of an electronic weigh wagon to determine the harvest weights.
Table 1. Yields and agronomic data for grain sorghum hybrids grown in Greenlee county, 1990.

<table>
<thead>
<tr>
<th>Hybrid</th>
<th>Yield¹ (lbs/ac)</th>
<th>% M</th>
<th>Bu Wt (lbs)</th>
<th>Pl Ht (in.)</th>
<th>Pl Pop (pl/ac)</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeKalb 69</td>
<td>8127 a*</td>
<td>10.7 b</td>
<td>59.0 a</td>
<td>65.0 a</td>
<td>42992 bc</td>
<td>Full</td>
</tr>
<tr>
<td>SG 942²</td>
<td>8084 a</td>
<td>11.5 ab</td>
<td>59.8 a</td>
<td>63.0 a</td>
<td>42132 c</td>
<td>Full</td>
</tr>
<tr>
<td>KS 737³</td>
<td>8040 a</td>
<td>12.8 a</td>
<td>60.5 a</td>
<td>55.8 b</td>
<td>55890 a</td>
<td>Full</td>
</tr>
<tr>
<td>DeKalb 64</td>
<td>7391 b</td>
<td>12.0 ab</td>
<td>59.5 a</td>
<td>56.8 b</td>
<td>51591 a</td>
<td>Mid-fl</td>
</tr>
<tr>
<td>NK 9740</td>
<td>7242 b</td>
<td>12.1 a</td>
<td>60.0 a</td>
<td>53.8 b</td>
<td>49871 ab</td>
<td>Mid-fl</td>
</tr>
<tr>
<td>Toro Maxima</td>
<td>7186 b</td>
<td>12.0 ab</td>
<td>59.0 a</td>
<td>57.0 b</td>
<td>52451 a</td>
<td>Mid-fl</td>
</tr>
<tr>
<td>Asg GS 712</td>
<td>7063 b</td>
<td>11.9 ab</td>
<td>59.0 a</td>
<td>55.0 b</td>
<td>51161 a</td>
<td>Mid-fl</td>
</tr>
</tbody>
</table>

Average: 7590, 11.9, 59.5, 58.1, 49441
LSD (05): 467, 1.28, 2.02, 4.78, 7281

* Numbers within columns followed by the same letter are not significantly different at the 5% level of probability using Duncan's Multiple Range Test.

1. Yield in pounds per acre at 14% moisture.
2. Garrison Seed Company.
3. Northrup King Seed Company.
4. Big Crop Seed, Inc.

Table 2. Yields and agronomic data for grain sorghum hybrids grown in Greenlee county, 1990.

<table>
<thead>
<tr>
<th>Hybrid</th>
<th>Yield¹ (lbs/ac)</th>
<th>% M</th>
<th>Bu Wt (lbs)</th>
<th>Pl Ht (in.)</th>
<th>Pl Pop (pl/ac)</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeKalb 69</td>
<td>8784 a</td>
<td>12.1 a</td>
<td>59.0 a</td>
<td>57.0 a</td>
<td>49871 a</td>
<td>Full</td>
</tr>
<tr>
<td>SG 942</td>
<td>8750 a²</td>
<td>12.0 a</td>
<td>61.0 a</td>
<td>58.5 a</td>
<td>43852 a</td>
<td>Full</td>
</tr>
<tr>
<td>Toro Maxima</td>
<td>7695 b³</td>
<td>12.6 a</td>
<td>58.5 a</td>
<td>55.5 a</td>
<td>51591 a</td>
<td>Mid-fl</td>
</tr>
</tbody>
</table>

Average: 8410, 12.2, 59.5, 57.0, 48438
LSD (05): 790, 1.68, 3.51, 3.04, 18374

Numbers within columns followed by the same letter are not significantly different at the 5% level of probability using Duncan's Multiple Range Test.

1. Yield in pounds per acre at 14% moisture.
2. Garrison Seed Company.
3. Big Crop Seed, Inc.