2018 Kansas Performance Tests with Sunflower Hybrids

Report of Progress 1149

Kansas State University Agricultural Experiment Station and Cooperative Extension Service
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INTRODUCTION

Objectives and Procedures
Sunflower performance tests were conducted in 2018 by the Kansas Agricultural Experiment Station to provide farmers, extension workers, and private industry with unbiased agronomic information on many of the sunflower hybrids marketed in the state. Tests were financed in part by entry fees from private companies. Companies known to be developing and marketing sunflowers were invited to participate and enter hybrids on a voluntary, fee-entry basis. As a result, not all hybrids grown in the state were included in the tests, and hybrids were not grown uniformly at all locations.

Test locations in 2018 were Thomas County, irrigated and fallow; Ellis County, dryland; and Labette County, dryland. Oilseed entries were grown at all locations. Hybrids were planted in four-row, replicated plots at all locations. To ensure uniform and adequate stands, all tests except those in Thomas County were planted at a high seeding rate and were hand thinned after emergence to desired stands. Tests in Thomas County were planted to stand with a modified Monosem Vacuum Planter. The Ellis County test location was not harvested due to adverse growing conditions.

Environmental factors affecting test results and cultural practices are presented for each individual test site. Test results for 2018 and period-of-years average data are included in Tables 1 through 3. Entrants and entries in 2018 tests are listed in Table 4.

Data Interpretation
Yields are reported as pounds of seed per acre adjusted to 10% moisture content.

Days to half bloom is the number of days from date of planting to the date when 50% of plants are in bloom.

Lodging percentage is based on counts of lodged and total plants in harvested areas at all locations.

Statistical analysis: Conducting perfect tests is virtually impossible because soil fertility, moisture, and other environmental factors vary. Therefore, small differences in results may be trivial. To help interpret data, we applied a statistical technique, analysis of variance, whenever possible. Such analysis requires repeating whole sets of varieties or treatments several times and placing individual varieties or treatments as they would be placed by chance alone. Results of the analyses are reported in terms of least significant differences (LSD). If two means differ by more than the LSD (.05), such a difference would be due to chance variation only 5% of the time. So, it's 95% probable that the difference was due to treatment. If means do not differ by as much as the LSD, little confidence can be placed in the importance of varietal or treatment differences. The coefficient of variability (CV) represents an estimate of the precision of replicated yield trials. Trials with a CV ranging from 10% to 15% are usually acceptable for performance comparisons. Trials with a CV greater than 15% provide only a rough guide to hybrid performance.

ACKNOWLEDGEMENTS
Cooperation of Raenette Martin, Ram Perumal, Troy Ostmeyer, Gretchen Sassenrath, and Lonnie Mengarelli for field operations is sincerely appreciated. Vicki Brown, office specialist, assisted in soliciting entries, and temporary worker Danielle Foster helped with seed counting, plot thinning, and maintenance. Mary Knapp at the Kansas State University Weather Data Library provided climatological data.
Table 1. Colby Fallow Oilseed Sunflower Performance Test, 2018

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<th>Plant half height (in.)</th>
<th>Lodging (%)</th>
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* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2017 and 2018)

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NORTHWEST KANSAS IRRIGATED OILSEED SUNFLOWER TEST

Colby, Thomas County
K-State Northwest Research Center
Planted: 6/12/2018
Harvested: 10/24/2018
100-30-0 lb/a N, P, K
Keith silt loam
Previous crop: wheat
Cooperators: Raenette Martin

Table 2. Colby Irrigated Oilseed Sunflower Performance Test, 2018

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</tr>
</tbody>
</table>

*Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2017 and 2018)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Hybrid</th>
<th>Yield of test half bloom (lb/a)</th>
<th>Days to bloom (%)</th>
<th>Plant height (in.)</th>
<th>Lodging (%)</th>
<th>Test weight (lb/bu)</th>
<th>Seed weight (g/200)</th>
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<tbody>
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### Table 2 continued. Colby Irrigated Oilseed Sunflower Performance Test, 2018

#### 3-Year Averages (2016-2018)

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<thead>
<tr>
<th>Brand</th>
<th>Hybrid</th>
<th>Yield (lb/a)</th>
<th>Days to half bloom (in.)</th>
<th>Lodging (%)</th>
<th>Test weight (lb/bu)</th>
<th>Seed weight (g/200)</th>
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Table 3. Parsons Dryland Oilseed Sunflower Performance Test, 2018

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<th>Yield (lb/a)</th>
<th>Days to Plant half height (in.)</th>
<th>Lodging (%)</th>
<th>Test weight (lb/bu)</th>
<th>Seed weight (g/200)</th>
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</table>

*Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2017 and 2018)

<table>
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<th>Brand</th>
<th>Hybrid</th>
<th>Yield (lb/a)</th>
<th>Days to Plant half height (in.)</th>
<th>Lodging (%)</th>
<th>Test weight (lb/bu)</th>
<th>Seed weight (g/200)</th>
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3-Year Averages (2016 through 2018)

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<th>Brand</th>
<th>Hybrid</th>
<th>Yield (lb/a)</th>
<th>Days to Plant half height (in.)</th>
<th>Lodging (%)</th>
<th>Test weight (lb/bu)</th>
<th>Seed weight (g/200)</th>
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<td>CROPLAN</td>
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<td>57</td>
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<td>28</td>
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<td>61</td>
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- 6 -
### Table 4. Entrants and Entries in the 2018 Sunflower Performance Tests

<table>
<thead>
<tr>
<th>Croplan by Winfield United</th>
<th>Dyna-Gro</th>
<th>Nuseeds Americas Inc</th>
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<tbody>
<tr>
<td>1080 County Road F West, Shoreview, MN 55126</td>
<td>P.O. Box 1050, Ralls, TX 79357</td>
<td>1190 S. Austin Avenue, Alsip, IL 60803</td>
</tr>
<tr>
<td>218-686-4122</td>
<td>806-781-6910</td>
<td>701-630-8122</td>
</tr>
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<td>3845 HO</td>
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www.agronomy.k-state.edu/services/crop-performance-tests/index.html

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