Oklahoma Cooperative Extension Service CR-101
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EXTENSION

# Current Report

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# Corn Performance Trials in Oklahoma Panhandle 2022

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## Trial Objective

A corn hybrid trial was conducted at the Oklahoma Panhandle Research and Extension Center, Goodwell, OK. A total of 35 hybrids participated in the trials, belonging to five seed companies (listed below). These trials are conducted to evaluate performance of corn hybrids marketed in the Oklahoma Panhandle and adjacent areas as well as to provide unbiased information on performance of hybrids to Extension educators, farmers, the seed industry and dealers. The Oklahoma Panhandle is a semi-arid region with long-term mean annual rainfall of about 17 inches. It should be noted that corn hybrid performance varies with climatic conditions, therefore this trial represents corn performance under semi-arid conditions of the Oklahoma Panhandle and adjacent areas. Climate data and an overview of growing conditions is presented in following sections of this report.

The field was strip tilled on April 6, 2022. Soil samples were collected in early March, which showed a residual N of 38 lbs/acre up to 18 inches. Additional fertilizer was applied in the form of urea ammonium nitrate (32-0-0) to bring the available N levels to 200 lbs/acre. Mono-ammonium phosphate (12-61-0) was applied to bring available phosphorus levels up. A 40-foot-long two-row plot was planted for each hybrid at 30-inch spacing on April 26 with a John Deere two row planter. A starter fertilizer (10-34-0 or diammonium phosphate) was applied with planting at rate of 5 gallons per acre. The trial was planted in three replications in randomized complete block design. Plots were harvested with a Kincaid 8XP plot harvest combine on October 18, 2022. The crop was irrigated through a lateral irrigation system fitted with sprinkler nozzles. The crop was managed for weeds using pre- and post-emergence herbicides. No major weed issues were noticed in the field. Some infestation of spider mites was noticed especially along the borders of the field where trials were executed. Therefore, the field was sprayed for both mites and grasshoppers just before tasseling. Pesticides were sprayed for grasshoppers as a precaution, although no infestation has occurred. The average yield from hybrid trials at the Oklahoma Panhandle Research and Extension Center was 176 and 215 bushels per acre in 2020 and 2021, respectively.

| Brand | Contact | Email |
|---|---|---|
| | | |
| DynaGro | Brandon Tripp | brandon.tripp@nutrien.com |
| Channel | Mark Bartel | mark.bartel@bayer.com |
| Stine | Monte Thompson | msthompson@stineisr.com |
| Dekalb | Kagan Randolph | kagan.randolph@bayer.com |
| Midland Genetics | Chris Hanson | chris@kauffmanseed.com |

**Table 1. Participating seed companies and their contacts.**

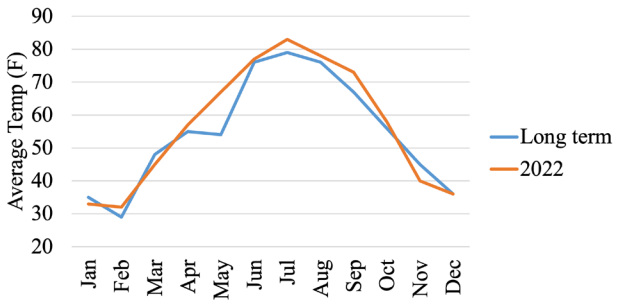


**Figure 1. Average air temperature in 2022 compared to long-term (2012-2021) average.**

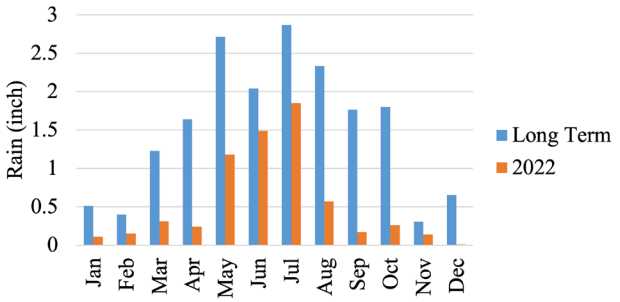


**Figure 2: Average monthly rainfall in 2022 in comparison to long term average (2012-2021).**

## Growing Conditions

The year 2022 carried over the drought conditions from the previous year, and the whole year remained under extreme drought with cumulative rainfall of only 6.48 inches at the experiment site, which was the lowest ever recorded for any Oklahoma site in 134 years. In addition to dry conditions, this year recorded an exceptionally hot July with monthly average temperatures exceeding the long-term normal (2012-2021) by at least 4°F. This time period coincided with tasseling as well as silking growth stages, which affected pollination in the hybrids and overall yields. The active months (May-August) of the growing season registered only 5.1 inches of rain, out of which only three rain events were more than 0.5 inches. Total irrigation provided to the crops was 20 inches during the growing season, which was the best watering capacity available at the experiment station. Overall, the conditions were challenging for crops in 2022 due to lack of rainfall and excessive heat, which made weather the major yield limiting factor.

## Data Analysis

Harvest data included yield, moisture at harvest and test weight. The yield was adjusted to 15.5% moisture level for all the hybrids. The data was analyzed using SAS 9.4 software. The least significant difference was used to determine the difference between performance of hybrids. The LSD is the minimum difference between the yield of two hybrids to consider them different in terms of performance. For example, if LSD is 10 bushels, then the difference less than 10 bushels in average yields of two hybrids indicates that the hybrids have performed similarly. Whereas in the case the difference among yields was greater than 10 bushels, then the hybrids have performed differently. The difference in hybrids, despite similar performance due to LSD, could be due to random factors including soil, moisture, fertility, etc. The LSD for this trial is provided with the results table. The mean yield for this trial was 72 bushels per acre and LSD of 36.6.

| Brand | Hybrid | Maturity | Moisture (%) | Test Wt. (lbs/bu) | Yield (bu/ac) |
|---|---|---|---|---|---|
| | | | | | |
| Midland Genetics | MG KS 117-30 PRX | 117 | 11.4 | 55.6 | 108a |
| DynGro | D55VC80 | 115 | 11.3 | 53.6 | 108a |
| Midland Genetics | MG KS117-12 TREX | 117 | 11.3 | 55.6 | 102a-c |
| Dekalhb | 65-95 VT2 | 115 | 10.7 | 54.1 | 101a-d |
| Midland Genetics | MG 672 VLG | 114 | 11.4 | 55.4 | 96a-d |
| Midland Genetics | MG KS115-22 VLGX | 115 | 11.2 | 43.1 | 91a-f |
| Midland Genetics | MG 752PWE | 115 | 11.7 | 42.6 | 90a-f |
| Dekalb | 62-89 TRE | 112 | 11.0 | 54.0 | 85a-g |
| Midland Genetics | MG 442 TRE | 110 | 11.5 | 54.3 | 83a-g |
| DynGro | D53SS13 | 113 | 10.5 | 53.0 | 78a-h |
| Stine | 9816-20 | 117 | 11.5 | 53.3 | 78a-h |
| Stine | 9658-32 | 107 | 10.5 | 53.8 | 77a-h |
| Stine | 9817-30 | 115 | 10.1 | 53.5 | 76a-h |
| DynGro | D57TC29 | 117 | 15.5 | 53.6 | 74a-h |
| Dekalb | 67-94 TRE | 117 | 12.4 | 54.8 | 73a-h |
| Midland Genetics | MG 832 VLG | 118 | 13.3 | 54.3 | 72a-h |
| Midland Genetics | MG KS117-20 PRX | 117 | 12.2 | 56.2 | 71b-h |
| Brevant | B13A10AM | 113 | 10.5 | 55.4 | 71b-h |
| Stine | 9808-E-20 | 116 | 12.4 | 56.9 | 70c-h |
| DynGro | D54VC14 | 114 | 11.4 | 55.2 | 69c-h |
| Channel | 217-01VT2PRIB | 117 | 11.3 | 54.8 | 68c-h |
| Brevant | B09Z08AM | 109 | 10.8 | 54.7 | 68c-h |
| Brevant | B14Z97Q | 114 | 10.7 | 54.0 | 68c-h |
| Stine | MX442-20 | 103 | 10.7 | 53.9 | 67c-j |
| Midland Genetics | MG 559 PWE | 113 | 12.3 | 52.0 | 67c-j |
| Stine | 9752-32 | 113 | 12.0 | 54.6 | 65d-j |
| Brevant | B12C01AM | 112 | 10.5 | 55.5 | 63e-j |
| Stine | 9728-E-20 | 111 | 10.9 | 54.8 | 63e-j |
| Dekalb | 63-91 VT2 | 113 | 11.3 | 53.9 | 58f-j |
| DynGro | D58VC22 | 118 | 11.3 | 55.0 | 52g-j |
| Dekalb | 65-84 SS | 115 | 11.6 | 55.9 | 51g-j |
| Dekalb | 60-80 VT2 | 110 | 11.5 | 52.7 | 46h-j |
| Channel | 218-55TRERIB | 118 | 11.2 | 53.9 | 34i-j |
| Midland Genetics | MG 822 VLG | 118 | 13.7 | 54.3 | 31jk |
| Brevant | B17Z18AM | 117 | 11.0 | 51.4 | 31k |

*Highlighted hybrids were not statistically different from highest yielding hybrid ($p<0.05$)

## The Oklahoma Extension Service

# Education Everywhere for Everyone

The OSU Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth programs; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the cooperative Extension system are:

- The federal, state and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are non-political, objective and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It uses research from university, government and other sources to help people make their own decisions.
- More than 1 million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year-to-year as citizen groups and Extension workers advise changes.



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