2020

2019 Kansas Summer Annual Forage Hay and Silage Variety Trial

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**Recommended Citation**  
Holman, J. D.; Obour, A. K.; Lingenfelser, J.; Roberts, T.; and Maxwell, S. (2020) "2019 Kansas Summer Annual Forage Hay and Silage Variety Trial," *Kansas Agricultural Experiment Station Research Reports*: Vol. 6: Iss. 6. [https://doi.org/10.4148/2378-5977.7943](https://doi.org/10.4148/2378-5977.7943)

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2019 Kansas Summer Annual Forage Hay and Silage Variety Trial

Abstract
In 2019, summer annual forage variety trials were conducted across Kansas near Garden City, Hays, and Scandia. All sites evaluated hay and silage entries. Companies were able to enter varieties into any possible combinations of research sites, so not all sites had all varieties. Across the sites, a total of 95 hay varieties, 99 sorghum silage varieties, and 12 corn silage varieties were evaluated.

Keywords
forage, hay, sorghum silage, corn silage

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Cover Page Footnote
This work was funded in part by the Kansas Agricultural Experiment Station and seed suppliers. Sincere appreciation is expressed to all participating researchers and seed suppliers who have a vested interest in expanding and promoting annual forage production in the U.S.

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This cropping and tillage systems is available in Kansas Agricultural Experiment Station Research Reports: https://newprairiepress.org/kaesrr/vol6/iss6/1
Forage Report
2019
Summary
In 2019, summer annual forage variety trials were conducted across Kansas near Garden City, Hays, and Scandia. All sites evaluated hay and silage entries. Companies were able to enter varieties into any possible combinations of research sites, so not all sites had all varieties. Across the sites, a total of 95 hay varieties, 99 sorghum silage varieties, and 12 corn silage varieties were evaluated.

Introduction
Annually there are approximately 35,000,000 acres of hay and haylage harvested in the U.S. for a total of 96,000,000 dry matter tons of production. Yields in Kansas averaged 2.77 tons of dry matter per acre. Of this total, about 13,600,000 acres were alfalfa, which averaged 3.76 dry matter tons per acre, and all other crops averaged 2.13 dry matter tons/a.

In Kansas, there were 2,400,000 acres of hay and haylage harvested with an average yield of 2.24 dry matter tons per acre. Of this total, 650,000 acres were alfalfa with an average yield of 3.72 dry matter tons per acre, and 1,770,000 acres were crops other than alfalfa with an average yield of 1.69 dry matter tons/a. Kansas ranked 6th in the U.S. for hay and haylage production. This largely supports the state dairy (ranked 19th in the U.S. and valued at $483,000,000) and cattle (feedlot, background, and cow/calf) industries (ranked second in the U.S. and valued at $10,200,000,000). Dairy and beef cattle represented 58% of the total agricultural product of Kansas. Hay and grain commodities that support these two industries are critical for the state.

Study Objectives
The objectives of the Kansas Summer Annual Forage Hay and Silage Variety Trial are to evaluate the performance of released and experimental varieties, determine where these varieties are best adapted, and increase the visibility of summer annual forages in Kansas. Breeders, marketers, and producers use data collected from the trials to make informed variety selections. The Summer Annual Forage Trial is planted at locations across Kansas based on the interest of those entering varieties into the test.

Procedures
In 2019, the Summer Annual Forage Variety Test was conducted near Garden City, Hays, and Scandia, KS. All of the sites evaluated hay and silage entries. Companies were able to enter varieties into any possible combinations of research sites, so not all sites had all varieties. In the hay test, there were 40 entries at Garden City, 28 at Hays, and 27 at Scandia. In the silage test, there were 38 sorghum and 6 corn entries at Garden City, 26 sorghum and 6 corn at Hays, and 35 sorghum at Scandia (Table 1). Across the sites, a total of 95 hay varieties, 99 sorghum silage, and 6 corn silage varieties were evaluated. Information on the varieties is shown in Tables 2, 3, and 4.
Management guidelines were provided to cooperators; however, previous growing experience influenced final management decisions. All trials were planted in small research plots (approximately 225 ft$^2$) with three replications. Cultural practices (Table 5), growing season temperature, and precipitation (Figures 1, 2, and 3) are provided for each site. Results are listed alphabetically by seed supplier. Forage samples were dried, ground, and analyzed for nutrient contents using NIR (near infrared reflectance) by Sevitech Laboratories in Dodge City, KS. Nutrient contents measured were crude protein (CP), adjusted crude protein (Adj_CP), nitrogen free neutral detergent fiber (NDFn), acid detergent fiber (ADF), neutral detergent fiber organic matter basis (aNDFom), lignin, undigested aNDFom remaining after in vitro digestion at 240 hr (uNDFom240), neutral detergent fiber-digestible at 240 hr (NDFD240), water soluble carbohydrates (WSC), starch, total fatty acids (TFA), ash, calcium (Ca), phosphorus (P), magnesium (Mg), sulfur (S), non-fiber carbohydrates (NFC), total digestible nutrients using Ohio Agricultural Research and Development Center (OARDC) calculation (TDN_OARDC), net energy for lactation 3x intake using OARDC (NEL3x_OARDC), net energy for gain using OARDC (NEG_OARDC), net energy for maintenance using OARD (NEM_OARDC), and relative feed value (RFV).

2019 Growing Conditions
Temperature and precipitation (Figures 1, 2, and 3) for each site is shown. Thick black lines on the temperature graphs represent long-term average high and low temperatures (°F) for the location. The upper thin line represents actual daily high temperatures, and the lower thin line represents actual daily low temperatures. On the precipitation graph, the line labeled “normal” represents long-term average precipitation (1980–2019), and the line labeled “2019” represents actual precipitation.

In general, the 2019 growing season saw near normal temperatures, and above average precipitation throughout the growing season. Precipitation was below average in the fall at Garden City only, but that site was irrigated, and moisture was not limiting.

Results and Discussion
Since all entries were not evaluated across all sites, data were analyzed by location. All locations had a control entry of Rox Orange (Waconia) and Sumac for the hay test, and a control entry of Kansas Orange for the silage test.

Hay Test
At Garden City, Qualimax, Fullgraze II, Sordan Headless, Excel, Nutrimaxx II BMR, 19153, and 19154 were in the top LSD (least significant difference at $P \leq 0.05$) group in the first cutting (Table 6). In the second cutting, more separation occurred between entries; F75FS13, ADV XS8007, Cadan PPS, Wondergreen, Surpass, 18178, 4047 were in the highest yielding LSD group. Combined across cuttings, Wondergreen, Qualimax, Fullgraize II, Fullgraize II BMR, Sordan Headless, Excel, Nutrimaxx II BMR, 18180, 18552, 19102, 19153, and 19154 were in the top LSD group.

At Hays, Nutrimaxx BMR, Cadan PPS, Danny Boy II BMR, Fullgraize II BMR, and 18181 had the greatest yield in the top LSD group in the first cutting (Table 7). There was no second cutting due to little regrowth and frost in early October.
At Scandia, Fullgraze II BMR, Excel, 18180, and 19154 were in the top LSD group in the first cutting (Table 8). There was no second cutting due to little regrowth and frost in early October.

**Sorghum Silage Test**
At Garden City, ADV XF033, F72FS05, Super Sile 30, Top Ton, Packer, 19176, and 19179 were in the top LSD group for silage (Table 9).

At Hays, ADV XF025, ADV XF033, AF7401, F72FS05, Super Sile 20, Super Sile 30, Top Ton, KS Orange, Opal, Packer, 19038, and 12875 were in the top LSD group for silage (Table 10).

At Scandia, 10766, AF7401, F74FS72 BMR, FX19125 BMR, Packer, 18096, 19040, and 19179 were in the top LSD group for silage (Table 11).

**Corn Silage Test**
Similar varieties were tested at Garden City and Hays and some minor differences occurred across locations for the varieties D58RR70 and D58VC65.

At Garden City, all the varieties were in the top LSD group except D58RR70, which yielded less (Table 12).

At Hays, all varieties were in the top LSD group except D58VC65, which yielded less (Table 13).

**Recommendation**
Inestimable differences in soil type, weather, and environmental conditions play a part in increasing experimental error, therefore, one should use more than one location and year to make an informed variety selection decision. Please refer to previous years’ forage reports to see how a variety performed across years.

**Acknowledgments**
This work was funded in part by the Kansas Agricultural Experiment Station and seed suppliers. Sincere appreciation is expressed to all participating researchers and seed suppliers who have a vested interest in expanding and promoting annual forage production in the U.S.

*Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. Persons using such products assume responsibility for their use in accordance with current label directions of the manufacturer.*
Table 1. Number of hay and silage entries for each location

| Location   | Hay | Sorghum silage | Corn silage |
|------------|-----|----------------|-------------|
| Garden City| 40  | 38             | 6           |
| Hays       | 28  | 26             | 6           |
| Scandia    | 27  | 35             | ---         |
| Total      | 95  | 99             | 12          |

Table 2. 2019 Hay entries

| Company            | Variety              | Type | BMR | Dwarf | Male sterile | Dry stalk | Photoperiod sensitive | Maturity | Greenbug resistance |
|--------------------|----------------------|------|-----|-------|--------------|-----------|-----------------------|----------|---------------------|
| Agrilead           | Nutri Maxx BMR       | SS   | Y   | N     | Y            | N         | N                     | L        | N                   |
| Agrilead           | AL-Nutri Maxx BMR    | SS   | Y   | N     | Y            | N         | L                     | N        | N                   |
| Alta Seeds         | AS6401               | SS   | Y   | N     | N            | N         | N                     | ML       | N                   |
| Alta Seeds         | AS6402               | SS   | Y   | Y     | N            | N         | N                     | ML       | N                   |
| Alta Seeds         | ADV XS007            | SS   | Y   | N     | N            | N         | N                     | ML       | N                   |
| Alta Seeds         | ADV XS008            | SS   | Y   | Y     | N            | N         | N                     | ML       | N                   |
| Alta Seeds         | ADV XS8007           | SS   | Y   | N     | N            | N         | N                     | ML       | N                   |
| Browning Seed      | Cadan PPS            | SS   | N   | N     | N            | N         | Y                     | PPS      | N                   |
| Browning Seed      | Wondergreen          | SS   | N   | N     | Y            | N         | E                     | N        | N                   |
| Browning Seed      | Sweet Sioux BMR      | SS   | Y   | N     | N            | N         | N                     | M        | N                   |
| Channel Seed       | Qualimax             | SS   | N   | N     | N            | N         | N                     | ML       | N/A                 |
| Coffey             | Surpass              | SS   | Y   | -     | -            | -         | -                     | M        | -                   |
| Coffey             | 5618                 | SS   | Y   | -     | -            | -         | -                     | M        | Y                   |
| Coffey             | Xtragrave            | SS   | Y   | -     | -            | -         | -                     | M        | -                   |
| Coffey             | 5619                 | SS   | Y   | -     | -            | -         | -                     | M        | Y                   |
| Coffey             | Tifleaf              | MT   | N   | -     | -            | -         | -                     | M        | -                   |
| Coffey             | Leafy TR 9           | MT   | N   | -     | -            | -         | -                     | M        | -                   |
| Coffey             | Epic                 | MT   | Y   | -     | -            | -         | -                     | M        | -                   |
| Coffey             | Leafy TR 7           | MT   | N   | -     | -            | -         | -                     | M        | -                   |
| Dyna-Gro Seed      | Danny Boy II BMR     | SS   | Y   | N     | N            | N         | Y                     | PPS      | N                   |
| Dyna-Gro Seed      | Super Sweet 10       | SS   | N   | N     | N            | N         | N                     | M        | N                   |
| Dyna-Gro Seed      | Fullgraze II         | SS   | N   | N     | N            | N         | N                     | MF       | N                   |
| Dyna-Gro Seed      | Fullgraze II BMR     | SS   | Y   | N     | N            | N         | N                     | MF       | N                   |
| Dyna-Gro Seed      | F75FS13              | FS   | N   | N     | N            | N         | N                     | M        | N                   |
| Dyna-Gro Seed      | PearlMil             | MT   | N   | N     | N            | N         | N                     | M        | N                   |
| KSU (check)        | Rox Orange           | FS   | N   | N     | N            | N         | N                     | M        | N                   |
| KSU (check)        | Early Sumac          | FS   | N   | N     | N            | N         | N                     | M        | N                   |
| Sorghum Partners   | SP4105 BMR           | SS   | Y   | N     | N            | N         | Y                     | PPS      | NA                  |
| Sorghum Partners   | SP4555 BMR           | SS   | Y   | N     | N            | N         | M                     | NA       | NA                  |
| Sorghum Partners   | Sordan 79            | SS   | N   | N     | N            | N         | Y                     | M        | NA                  |
### Table 2. 2019 Hay entries

| Company          | Variety               | Type  | BMR | Dwarf Male sterile | Dry stalk  | Photoperiod sensitive | Maturity | Greenbug resistance |
|------------------|-----------------------|-------|-----|--------------------|------------|-----------------------|----------|--------------------|
| Sorghum Partners | Sordan Headless       | SS    | N   | N                  | N          | N                     | Y        | PPS                |
| Star Seed        | Bruiser BMR           | SS    | Y   | N                  | N          | N                     | ME       | NA                 |
| Star Seed        | Nutrimaxx II BMR      | SS    | Y   | N                  | N          | N                     | L        | NA                 |
| Star Seed        | Excel                 | SS    | N   | N                  | N          | N                     | L        | NA                 |
| Ward Seed        | 18178                 | SS    | Y   | N                  | N          | N                     | E        | Y                  |
| Ward Seed        | 18180                 | SS    | N   | N                  | N          | N                     | L        | Y                  |
| Ward Seed        | 18181                 | SS    | Y   | N                  | N          | N                     | Y        | PPS                |
| Ward Seed        | 18182                 | SS    | Y   | N                  | N          | Y                     | N        | E                  |
| Ward Seed        | 18552                 | SS    | N   | N                  | Y          | N                     | E        | Y                  |
| Ward Seed        | 19102                 | SS    | N   | N                  | N          | Y                     | PPS      | Y                  |
| Ward Seed        | 19153                 | SS    | N   | N                  | N          | N                     | L        | Y                  |
| Ward Seed        | 19154                 | SS    | N   | N                  | N          | N                     | L        | Y                  |

Hybrid information was provided by seed companies.

Abbreviations: Forage sorghum (FS), sorghum sudan (SS), sorghum (S), brown mid-rib (BMR), photoperiod sensitive (PS), not applicable (NA).

Maturity groups: Early (E), medium early (ME), medium (M), medium late (ML), late (L), and full (F).

### Table 3. 2019 Silage entries

| Company          | Variety       | Type  | BMR | Dwarf Male sterile | Dry stalk  | Photoperiod sensitive | Maturity | Greenbug resistance | 1000 seed weight, grams |
|------------------|---------------|-------|-----|--------------------|------------|-----------------------|----------|--------------------|------------------------|
| Agrilead         | Brutis        | FS    | Y   | Y                  | N          | N                     | N        | M                 | 28.68                  |
| Agrilead         | AL-Brutis     | FS    | Y   | Y                  | N          | N                     | N        | M                 | 28.02                  |
| Alta Seeds       | AF7201        | FS    | Y   | N                  | Y          | N                     | N        | ME                | 34.64                  |
| Alta Seeds       | ADV F7232     | FS    | Y   | Y                  | N          | N                     | NA       | M                 | 25.65                  |
| Alta Seeds       | AF7401        | FS    | Y   | Y                  | N          | N                     | NA       | ML                | 21.48                  |
| Alta Seeds       | ADV XF025     | FS    | Y   | N                  | N          | Y                     | N        | M                 | 26.34                  |
| Alta Seeds       | ADV XF033     | FS    | N   | N                  | N          | N                     | M        | NA                | 36.38                  |
| Alta Seeds       | AF7102        | FS    | Y   | Y                  | N          | N                     | E        | NA                | 24.13                  |
| Dyna-Gro Seed    | Super Sile 30 | FS    | N   | N                  | N          | N                     | N        | E                 | 23.57                  |
| Dyna-Gro Seed    | FX19125 BMR   | FS    | Y   | N                  | N          | N                     | N        | E                 | 25.87                  |
| Dyna-Gro Seed    | F72FS05       | FS    | N   | N                  | N          | N                     | C        | EM                | 37.11                  |
| Dyna-Gro Seed    | FX19178 BMR   | FS    | Y   | Y                  | N          | N                     | N        | EM                | 32.78                  |
| Dyna-Gro Seed    | Super Sile 20 | FS    | N   | N                  | N          | N                     | N        | ML                | 23.25                  |
| Dyna-Gro Seed    | F74FS72 BMR   | FS    | Y   | Y                  | N          | N                     | N        | M                 | 25.88                  |
| Dyna-Gro Seed    | TopToni       | FS    | N   | N                  | N          | N                     | N        | L                 | 34.29                  |
| Dyna-Gro Seed    | GX13692       | DF    | N   | N                  | N          | N                     | N        | ML                | 34.6                   |
| Dyna-Gro Seed    | Dual Forage SCA II | DF | N   | N                  | N          | N                     | N        | ML                | 33.93                  |
| Dyna-Gro Seed    | FX19526 BMR   | FS    | Y   | N                  | N          | N                     | N        | E                 | 31.19                  |

continued
Table 3. 2019 Silage entries

| Company          | Variety      | Type | BMR | Dwarf Sterile | Dry stalk sensitive | Maturity | Greenbug resistance | 1000 seed weight, grams |
|------------------|--------------|------|-----|--------------|--------------------|----------|--------------------|-------------------------|
| Fontanelle       | Nutri-Chomp  | FS Y | N   | N            | N                  | N        | NA                 | ML                      | 28.18                   |
| KSU (check)      | KS Orange    | FS N | N   | N            | N                  | N        | N                  | M                       | 19.28                   |
| MOJO             | Opal         | FS N | Y   | N            | N                  | N        | N                  | M                       | 35.84                   |
| Star Seed        | Packer       | FS N | N   | N            | N                  | N        | NA                 | ML                      | 27.86                   |
| Star Seed        | Extreme BMR  | FS Y | N   | N            | N                  | N        | NA                 | E                       | 31.54                   |
| Wards            | 18096        | FS N | Y   | N            | N                  | N        | Y                  | M                       | 28.46                   |
| Wards            | 18116        | FS Y | N   | N            | Y                  | N        | Y                  | M                       | 22.19                   |
| Wards            | 18118        | FS Y | N   | Y            | N                  | N        | Y                  | M                       | 28                      |
| Wards            | 19038        | FS N | Y   | N            | N                  | N        | Y                  | M                       | 38.63                   |
| Wards            | 19040        | FS N | Y   | N            | N                  | N        | Y                  | M                       | 33.41                   |
| Wards            | 19042        | FS N | Y   | N            | N                  | N        | Y                  | L                       | 32.64                   |
| Wards            | 19155        | FS Y | Y   | Y            | N                  | N        | Y                  | M                       | 24.51                   |
| Wards            | 19156        | FS N | N   | N            | Y                  | N        | Y                  | M                       | 28.25                   |
| Wards            | 19174        | FS Y | Y   | N            | N                  | Y        | Y                  | E                       | 26.99                   |
| Wards            | 19175        | FS Y | N   | N            | Y                  | N        | Y                  | E                       | 28.48                   |
| Wards            | 19176        | FS Y | N   | N            | N                  | N        | Y                  | E                       | 31.53                   |
| Wards            | 19177        | FS Y | N   | N            | Y                  | N        | Y                  | E                       | 27.08                   |
| Wards            | 19178        | FS Y | Y   | Y            | N                  | Y        | Y                  | E                       | 34.87                   |
| Wards            | 19179        | FS N | Y   | N            | N                  | N        | Y                  | L                       | 35.52                   |
| Wards            | 19181        | FS Y | Y   | N            | N                  | N        | Y                  | L                       | 32.63                   |

Hybrid information was provided by seed companies.
Abbreviations: Forage sorghum (FS), sorghum sudan (SS), sorghum (S), brown mid-rib (BMR), photoperiod sensitive (PS), not applicable (NA).
Maturity groups: Early (E), medium early (ME), medium (M), medium late (ML), late (L), and full (F).

Table 4. 2019 Corn silage entries

| Company          | Variety/entry | Herbicide resistance | Insecticide resistance | Maturity | BMR | Grams /1000 seeds |
|------------------|---------------|----------------------|------------------------|----------|-----|-------------------|
| Dyna-Gro Seed    | D54DC94       | RR                   | VT2P                   | 114      | N   | 216.23            |
| Dyna-Gro Seed    | D55QC73       | RR                   | 3110                   | 115      | N   | 241.85            |
| Dyna-Gro Seed    | D57VC75       | RR                   | VT2P                   | 117      | N   | 224.08            |
| Dyna-Gro Seed    | D58VC65       | RR                   | VT2P                   | 118      | N   | 220.22            |
| Dyna-Gro Seed    | D58QC72       | RR                   | 3110                   | 118      | N   | 238.39            |
| Dyna-Gro Seed    | D58RR70       | RR                   | N                      | 118      | N   | 279.93            |
Table 5. Irrigation, plant, harvest, and fertilizer details for hay and silage variety tests near Garden City, Hays, and Scandia, KS, in 2019

| Location     | Irrigation | Planting date | 1st harvest date | 2nd harvest date | Seeding rate | Harvest area, ft² | Fertilizer lb N/a | Fertilizer lb P₂O₅/a |
|--------------|------------|----------------|------------------|------------------|--------------|------------------|-------------------|-------------------|
| **Hay test** |            |                |                  |                  |              |                  |                   |                   |
| Garden City  | 11.81      | 4-Jun          | 16-Aug           | 17-Oct           | 20 (lb/a)    | 360              | 92                | 0                 |
|              |            |                | 23-Aug           |                  |              |                  |                   |                   |
|              |            |                | 9-Oct            |                  |              |                  |                   |                   |
| Hays         | ---        | 5-Jun          | 5-Sep            | ---              | 15 (lb/a)    | 90               | 50                | 0                 |
|              |            |                | 19-Sep           |                  |              |                  |                   |                   |
|              |            |                | 26-Sep           |                  |              |                  |                   |                   |
| Scandia      | ---        | 17-Jun         | 28-Aug           | ---              | 20 (lb/a)    | 60               | 50                | 0                 |
|              |            |                | 9-Sep            |                  |              |                  |                   |                   |
| **Silage test** |          |                |                  |                  |              |                  |                   |                   |
| Garden City  | 11.81      | 17-May         | 14-Sep           | ---              | 80000        | 225              | 92                | 0                 |
|              |            |                | 27-Sep           |                  |              |                  |                   |                   |
| Hays         | ---        | 6-Jun          | 20-Sep           | ---              | 50000        | 25               | 50                | 0                 |
|              |            |                | 26-Sep           |                  |              |                  |                   |                   |
|              |            |                | 16-Oct           |                  |              |                  |                   |                   |
| Scandia      | ---        | 14-Jun         | 11-Sep           | ---              | 80000        | 67.5             | 50                | 0                 |
|              |            |                | 26-Sep           |                  |              |                  |                   |                   |
|              |            |                | 8-Oct            |                  |              |                  |                   |                   |
| **Corn silage test** |      |                |                  |                  |              |                  |                   |                   |
| Garden City  | 11.81      | 17-May         | 14-Sep           | ---              | 32000        | 225              | 92                | 0                 |
|              |            |                | 27-Sep           |                  |              |                  |                   |                   |
|              |            |                |                  |                  | 32000        |                  |                   |                   |
| Hays         | ---        | 6-Jun          | 18-Sep           | ---              | 32000        | 25               | 50                | 0                 |
|              |            |                |                  |                  |              |                  |                   |                   |
Table 6. Hay performance test near Garden City
2019 Garden City, Kansas Hay Performance Test, Finney County

| Brand             | Name            | 1st cutting | 2nd cutting | Total yield | 1st cutting | 2nd cutting | 1st height |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|------------|
|                   |                 | lb DM/a     | % moisture  | in.         | lb DM/a     | % moisture  | in.        |
| **Forage sorghum**|                 |             |             |             |             |             |            |
| Dyna-Gro Seed     | F75FS13         | 10781       | 3720        | 14501       | 0.80        | 0.40        | 108        |
| KSU (check)       | Early Sumac     | 9670        | 3434        | 13104       | 0.80        | 0.37        | 84         |
| KSU (check)       | Rox Orange      | 9971        | 2587        | 12558       | 0.81        | 0.26        | 84         |
| **Millet**        |                 |             |             |             |             |             |            |
| Coffey            | Epic            | 11223       | 820         | 12043       | 0.74        | 0.29        | 45         |
| Coffey            | Leafy TR 7      | 11010       | 2796        | 13806       | 0.72        | 0.34        | 55         |
| Coffey            | Leafy TR 9      | 11136       | 1852        | 12988       | 0.71        | 0.27        | 58         |
| Coffey            | Tifleaf         | 10071       | 2146        | 12217       | 0.73        | 0.33        | 50         |
| Dyna-Gro Seed     | PearlMil        | 10752       | 2113        | 12865       | 0.69        | 0.21        | 60         |
| **Sorghum sudan** |                 |             |             |             |             |             |            |
| Alta Seeds        | ADV XS007       | 11877       | 2685        | 14562       | 0.79        | 0.19        | 105        |
| Alta Seeds        | ADV XS008       | 10326       | 2298        | 12624       | 0.79        | 0.33        | 84         |
| Alta Seeds        | ADV XS8007      | 10463       | 4328        | 14791       | 0.79        | 0.30        | 95         |
| Alta Seeds        | AS6401          | 10782       | 3326        | 14108       | 0.83        | 0.55        | 100        |
| Alta Seeds        | AS6402          | 11006       | 2201        | 13207       | 0.80        | 0.39        | 82         |
| Browning Seed     | Cadan PPS       | 8533        | 3993        | 12526       | 0.83        | 0.26        | 74         |
| Browning Seed     | Sweet Sioux BMR | 10117       | 2730        | 12847       | 0.78        | 0.34        | 109        |
| Browning Seed     | Wondergreen     | 9962        | 5579        | 15541       | 0.74        | 0.34        | 128        |
| Channel Seed      | Qualimax        | 13630       | 2060        | 15690       | 0.76        | 0.26        | 105        |
| Coffey            | 5618            | 8428        | 1313        | 9741        | 0.78        | 0.44        | 69         |
| Coffey            | 5619            | 8497        | 2721        | 11218       | 0.74        | 0.28        | 89         |
| Coffey            | Surpass         | 8943        | 3718        | 12661       | 0.76        | 0.38        | 74         |
| Coffey            | Xtragraze       | 10265       | 2671        | 12936       | 0.75        | 0.29        | 94         |
| Dyna-Gro Seed     | Danny Boy II BM | 11150       | 2801        | 13951       | 0.83        | 0.37        | 84         |
| Dyna-Gro Seed     | Fullgraze II    | 15913       | 1595        | 17508       | 0.73        | 0.21        | 112        |
| Dyna-Gro Seed     | Fullgraze II BM | 13215       | 2311        | 15526       | 0.79        | 0.31        | 96         |
| Dyna-Gro Seed     | Super Sweet 10  | 10320       | 3400        | 13720       | 0.79        | 0.44        | 105        |
| Sorghum Partners  | Sordan 79       | 10512       | 2311        | 12823       | 0.80        | 0.30        | 90         |
| Sorghum Partners  | Sordan Headless | 13508       | 1570        | 15078       | 0.80        | 0.20        | 84         |
| Sorghum Partners  | SP4105 BMR      | 9997        | 2403        | 12400       | 0.82        | 0.35        | 76         |
| Sorghum Partners  | SP4555 BMR      | 9555        | 3496        | 13051       | 0.80        | 0.26        | 96         |
| Star Seed         | Bruiser BMR     | 10914       | 1807        | 12721       | 0.80        | 0.26        | 85         |
| Star Seed         | Excel           | 14248       | 3097        | 17345       | 0.78        | 0.22        | 108        |
| Star Seed         | Nutrimaxx II BM | 13781       | 2446        | 16227       | 0.80        | 0.23        | 95         |

continued
**Table 6. Hay performance test near Garden City**

*2019 Garden City, Kansas Hay Performance Test, Finney County*

| Brand     | Name | 1st cutting | 2nd cutting | Total yield | 1st cutting | 2nd cutting | 1st height |
|-----------|------|-------------|-------------|-------------|-------------|-------------|------------|
| Ward Seed | 18178| 9008        | 3841        | 12849       | 0.80        | 0.39        | 109        |
| Ward Seed | 18180| 13252       | 2269        | 15521       | 0.77        | 0.24        | 114        |
| Ward Seed | 18181| 12845       | 1466        | 14311       | 0.81        | 0.22        | 99         |
| Ward Seed | 18182| 10588       | 3023        | 13611       | 0.77        | 0.37        | 92         |
| Ward Seed | 18552| 11167       | 4047        | 15214       | 0.76        | 0.33        | 119        |
| Ward Seed | 19102| 13253       | 2371        | 15624       | 0.82        | 0.30        | 109        |
| Ward Seed | 19153| 13972       | 2042        | 16014       | 0.78        | 0.24        | 124        |
| Ward Seed | 19154| 13700       | 3447        | 17147       | 0.77        | 0.25        | 128        |
| **Average** |     | 11209       | 2721        | 13929       | 1           | 0           | 92         |
| **LSD (0.05)** |    | 2486        | 1914        | 2566        |             |             |            |

*Plant date: 6/4/2019*

*Days to harvest: 73, 80, 127, 135*

*Values in bold are in the top least significant difference (LSD) group.*
| Brand          | Name          | Ash  | Ca   | P    | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  | RFV  |
|----------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| **Forage sorghum** |               |      |      |      |      |      |      |      |      |      |      |      |      |
| Dyna-Gro Seed  | F75FS13       | 12.02| 0.26 | 0.22 | 0.19 | 2.63 | 0.16 | 23.76| 55.23| 56.05| 26.35| 51.74| 96.30|
| KSU (check)    | Early Sumac   | 11.23| 0.29 | 0.21 | 0.21 | 2.41 | 0.16 | 27.00| 58.16| 59.31| 30.43| 56.16|103.57|
| KSU (check)    | Rox Orange    | 10.85| 0.27 | 0.22 | 0.19 | 2.38 | 0.15 | 26.30| 57.73| 58.83| 29.85| 55.53|101.54|
| **Millet**     |               |      |      |      |      |      |      |      |      |      |      |      |      |
| Coffey         | Epic          | 13.19| 0.30 | 0.26 | 0.25 | 3.26 | 0.20 | 18.41| 54.08| 54.77| 25.55| 50.87| 91.50|
| Coffey         | Leafy TR 7    | 12.22| 0.25 | 0.26 | 0.22 | 3.13 | 0.19 | 17.24| 52.74| 53.28| 23.46| 48.60| 83.70|
| Coffey         | Leafy TR 9    | 13.03| 0.26 | 0.26 | 0.23 | 3.31 | 0.19 | 16.44| 51.81| 52.24| 22.18| 47.23| 83.70|
| Coffey         | Tifleaf       | 11.97| 0.26 | 0.25 | 0.25 | 3.13 | 0.19 | 16.38| 52.57| 53.09| 23.39| 48.53| 82.73|
| Dyna-Gro Seed  | PearlMil      | 12.26| 0.27 | 0.26 | 0.25 | 3.15 | 0.20 | 16.97| 52.92| 53.48| 23.91| 49.09| 85.88|
| **Sorghum sudan** |              |      |      |      |      |      |      |      |      |      |      |      |      |
| Alta Seeds     | ADV XS007     | 13.72| 0.26 | 0.25 | 0.16 | 3.13 | 0.16 | 20.36| 53.95| 54.63| 24.77| 50.02| 90.17|
| Alta Seeds     | ADV XS008     | 14.11| 0.29 | 0.26 | 0.19 | 3.08 | 0.20 | 18.32| 53.84| 54.50| 25.26| 50.55| 90.90|
| Alta Seeds     | ADV XS8007    | 13.15| 0.29 | 0.25 | 0.19 | 2.96 | 0.18 | 21.85| 54.54| 55.29| 25.77| 51.11| 95.77|
| Alta Seeds     | AS6401        | 14.59| 0.31 | 0.26 | 0.20 | 3.26 | 0.19 | 19.86| 53.21| 53.80| 24.04| 49.23| 92.74|
| Alta Seeds     | AS6402        | 13.93| 0.29 | 0.25 | 0.19 | 3.12 | 0.21 | 18.64| 54.37| 55.10| 26.10| 51.46| 92.69|
| Browning Seed  | Cadan PPS     | 15.54| 0.29 | 0.29 | 0.20 | 3.64 | 0.20 | 16.76| 51.50| 51.90| 22.06| 47.09| 87.95|
| Browning Seed  | Sweet Sioux BMR| 13.59| 0.28 | 0.24 | 0.18 | 2.85 | 0.17 | 21.67| 52.94| 53.50| 23.35| 48.49| 93.65|
| Browning Seed  | Wondergreen   | 11.53| 0.24 | 0.21 | 0.17 | 2.41 | 0.15 | 18.96| 51.90| 52.34| 21.64| 46.64| 81.84|
| Channel Seed   | Qualimax      | 12.43| 0.24 | 0.22 | 0.16 | 2.89 | 0.14 | 20.06| 52.71| 53.25| 22.52| 47.59| 85.37|
| Coffey         | 5618          | 12.85| 0.27 | 0.25 | 0.18 | 2.83 | 0.19 | 19.97| 55.81| 56.70| 27.90| 53.41| 94.23|
| Coffey         | 5619          | 12.66| 0.29 | 0.23 | 0.20 | 2.46 | 0.18 | 24.32| 57.81| 58.93| 30.50| 56.24|104.11|
| Coffey         | Surpass       | 12.85| 0.24 | 0.25 | 0.18 | 2.73 | 0.19 | 19.63| 55.97| 56.88| 28.17| 53.70| 94.71|
| Coffey         | Xtragraze     | 12.89| 0.27 | 0.24 | 0.18 | 2.70 | 0.18 | 21.02| 55.60| 56.46| 27.30| 52.75| 93.80|
|               |               |      |      |      |      |      |      |      |      |      |      |      |      |

*continued*
Table 6b. 2019 Garden City, Kansas Hay Performance Test, Finney County

| Brand         | Name                      | Ash | Ca  | P    | Mg  | K    | S    | NFC | TDN | NEL | NEG | NEM | RFV |
|---------------|---------------------------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|
| Dyna-Gro Seed| Danny Boy II BMR          | 16.55| 0.29| 0.30 | 0.17| 3.66 | 0.21| 17.05| 51.04| 51.39 | 21.29| 46.26| 88.50|
| Dyna-Gro Seed| Fullgraze II              | 10.63| 0.24| 0.18 | 0.14| 2.64 | 0.14| 16.04| 51.48 | 51.88 | 20.62| 45.55| 73.04|
| Dyna-Gro Seed| Fullgraze II BMR          | 13.55| 0.24| 0.25 | 0.14| 3.18 | 0.17| 15.87| 50.95 | 51.28 | 20.39| 45.31| 78.33|
| Dyna-Gro Seed| Super Sweet 10            | 12.77| 0.27| 0.24 | 0.20| 2.71 | 0.17| 21.45| 52.86 | 53.41 | 23.43| 48.58| 91.43|
| Sorghum Partners| Sordan 79              | 13.09| 0.24| 0.23 | 0.18| 3.12 | 0.15| 17.92| 50.48 | 50.77 | 19.50| 44.35| 80.26|
| Sorghum Partners| Sordan Headless          | 13.72| 0.24| 0.25 | 0.18| 3.45 | 0.17| 15.33| 49.60 | 49.78 | 18.46| 43.24| 76.95|
| Sorghum Partners| SP4105 BMR               | 16.00| 0.32| 0.29 | 0.21| 3.62 | 0.21| 16.72| 51.43 | 51.81 | 21.84| 46.86| 89.85|
| Sorghum Partners| SP4555 BMR               | 13.46| 0.26| 0.25 | 0.17| 2.70 | 0.17| 22.50| 53.83 | 54.49 | 24.60| 49.83| 95.51|
| Star Seed     | Bruiser BMR              | 11.86| 0.25| 0.23 | 0.18| 2.83 | 0.16| 21.89| 55.13 | 55.94 | 26.16| 51.53| 90.74|
| Star Seed     | Excel                    | 12.52| 0.24| 0.22 | 0.16| 2.85 | 0.15| 21.63| 53.66 | 54.30 | 24.08| 49.27| 89.49|
| Star Seed     | Nutrimaxx II BMR         | 13.06| 0.24| 0.22 | 0.19| 3.22 | 0.15| 17.44| 51.96 | 52.41 | 21.78| 46.80| 83.47|
| Ward Seed     | 18178                    | 13.86| 0.27| 0.27 | 0.17| 2.91 | 0.18| 21.95| 54.35 | 55.08 | 25.64| 50.96| 97.87|
| Ward Seed     | 18180                    | 12.57| 0.24| 0.23 | 0.16| 2.93 | 0.14| 18.56| 51.42 | 51.81 | 20.83| 45.77| 81.53|
| Ward Seed     | 18181                    | 12.62| 0.24| 0.22 | 0.18| 3.22 | 0.15| 16.26| 51.79 | 52.22 | 21.28| 46.25| 79.68|
| Ward Seed     | 18182                    | 13.05| 0.24| 0.25 | 0.16| 2.75 | 0.18| 19.60| 53.92 | 54.59 | 24.82| 50.07| 90.21|
| Ward Seed     | 18552                    | 12.06| 0.24| 0.22 | 0.17| 2.54 | 0.15| 21.36| 53.21 | 53.81 | 23.38| 48.52| 87.80|
| Ward Seed     | 19102                    | 13.21| 0.24| 0.25 | 0.16| 3.26 | 0.17| 15.60| 50.26 | 50.51 | 19.30| 44.14| 76.11|
| Ward Seed     | 19153                    | 12.15| 0.24| 0.24 | 0.14| 2.81 | 0.15| 19.37| 52.75 | 53.29 | 22.98| 48.09| 84.39|
| Ward Seed     | 19154                    | 12.16| 0.24| 0.22 | 0.15| 2.76 | 0.14| 19.84| 52.71 | 53.25 | 22.59| 47.67| 83.88|
| **Average**   |                          | 12.99| 0.26| 0.24 | 0.18| 2.97 | 0.17| 19.51| 53.31 | 53.91 | 23.94| 49.13| 88.65|

Values in bold are in the top least significant difference (LSD) group.
Abbreviations for this table and following tables: Crude protein (CP), adjusted crude protein (Adj_CP), nitrogen free neutral detergent fiber (NDFn), acid detergent fiber (ADF), neutral detergent fiber organic matter basis (aNDFom), lignin, undigested aNDFom remaining after in vitro digestion at 240 hr (uNDFom240), neutral detergent fiber-digestible at 240 hr (NDFD240), water soluble carbohydrates (WSC), starch, total fatty acids (TFA), ash, calcium (Ca), phosphorus (P), magnesium (Mg), potassium (K), sulfur (S), non-fiber carbohydrates (NFC), total digestible nutrients (TDN), net energy for lactation (NEL), net energy for gain (NEG), net energy for maintenance (NEM), and relative feed value (RFV).
Table 6b, continued. 2019 Garden City, Kansas Hay Performance Test, Finney County

| Brand            | Name                | CP   | Adj_CP | NDFn  | ADF   | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|------------------|---------------------|------|--------|-------|-------|--------|--------|-----------|---------|-------------|--------|----------|
| Forage sorghum   | Dyna-Gro Seed       |      |        |       |       |        |        |           |         |             |        |          |
|                  | F75FS13             | 9.26 | 8.68   | 2.49  | 38.77 | 55.68  | 4.54   | 16.96     | 69.47   | 7.95        | 6.48   | 0.77     |
|                  | KSU (check) Early Sumac | 9.46 | 8.98   | 2.46  | 36.06 | 52.98  | 3.76   | 16.48     | 68.88   | 10.20       | 6.25   | 0.80     |
|                  | Rox Orange          | 9.39 | 8.99   | 2.46  | 36.53 | 54.17  | 4.02   | 16.64     | 69.26   | 10.33       | 6.27   | 0.74     |
| Millet           | Coffey Epic         | 10.74| 10.70  | 2.59  | 37.98 | 58.52  | 4.18   | 14.49     | 75.24   | 7.59        | 2.98   | 0.74     |
|                  | CoffeLeafy TR 7     | 10.15| 9.99   | 2.42  | 41.04 | 61.06  | 5.10   | 17.06     | 72.03   | 6.04        | 2.25   | 0.76     |
|                  | CoffeLeafy TR 9     | 10.28| 10.10  | 2.58  | 41.44 | 61.11  | 5.15   | 16.64     | 72.75   | 5.77        | 2.45   | 0.72     |
|                  | CoffeTifleaf        | 10.61| 10.46  | 2.60  | 41.25 | 61.95  | 5.14   | 16.52     | 73.30   | 5.65        | 2.79   | 0.68     |
|                  | Dyna-Gro Seed PearlMil | 10.70| 10.54  | 2.58  | 40.34 | 60.89  | 4.99   | 17.10     | 71.90   | 5.04        | 3.44   | 0.77     |
| Sorghum sudan    | Alta Seeds ADV XS007 | 9.48 | 9.14   | 2.59  | 40.37 | 57.30  | 4.10   | 17.08     | 70.22   | 9.45        | 2.33   | 0.74     |
|                  | Alta Seeds ADV XS008 | 11.01| 10.70  | 2.77  | 40.22 | 57.55  | 3.89   | 15.45     | 73.15   | 5.81        | 1.39   | 0.77     |
|                  | Alta Seeds ADV XS8007 | 9.96 | 9.57   | 2.54  | 38.93 | 55.76  | 4.34   | 16.70     | 69.98   | 8.06        | 4.84   | 0.82     |
|                  | Alta Seeds AS6401   | 10.40| 9.79   | 2.87  | 40.20 | 56.28  | 4.11   | 16.27     | 71.10   | 6.71        | 3.05   | 0.74     |
|                  | Alta Seeds AS6402   | 11.23| 11.00  | 2.81  | 39.45 | 57.20  | 3.79   | 15.84     | 72.26   | 5.27        | 1.83   | 0.81     |
|                  | Browning Seed Cadan PPS | 11.18| 10.76  | 2.92  | 41.92 | 57.72  | 4.34   | 16.63     | 71.18   | 4.89        | 1.41   | 0.71     |
|                  | Browning Seed Sweet Sioux BMR | 9.58 | 8.97   | 2.55  | 39.85 | 55.88  | 5.00   | 17.00     | 69.46   | 6.10        | 6.45   | 0.83     |
|                  | Browning Seed Wondergreen | 8.84 | 8.39   | 2.33  | 43.18 | 61.34  | 5.86   | 20.32     | 66.81   | 5.77        | 4.80   | 0.66     |
|                  | Channel Seed Qualimax | 8.28 | 7.77   | 2.36  | 41.68 | 59.92  | 5.07   | 19.02     | 68.22   | 9.39        | 3.57   | 0.67     |
|                  | Coffey 5618          | 10.67| 10.60  | 2.52  | 38.02 | 57.17  | 3.66   | 15.38     | 73.09   | 6.74        | 2.50   | 0.85     |
|                  | Coffey 5619          | 10.38| 10.31  | 2.29  | 35.54 | 53.08  | 3.30   | 14.61     | 72.44   | 10.15       | 4.46   | 0.84     |
|                  | Coffey Surpass       | 10.80| 10.70  | 2.49  | 37.61 | 57.33  | 3.55   | 15.80     | 72.43   | 7.42        | 1.88   | 0.87     |
|                  | Coffey Xtragrazc     | 10.08| 9.85   | 2.51  | 38.62 | 56.75  | 3.74   | 16.76     | 70.38   | 7.28        | 2.87   | 0.78     |

continued
Table 6b, continued. 2019 Garden City, Kansas Hay Performance Test, Finney County

| Brand         | Name             | CP    | Adj_CP | NDFn  | ADF   | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|---------------|------------------|-------|--------|-------|-------|--------|--------|------------|---------|-------------|--------|-----------|
| Dyna-Gro Seed | Danny Boy II BMR | 11.04 | 10.40  | 2.98  | 42.28 | 56.76  | 4.02   | 16.97      | 70.11   | 4.47        | 2.00   | 0.58      |
| Dyna-Gro Seed | Fullgraze II     | 7.91  | 7.35   | 2.45  | 44.87 | 66.37  | 5.66   | 21.66      | 67.35   | 6.32        | 1.67   | 0.50      |
| Dyna-Gro Seed | Fullgraze II BMR | 9.24  | 8.59   | 2.70  | 44.14 | 62.48  | 4.91   | 19.53      | 68.75   | 5.32        | 1.78   | 0.57      |
| Dyna-Gro Seed | Super Sweet 10   | 10.10 | 9.44   | 2.74  | 40.98 | 56.68  | 5.32   | 18.28      | 67.72   | 4.98        | 6.48   | 0.75      |
| Sorghum Partners | Sordan 79   | 8.72  | 7.98   | 2.59  | 44.04 | 61.28  | 5.68   | 19.65      | 67.89   | 5.60        | 4.16   | 0.59      |
| Sorghum Partners | Sordan Headless | 9.17  | 8.55   | 2.71  | 44.88 | 62.97  | 5.53   | 19.50      | 69.04   | 5.15        | 1.61   | 0.52      |
| Sorghum Partners | SP4105 BMR  | 10.95 | 10.46  | 2.88  | 41.09 | 57.50  | 4.13   | 16.19      | 71.88   | 5.05        | 1.72   | 0.71      |
| Sorghum Partners | SP4555 BMR  | 9.56  | 9.01   | 2.43  | 39.28 | 57.75  | 4.86   | 18.79      | 67.46   | 9.77        | 3.60   | 0.70      |
| Star Seed     | Bruiser BMR     | 9.01  | 8.50   | 2.42  | 39.50 | 57.89  | 4.34   | 15.55      | 73.08   | 5.51        | 5.81   | 0.77      |
| Star Seed     | Excel           | 8.84  | 8.41   | 2.44  | 40.65 | 57.75  | 4.86   | 18.79      | 67.46   | 9.77        | 3.60   | 0.70      |
| Star Seed     | Nutrimaxx II BMR | 8.92 | 8.61   | 2.54  | 41.43 | 61.40  | 5.00   | 16.83      | 72.59   | 8.14        | 2.52   | 0.71      |
| Ward Seed     | 18178           | 10.27 | 9.83   | 2.55  | 38.40 | 54.60  | 4.24   | 15.73      | 71.17   | 6.02        | 5.93   | 0.87      |
| Ward Seed     | 18180           | 8.46  | 8.07   | 2.37  | 43.21 | 61.13  | 5.58   | 19.93      | 67.38   | 8.65        | 3.86   | 0.64      |
| Ward Seed     | 18181           | 8.51  | 7.85   | 2.54  | 43.06 | 63.56  | 4.80   | 17.20      | 72.94   | 6.05        | 2.09   | 0.60      |
| Ward Seed     | 18182           | 9.72  | 9.31   | 2.43  | 40.31 | 58.26  | 4.33   | 17.44      | 70.08   | 5.90        | 3.74   | 0.81      |
| Ward Seed     | 18552           | 8.76  | 8.12   | 2.40  | 41.69 | 58.49  | 5.21   | 19.44      | 66.70   | 6.24        | 5.50   | 0.73      |
| Ward Seed     | 19102           | 8.97  | 8.34   | 2.47  | 45.40 | 63.14  | 5.38   | 19.96      | 68.41   | 4.38        | 1.02   | 0.54      |
| Ward Seed     | 19153           | 9.17  | 8.80   | 2.53  | 42.11 | 60.10  | 5.27   | 19.18      | 68.08   | 8.35        | 3.04   | 0.74      |
| Ward Seed     | 19154           | 8.36  | 7.94   | 2.28  | 42.28 | 60.20  | 5.22   | 19.61      | 67.42   | 8.99        | 2.95   | 0.71      |
| Average       |                 | 9.70  | 9.29   | 2.55  | 40.72 | 58.63  | 4.64   | 17.43      | 70.27   | 6.82        | 3.49   | 0.72      |

Values in bold are in the top least significant difference (LSD) group.

Abbreviations for this table and following tables: Crude protein (CP), adjusted crude protein (Adj_CP), nitrogen free neutral detergent fiber (NDFn), acid detergent fiber (ADF), neutral detergent fiber organic matter basis (aNDFom), lignin, undigested aNDFom remaining after in vitro digestion at 240 hr (uNDFom240), neutral detergent fiber-digestible at 240 hr (NDFD240), water soluble carbohydrates (WSC), starch, total fatty acids (TFA), ash, calcium (Ca), phosphorus (P), magnesium (Mg), potassium (K), sulfur (S), non-fiber carbohydrates (NFC), total digestible nutrients (TDN), net energy for lactation (NEL), net energy for gain (NEG), net energy for maintenance (NEM), and relative feed value (RFV).
| Brand             | Name                        | 1st cutting | 1st cutting | 1st height |
|-------------------|-----------------------------|-------------|-------------|------------|
|                   |                             | lb DM/a     | % moisture  | in.        |
| **Forage sorghum**|                             |             |             |            |
| Dyna-Gro Seed     | F75FS13                     | 10680       | 0.64        | 86         |
| KSU (check)       | Early Sumac                 | 9615        | 0.65        | 69         |
| KSU (check)       | Rox Orange                  | 9801        | 0.70        | 72         |
| **Sorghum sudan** |                             |             |             |            |
| Agrilead          | AL-Nutrimaxx BMR            | 11126       | 0.65        | 72         |
| Agrilead          | Nutrimaxx BMR               | **12939**   | 0.67        | 108        |
| Alta Seeds        | ADV XS007                   | 12203       | 0.69        | 95         |
| Alta Seeds        | ADV XS008                   | 12455       | 0.66        | 87         |
| Alta Seeds        | ADV XS8007                  | 12166       | 0.65        | 87         |
| Alta Seeds        | AS6401                      | 11092       | 0.67        | 102        |
| Alta Seeds        | AS6402                      | 10850       | 0.65        | 91         |
| Browning Seed     | Cadan PPS                   | **13746**   | 0.69        | 84         |
| Browning Seed     | Sweet Sioux BMR             | 12167       | 0.61        | 100        |
| Browning Seed     | Wondergreen                 | 9449        | 0.59        | 88         |
| Channel Seed      | Qualimax                    | 12078       | 0.63        | 103        |
| Dyna-Gro Seed     | Danny Boy II BMR            | **15623**   | 0.64        | 88         |
| Dyna-Gro Seed     | Fullgraze II                | 11117       | 0.62        | 120        |
| Dyna-Gro Seed     | Fullgraze II BMR            | **13817**   | 0.66        | 118        |
| Dyna-Gro Seed     | Super Sweet 10              | 10833       | 0.64        | 83         |
| Star Seed         | Bruiser BMR                 | 11856       | 0.67        | 98         |
| Star Seed         | Excel                       | 12778       | 0.66        | 112        |
| Star Seed         | Nutrimaxx II BMR            | 10186       | 0.58        | 106        |
| Ward Seed         | 18178                       | 12243       | 0.66        | 90         |
| Ward Seed         | 18180                       | 10717       | 0.64        | 108        |
| Ward Seed         | 18181                       | **14085**   | 0.69        | 96         |
| Ward Seed         | 18182                       | 11596       | 0.61        | 94         |
| Ward Seed         | 19153                       | 11593       | 0.64        | 120        |
| Ward Seed         | 19154                       | 9737        | 0.65        | 104        |
| **Average**       |                             | 11724       | 0.65        | 96         |
| **LSD (0.05)**    |                             | 2712        |             |            |

Plant date: 6/5/2019

Days to harvest: 92,106,113

Values in bold are in the top least significant difference (LSD) group.
Table 7b. 2019 Hays, Kansas Forage Hay Performance Test, Ellis County

| Brand            | Name                  | CP   | Adj_ CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|------------------|-----------------------|------|---------|------|------|--------|--------|-----------|---------|-------------|--------|-----------|
| **Forage sorghum** |                       |      |         |      |      |        |        |           |         |             |        |           |
| Dyna-Gro Seed    | F75FS13               | 7.22 | 7.17    | 1.78 | 37.51| 57.42  | 3.94   | 15.21     | 73.50   | 11.77       | 3.98   | 0.76      |
| KSU (check)      | Early Sumac           | 6.58 | 6.35    | 1.73 | 36.83| 57.79  | 3.94   | 14.31     | 75.21   | 12.04       | 4.90   | 0.75      |
| KSU (check)      | Rox Orange            | 8.18 | 8.15    | 1.98 | 38.14| 59.53  | 3.92   | 15.21     | 74.44   | 10.51       | 2.11   | 0.67      |
| **Millet**       |                       |      |         |      |      |        |        |           |         |             |        |           |
| Dyna-Gro Seed    | PearlMil              | 9.35 | 9.32    | 1.94 | 37.29| 57.11  | 4.21   | 13.45     | 76.46   | 8.90        | 2.58   | 0.93      |
| **Sorghum sudan**|                       |      |         |      |      |        |        |           |         |             |        |           |
| Agrilead         | AL-Nutri Maxx BMR     | 8.49 | 8.36    | 1.95 | 38.32| 59.69  | 4.07   | 15.39     | 74.24   | 8.49        | 3.17   | 0.82      |
| Agrilead         | Nutri Maxx BMR        | 8.56 | 8.56    | 1.95 | 37.94| 59.58  | 3.78   | 14.25     | 76.07   | 9.88        | 1.91   | 0.79      |
| Alta Seeds       | ADV XS007              | 8.10 | 7.95    | 1.89 | 39.48| 60.37  | 3.73   | 15.15     | 75.01   | 9.07        | 1.25   | 0.66      |
| Alta Seeds       | ADV XS008              | 8.61 | 8.55    | 2.04 | 37.80| 60.10  | 3.72   | 13.94     | 76.80   | 9.77        | 0.96   | 0.80      |
| Alta Seeds       | ADV XS8007             | 9.58 | 9.52    | 2.15 | 37.19| 58.38  | 3.66   | 12.77     | 78.15   | 8.79        | 0.86   | 0.88      |
| Alta Seeds       | AS6401                 | 9.10 | 8.97    | 2.22 | 37.09| 58.05  | 3.69   | 13.72     | 76.41   | 9.31        | 1.65   | 0.82      |
| Alta Seeds       | AS6402                 | 8.77 | 8.68    | 2.12 | 38.06| 59.89  | 3.74   | 14.23     | 76.23   | 8.11        | 1.43   | 0.82      |
| Browning Seed    | Cadan PPS              | 8.36 | 8.19    | 2.03 | 38.22| 58.39  | 3.89   | 14.50     | 75.18   | 9.22        | 1.58   | 0.77      |
| Browning Seed    | Sweet Sioux BMR        | 7.76 | 7.72    | 1.82 | 37.20| 58.12  | 3.87   | 13.91     | 76.03   | 10.99       | 3.37   | 0.78      |
| Browning Seed    | Wondergreen            | 7.27 | 7.08    | 1.80 | 37.62| 57.29  | 4.20   | 15.46     | 73.06   | 9.62        | 6.42   | 0.74      |
| Channel Seed     | Qualimax               | 6.47 | 6.30    | 1.49 | 40.15| 59.16  | 4.01   | 16.13     | 72.75   | 11.95       | 2.63   | 0.54      |

continued
Table 7b. 2019 Hays, Kansas Forage Hay Performance Test, Ellis County

| Brand           | Name                  | CP  | Adj. CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|-----------------|-----------------------|-----|---------|------|------|--------|--------|-----------|----------|-------------|--------|----------|
| Dyna-Gro Seed   | Danny Boy II BMR      | 9.80| 9.70    | 2.34 | 35.76| 57.42  | 3.61   | 13.31     | 76.84    | 9.19        | 1.34   | 0.88     |
| Dyna-Gro Seed   | Fullgraze II          | 7.55| 7.50    | 1.93 | 39.01| 62.53  | 4.18   | 15.87     | 74.65    | 9.64        | 1.56   | 0.67     |
| Dyna-Gro Seed   | Fullgraze II BMR      | 9.62| 9.52    | 2.25 | 37.11| 59.97  | 3.77   | 12.48     | 79.20    | 7.98        | 0.39   | 0.84     |
| Dyna-Gro Seed   | Super Sweet 10        | 7.68| 7.47    | 1.85 | 37.72| 57.46  | 4.33   | 15.60     | 72.81    | 9.73        | 4.88   | 0.80     |
| Star Seed       | Bruiser BMR           | 7.28| 7.00    | 1.98 | 38.70| 61.86  | 4.00   | 13.52     | 78.12    | 9.66        | 0.96   | 0.64     |
| Star Seed       | Excel                 | 7.95| 7.73    | 1.93 | 37.87| 58.79  | 4.01   | 14.12     | 76.14    | 10.82       | 1.66   | 0.77     |
| Star Seed       | Nutrimaxx II BMR      | 9.66| 9.55    | 2.00 | 38.60| 59.95  | 4.22   | 14.36     | 76.07    | 7.87        | 2.28   | 0.84     |
| Ward Seed       | 18178                 | 8.25| 8.22    | 1.93 | 37.20| 57.25  | 3.65   | 14.01     | 75.48    | 11.31       | 2.12   | 0.80     |
| Ward Seed       | 18180                 | 7.20| 7.11    | 1.65 | 39.95| 61.61  | 4.48   | 15.96     | 74.08    | 10.37       | 2.71   | 0.63     |
| Ward Seed       | 18181                 | 7.61| 7.41    | 1.99 | 38.36| 61.06  | 4.17   | 14.52     | 76.19    | 10.70       | 1.40   | 0.67     |
| Ward Seed       | 18182                 | 8.80| 8.77    | 1.97 | 36.51| 58.08  | 4.01   | 13.84     | 75.98    | 8.32        | 4.64   | 0.89     |
| Ward Seed       | 19153                 | 6.89| 6.61    | 1.76 | 40.49| 61.64  | 4.33   | 16.54     | 73.16    | 9.69        | 1.88   | 0.61     |
| Ward Seed       | 19154                 | 6.13| 5.89    | 1.55 | 40.20| 59.97  | 4.32   | 15.94     | 73.43    | 11.24       | 2.58   | 0.57     |
| Average         |                       | 8.10| 7.98    | 1.93 | 38.08| 59.23  | 3.98   | 14.56     | 75.42    | 9.82        | 2.40   | 0.75     |

Values in bold are in the top least significant difference (LSD) group.
| Brand          | Name                  | Ash | Ca  | P   | Mg  | K   | S   | NFC | TDN  | NEL  | NEG  | NEM  | RFV  |
|----------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Forage sorghum | Dyna-Gro Seed         |     |     |     |     |     |     |     |      |      |      |      |      |
|                | F75FS13                | 10.33 | 0.24 | 0.19 | 0.13 | 1.81 | 0.12 | 25.05 | 57.73 | 58.84 | 29.11 | 54.72 | 93.34 |
|                | KSU (check) Early Sumac | 9.82  | 0.24 | 0.16 | 0.14 | 1.87 | 0.11 | 25.80 | 58.03 | 59.17 | 29.19 | 54.81 | 94.05 |
|                | KSU (check) Rox Orange | 10.21 | 0.24 | 0.22 | 0.12 | 2.00 | 0.13 | 22.39 | 57.22 | 58.26 | 28.80 | 54.39 | 90.27 |
| Millet         | Dyna-Gro Seed         |     |     |     |     |     |     |     |      |      |      |      |      |
|                | PearlMil              | 12.27 | 0.30 | 0.26 | 0.17 | 2.54 | 0.17 | 21.27 | 55.69 | 56.57 | 27.31 | 52.76 | 95.11 |
| Sorghum sudan  | Agrilead AL-Nutri Maxx BMR | 11.30 | 0.24 | 0.21 | 0.14 | 2.10 | 0.15 | 20.65 | 55.99 | 56.90 | 27.27 | 52.73 | 89.73 |
|                | Agrilead Nutri Maxx BMR | 10.70 | 0.24 | 0.22 | 0.13 | 2.23 | 0.15 | 21.31 | 57.14 | 58.18 | 28.92 | 54.51 | 89.86 |
|                | Alta Seeds ADV XS007   | 11.48 | 0.24 | 0.23 | 0.14 | 2.24 | 0.14 | 20.28 | 56.00 | 56.91 | 27.12 | 52.56 | 87.25 |
|                | Alta Seeds ADV XS008   | 11.75 | 0.24 | 0.23 | 0.15 | 2.52 | 0.15 | 19.78 | 56.04 | 56.95 | 27.40 | 52.86 | 89.43 |
|                | Alta Seeds ADV XS8007  | 11.57 | 0.24 | 0.25 | 0.15 | 2.50 | 0.17 | 20.74 | 56.92 | 57.93 | 29.02 | 54.63 | 92.63 |
|                | Alta Seeds AS6401      | 12.11 | 0.24 | 0.24 | 0.15 | 2.53 | 0.16 | 21.13 | 56.28 | 57.22 | 27.90 | 53.41 | 93.88 |
|                | Alta Seeds AS6402      | 12.18 | 0.24 | 0.23 | 0.13 | 2.50 | 0.16 | 19.46 | 55.59 | 56.46 | 26.84 | 52.26 | 89.87 |
|                | Browning Seed Cadan PPS | 12.45 | 0.24 | 0.23 | 0.15 | 2.55 | 0.16 | 21.06 | 55.42 | 56.27 | 26.42 | 51.80 | 90.92 |
|                | Browning Seed Sweet Sioux BMR | 10.55 | 0.24 | 0.20 | 0.13 | 2.05 | 0.14 | 23.61 | 57.50 | 58.57 | 29.05 | 54.66 | 92.90 |
|                | Browning Seed Wondergreen | 10.29 | 0.24 | 0.18 | 0.14 | 1.72 | 0.12 | 25.21 | 57.24 | 58.29 | 28.38 | 53.94 | 94.33 |
|                | Channel Seed Qualimax  | 11.01 | 0.24 | 0.19 | 0.12 | 1.87 | 0.11 | 23.31 | 56.10 | 57.02 | 26.56 | 51.96 | 88.04 |

Table 7b, continued. 2019 Hays, Kansas Forage Hay Performance Test, Ellis County
| Brand          | Name               | Ash | Ca  | P    | Mg  | K    | S    | NFC | TDN | NEL | NEG | NEM | RFV |
|---------------|--------------------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|
| Dyna-Gro Seed | Danny Boy II BMR   | 12.19 | 0.24 | 0.26 | 0.16 | 2.73 | 0.17 | 21.05 | 56.58 | 57.56 | 28.59 | 54.17 | 95.62 |
| Dyna-Gro Seed | Fullgraze II       | 9.80 | 0.24 | 0.19 | 0.13 | 2.07 | 0.13 | 20.38 | 56.31 | 57.26 | 27.30 | 52.76 | 84.70 |
| Dyna-Gro Seed | Fullgraze II BMR   | 12.05 | 0.24 | 0.24 | 0.17 | 2.62 | 0.17 | 18.78 | 55.71 | 56.58 | 27.36 | 52.82 | 91.09 |
| Dyna-Gro Seed | Super Sweet 10     | 10.75 | 0.24 | 0.20 | 0.14 | 2.01 | 0.13 | 24.16 | 56.55 | 57.52 | 27.66 | 53.14 | 93.97 |
| Star Seed     | Bruiser BMR        | 10.92 | 0.24 | 0.19 | 0.15 | 2.34 | 0.12 | 20.28 | 55.55 | 56.40 | 26.09 | 51.45 | 85.30 |
| Star Seed     | Excel              | 11.05 | 0.24 | 0.21 | 0.15 | 2.27 | 0.14 | 22.37 | 56.50 | 57.46 | 27.71 | 53.21 | 92.05 |
| Star Seed     | Nutrimaxx II BMR   | 10.90 | 0.26 | 0.25 | 0.17 | 2.46 | 0.16 | 19.65 | 56.07 | 56.99 | 27.92 | 53.43 | 88.27 |
| Ward Seed     | 18178              | 11.11 | 0.24 | 0.22 | 0.12 | 2.08 | 0.14 | 23.53 | 57.64 | 58.74 | 29.43 | 55.08 | 94.19 |
| Ward Seed     | 18180              | 9.79  | 0.24 | 0.19 | 0.13 | 1.85 | 0.12 | 21.41 | 55.93 | 56.83 | 26.65 | 52.05 | 85.25 |
| Ward Seed     | 18181              | 10.53 | 0.24 | 0.19 | 0.15 | 2.28 | 0.13 | 21.13 | 55.94 | 56.85 | 26.80 | 52.21 | 86.60 |
| Ward Seed     | 18182              | 10.67 | 0.24 | 0.22 | 0.15 | 2.16 | 0.15 | 22.53 | 57.20 | 58.24 | 29.02 | 54.63 | 94.63 |
| Ward Seed     | 19153              | 10.93 | 0.24 | 0.20 | 0.13 | 2.04 | 0.13 | 20.69 | 54.98 | 55.77 | 25.15 | 50.43 | 83.89 |
| Ward Seed     | 19154              | 11.14 | 0.24 | 0.20 | 0.13 | 2.02 | 0.11 | 22.74 | 55.23 | 56.05 | 25.20 | 50.48 | 86.89 |
| **Average**   |                    | 11.07 | 0.24 | 0.21 | 0.14 | 2.21 | 0.14 | 21.78 | 56.40 | 57.35 | 27.65 | 53.14 | 90.50 |

Values in bold are in the top least significant difference (LSD) group.
Table 8. Hay performance test near Scandia
2019 Scandia, Kansas Forage Hay Performance Test, Republic County

| Brand         | Name                      | 1st cutting lb DM/a | 1st cutting % moisture | 1st height in. |
|---------------|---------------------------|---------------------|------------------------|----------------|
| Forage sorghum| Dyna-Gro Seed F75FS13     | 9258                | 0.82                   | 108            |
|               | KSU (check) Early Sumac   | 8718                | 0.81                   | 87             |
| Sorghum sudan | Agrilead AL-Nutri Maxx BMR| 7419                | 0.80                   | 96             |
|               | Agrilead Nutri Maxx BMR   | 8080                | 0.82                   | 96             |
|               | Alta Seeds ADV XS007      | 8312                | 0.85                   | 87             |
|               | Alta Seeds ADV XS008      | 10827               | 0.73                   | 87             |
|               | Alta Seeds ADV XS8007     | 10282               | 0.78                   | 90             |
|               | Alta Seeds AS6401         | 8070                | 0.84                   | 93             |
|               | Alta Seeds AS6402         | 7693                | 0.82                   | 72             |
|               | Browning Seed Cadan PPS   | 10010               | 0.81                   | 78             |
|               | Browning Seed Sweet Sioux BMR | 9724         | 0.78                   | 96             |
|               | Browning Seed Wondergreen| 7599                | 0.77                   | 120            |
|               | Dyna-Gro Seed Danny Boy II BMR | 11172       | 0.78                   | 81             |
|               | Dyna-Gro Seed Fullgraze II | 11965         | 0.78                   | 87             |
|               | Dyna-Gro Seed Fullgraze II BMR | 14297     | 0.76                   | 111            |
|               | Dyna-Gro Seed Super Sweet 10 | 10581         | 0.79                   | 96             |
|               | Star Seed Bruiser BMR     | 10195               | 0.83                   | 96             |
|               | Star Seed Excel           | 16196               | 0.75                   | 111            |
|               | Star Seed Nutrimaxx II BMR| 10281               | 0.82                   | 75             |
|               | Ward Seed 18178           | 10144               | 0.82                   | 105            |
|               | Ward Seed 18180           | 14212               | 0.77                   | 114            |
|               | Ward Seed 18181           | 10836               | 0.83                   | 81             |
|               | Ward Seed 18182           | 11555               | 0.77                   | 102            |
|               | Ward Seed 19153           | 10546               | 0.82                   | 102            |
|               | Ward Seed 19154           | 14100               | 0.75                   | 108            |

| Performance   | 1st cutting lb DM/a | 1st cutting % moisture | 1st height in. |
|---------------|---------------------|------------------------|----------------|
| Average       | 10483               | 0.80                   | 95             |
| LSD (0.05)    | 2365                |                        |                |

Plant date: 6/17/2019
Days to harvest: 72,84

Values in bold are in the top least significant difference (LSD) group.
| Brand            | Name                  | CP   | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|------------------|-----------------------|------|--------|------|------|--------|--------|-----------|---------|-------------|--------|-----------|
| Forage sorghum   | Dyna-Gro Seed F75FS13 | 10.84| 10.83  | 2.61 | 38.84| 58.94  | 4.42   | 15.10     | 74.39   | 7.92        | 0.10   | 0.90      |
|                  | KSU (check) Early Sumac| 11.14| 11.13  | 2.65 | 36.39| 57.01  | 3.83   | 13.66     | 76.03   | 9.18        | 0.37   | 0.96      |
| Sorghum sudan    | Agrilead AL-Nutri Maxx BMR | 10.96| 10.91  | 2.56 | 37.71| 58.04  | 3.95   | 14.61     | 74.86   | 9.32        | 0.10   | 1.03      |
|                  | Agrilead Nutri Maxx BMR | 10.07| 9.86   | 2.44 | 39.32| 58.10  | 3.91   | 14.79     | 74.56   | 8.45        | 0.10   | 0.92      |
|                  | Alta Seeds ADV XS007  | 9.96 | 9.71   | 2.44 | 41.43| 58.02  | 3.64   | 13.74     | 76.35   | 7.03        | 0.10   | 0.81      |
|                  | Alta Seeds ADV XS008  | 8.83 | 8.79   | 2.05 | 37.15| 55.32  | 3.32   | 13.71     | 75.21   | 11.33       | 1.81   | 0.87      |
|                  | Alta Seeds ADV XS8007 | 10.53| 10.52  | 2.36 | 37.68| 56.59  | 3.67   | 13.61     | 75.96   | 8.68        | 0.54   | 0.98      |
|                  | Alta Seeds AS6401    | 10.56| 10.24  | 2.54 | 40.48| 57.39  | 3.80   | 14.55     | 74.69   | 7.18        | 0.26   | 0.83      |
|                  | Alta Seeds AS6402    | 12.04| 12.04  | 2.74 | 38.47| 57.21  | 3.60   | 12.48     | 78.19   | 5.60        | 0.10   | 1.02      |
|                  | Browning Seed Cadan PPS | 9.49 | 9.23   | 2.25 | 40.65| 58.86  | 3.94   | 15.03     | 74.48   | 6.74        | 0.15   | 0.77      |
|                  | Browning Seed Sweet Sioux BMR | 9.39 | 9.24   | 2.21 | 38.36| 57.74  | 4.19   | 14.35     | 75.13   | 9.33        | 1.21   | 0.91      |
|                  | Browning Seed Wondergreen | 9.73 | 9.59   | 2.40 | 42.47| 63.47  | 5.44   | 18.69     | 70.54   | 6.93        | 0.14   | 0.79      |
|                  | Dyna-Gro Seed Danny Boy II BMR | 8.89 | 8.63   | 2.09 | 38.80| 56.68  | 3.69   | 14.07     | 75.18   | 9.80        | 1.13   | 0.81      |
|                  | Dyna-Gro Seed Fullgraze II | 7.26 | 6.76   | 1.97 | 44.59| 64.16  | 5.21   | 19.41     | 69.82   | 8.32        | 0.91   | 0.52      |
|                  | Dyna-Gro Seed Fullgraze II BMR | 7.45 | 6.98   | 2.02 | 43.67| 63.20  | 4.86   | 18.59     | 70.68   | 8.30        | 0.77   | 0.58      |
|                  | Dyna-Gro Seed Super Sweet 10 | 10.09| 9.95   | 2.42 | 40.89| 61.31  | 4.75   | 16.79     | 72.62   | 7.66        | 0.57   | 0.75      |
|                  | Star Seed Bruiser BMR | 9.84 | 9.73   | 2.41 | 39.50| 60.68  | 4.09   | 13.07     | 78.46   | 7.17        | 0.10   | 0.87      |
|                  | Star Seed Excel      | 6.65 | 6.43   | 1.56 | 40.19| 58.71  | 4.67   | 17.82     | 69.58   | 14.37       | 3.16   | 0.65      |
|                  | Star Seed Nutrimaxx II BMR | 10.40| 10.28  | 2.55 | 38.92| 60.39  | 4.39   | 13.23     | 78.12   | 7.90        | 0.10   | 0.88      |
|                  | Ward Seed 18178      | 10.07| 9.95   | 2.33 | 38.70| 56.40  | 3.92   | 14.45     | 74.38   | 8.33        | 0.86   | 0.95      |
|                  | Ward Seed 18180      | 8.38 | 8.07   | 2.07 | 41.32| 59.98  | 4.94   | 18.31     | 69.49   | 9.85        | 1.49   | 0.67      |
|                  | Ward Seed 18181      | 9.01 | 8.82   | 2.32 | 40.71| 62.00  | 4.53   | 14.03     | 77.38   | 7.52        | 0.10   | 0.77      |
|                  | Ward Seed 18182      | 8.87 | 8.76   | 2.18 | 40.24| 59.55  | 4.16   | 16.75     | 71.87   | 8.88        | 0.53   | 0.87      |
|                  | Ward Seed 19153      | 9.70 | 9.40   | 2.36 | 42.73| 61.48  | 5.10   | 16.53     | 73.14   | 6.47        | 0.12   | 0.75      |
|                  | Ward Seed 19154      | 7.32 | 7.11   | 1.83 | 39.84| 58.94  | 4.76   | 17.19     | 70.84   | 13.02       | 2.53   | 0.71      |

Average 9.50 9.32 2.30 39.96 59.21 4.27 15.38 74.08 8.61 0.69 0.82

Values in bold are in the top least significant difference (LSD) group.
### Table 8b, continued. 2019 Scandia, Kansas Forage Hay Performance Test, Republic County

#### Forage quality

| Forage sorghum | Brand          | Name                  | Ash  | Ca   | P    | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  | RFV |
|----------------|----------------|-----------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Dyna-Gro Seed | F75FS13        |                       | 10.02| 0.24 | 0.26 | 0.17 | 2.69 | 0.19 | 20.91| 56.90| 57.92| 29.46| 55.11| 90.17|
| KSU (check)   | Early Sumac    |                       | 9.91 | 0.24 | 0.26 | 0.17 | 2.55 | 0.18 | 22.62| 58.62| 59.83| 31.87| 57.74| 96.74|

#### Sorghum sudan

| Forage sorghum | Brand          | Name                  | Ash  | Ca   | P    | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  | RFV |
|----------------|----------------|-----------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Agrilead       | AL-Nutri Maxx BMR |                      | 10.58| 0.24 | 0.27 | 0.16 | 2.67 | 0.19 | 20.95| 57.70| 58.80| 30.66| 56.42| 92.36|
| Agrilead       | Nutri Maxx BMR |                      | 11.15| 0.24 | 0.28 | 0.15 | 2.87 | 0.18 | 21.21| 56.90| 57.91| 29.11| 54.73| 90.19|
| Alta Seeds     | ADV XS007       |                      | 12.05| 0.24 | 0.33 | 0.14 | 3.41 | 0.20 | 20.60| 56.25| 57.19| 28.14| 53.67| 87.72|
| Alta Seeds     | ADV XS008       |                      | 10.85| 0.24 | 0.25 | 0.13 | 2.42 | 0.16 | 25.18| 58.96| 60.21| 31.39| 57.21| 97.77|
| Alta Seeds     | ADV XS8007      |                      | 11.20| 0.24 | 0.29 | 0.14 | 2.78 | 0.20 | 22.06| 57.73| 58.84| 30.45| 56.19| 95.70|
| Alta Seeds     | AS6401          |                      | 12.01| 0.24 | 0.32 | 0.15 | 3.31 | 0.20 | 20.76| 56.20| 57.13| 28.31| 53.86| 90.52|
| Alta Seeds     | AS6402          |                      | 12.23| 0.24 | 0.33 | 0.17 | 3.26 | 0.22 | 19.24| 56.76| 57.76| 29.78| 55.45| 92.89|
| Browning Seed  | Cadan PPS       |                      | 12.09| 0.24 | 0.31 | 0.15 | 3.07 | 0.18 | 20.04| 55.39| 56.24| 26.79| 52.20| 87.85|
| Browning Seed  | Sweet Sioux BMR |                      | 10.48| 0.24 | 0.26 | 0.15 | 2.68 | 0.18 | 22.69| 57.10| 58.13| 29.09| 54.70| 92.27|
| Browning Seed  | Wondergreen     |                      | 9.83 | 0.24 | 0.24 | 0.15 | 2.59 | 0.17 | 17.59| 53.89| 54.56| 24.86| 50.12| 80.37|
| Dyna-Gro Seed  | Danny Boy II BMR |                    | 12.05| 0.24 | 0.29 | 0.15 | 3.06 | 0.17 | 22.66| 56.54| 57.51| 28.11| 53.63| 93.42|
| Dyna-Gro Seed  | Fullgraze II    |                      | 8.55 | 0.24 | 0.21 | 0.13 | 2.21 | 0.12 | 20.48| 54.88| 55.66| 25.10| 50.37| 75.91|
| Dyna-Gro Seed  | Fullgraze II BMR |                       | 9.80 | 0.24 | 0.23 | 0.12 | 2.51 | 0.14 | 19.99| 54.62| 55.38| 24.83| 50.08| 78.11|
| Dyna-Gro Seed  | Super Sweet 10  |                      | 9.57 | 0.24 | 0.25 | 0.15 | 2.28 | 0.16 | 19.69| 55.84| 56.73| 27.67| 53.16| 84.92|
| Star Seed      | Bruiser BMR     |                      | 10.27| 0.24 | 0.27 | 0.18 | 3.00 | 0.18 | 19.75| 56.66| 57.65| 28.71| 54.28| 85.93|
| Star Seed      | Excel           |                      | 8.72 | 0.24 | 0.18 | 0.13 | 2.06 | 0.11 | 25.84| 57.44| 58.52| 28.40| 53.96| 89.14|
| Star Seed      | Nutrimaxx II BMR |                    | 10.57| 0.24 | 0.27 | 0.21 | 3.17 | 0.18 | 19.30| 55.90| 56.80| 27.89| 53.40| 87.56|
| Ward Seed      | 18178           |                      | 11.78| 0.24 | 0.29 | 0.14 | 2.95 | 0.19 | 22.12| 56.74| 57.73| 28.91| 54.51| 93.36|
| Ward Seed      | 18180           |                      | 9.66 | 0.24 | 0.23 | 0.16 | 2.30 | 0.14 | 22.38| 55.65| 56.51| 26.66| 52.06| 85.45|
| Ward Seed      | 18181           |                      | 9.91 | 0.24 | 0.26 | 0.18 | 3.08 | 0.17 | 19.62| 55.74| 56.62| 27.09| 52.52| 82.92|
| Ward Seed      | 18182           |                      | 10.98| 0.24 | 0.25 | 0.12 | 2.61 | 0.17 | 20.91| 56.16| 57.09| 27.64| 53.12| 87.30|
| Ward Seed      | 19153           |                      | 10.60| 0.24 | 0.30 | 0.17 | 3.20 | 0.18 | 18.84| 54.10| 54.80| 25.08| 50.36| 81.10|
| Ward Seed      | 19154           |                      | 8.88 | 0.24 | 0.20 | 0.15 | 2.34 | 0.12 | 24.97| 57.14| 58.18| 28.30| 53.84| 88.09|

#### Average

| Ash  | Ca   | P    | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  | RFV |
|------|------|------|------|------|------|------|------|------|------|------|-----|
| 10.55| 0.24 | 0.27 | 0.15 | 2.76 | 0.17 | 21.22| 56.39| 57.35| 28.17| 53.71| 88.31|

Values in bold are in the top least significant difference (LSD) group.
Table 9. Silage performance test near Garden City  
2019 Garden City, Kansas Silage Performance Test, Finney County

| Brand          | Variety       | Yield | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|----------------|---------------|-------|------------------|-------|-------|----------------|-----------------|--------|---------|
| Forage sorghum |               |       |                  |       |       |                |                 |        |         |
| Agrilead       | AL-Brutis     | 17615 | 0.68             | 9.3   | 10.0  | 9/10/19        | 125             | 88     | 0       |
| Agrilead       | Bruitis       | 16290 | 0.71             | 9.0   | 9.3   | 9/10/19        | 116             | 98     | 0       |
| Alta Seeds     | ADV F7232     | 16730 | 0.69             | 10.0  | 9.7   | 9/10/19        | 125             | 73     | 0       |
| Alta Seeds     | ADV XF025     | 14323 | 0.66             | 9.7   | 10.0  | 8/5/19         | 116             | 95     | 0       |
| Alta Seeds     | ADV XF033     | 20280 | 0.65             | 10.0  | 10.0  | 8/15/19        | 125             | 81     | 0       |
| Alta Seeds     | AF7102        | 14530 | 0.68             | 10.0  | 10.0  | 8/5/19         | 116             | 79     | 0       |
| Alta Seeds     | AF7201        | 15404 | 0.64             | 9.7   | 10.0  | 8/5/19         | 116             | 98     | 0       |
| Alta Seeds     | AF7401        | 17475 | 0.66             | 10.0  | 10.0  | 9/10/19        | 125             | 71     | 0       |
| Dyna-Gro Seed  | F74FS72 BMR   | 15406 | 0.74             | 10.0  | 10.0  | 8/15/19        | 116             | 72     | 0       |
| Dyna-Gro Seed  | FX19125 BMR   | 14378 | 0.67             | 10.0  | 10.0  | 8/5/19         | 116             | 99     | 0       |
| Dyna-Gro Seed  | F72FS05       | 18972 | 0.67             | 10.0  | 9.7   | 8/15/19        | 125             | 81     | 0       |
| Dyna-Gro Seed  | FX19178 BMR   | 12468 | 0.71             | 9.7   | 10.0  | 8/5/19         | 116             | 65     | 0       |
| Dyna-Gro Seed  | FX19526 BMR   | 13557 | 0.68             | 9.3   | 9.7   | 8/5/19         | 116             | 66     | 0       |
| Dyna-Gro Seed  | Super Sile 20 | 17541 | 0.74             | 10.0  | 10.0  | 8/15/19        | 116             | 120    | 0       |
| Dyna-Gro Seed  | Super Sile 30 | 20048 | 0.75             | 10.0  | 10.0  | 8/15/19        | 116             | 119    | 0       |
| Dyna-Gro Seed  | Top Ton       | 20295 | 0.71             | 9.7   | 10.0  | 9/10/19        | 125             | 112    | 32      |
| Fontanelle     | Nutri-Chomp   | 16955 | 0.74             | 9.7   | 10.0  | 9/10/19        | 125             | 120    | 17      |
| KSU (check)    | KS Orange     | 17095 | 0.68             | 10.0  | 10.0  | 8/15/19        | 116             | 111    | 0       |
| MOJO           | Opal          | 14224 | 0.73             | 9.7   | 9.7   | 8/15/19        | 116             | 86     | 0       |
| Star Seed      | Extreme BMR   | 13467 | 0.68             | 9.7   | 9.7   | 8/5/19         | 116             | 67     | 0       |
| Star Seed      | Packer        | 18528 | 0.72             | 10.0  | 10.0  | 8/15/19        | 116             | 93     | 0       |

continued
| Brand  | Variety | Yield | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|--------|---------|-------|------------------|-------|-------|----------------|----------------|--------|---------|
| Wards  | 18096   | 13232 | 0.68             | 9.7   | 9.7   | 8/5/19         | 116            | 67     | 0       |
| Wards  | 18116   | 14148 | 0.67             | 9.3   | 9.7   | 8/5/19         | 116            | 97     | 0       |
| Wards  | 18118   | 14906 | 0.67             | 10.0  | 10.0  | 8/5/19         | 116            | 97     | 0       |
| Wards  | 19038   | 17787 | 0.70             | 10.0  | 10.0  | 9/10/19        | 125            | 80     | 0       |
| Wards  | 19040   | 15961 | 0.67             | 10.0  | 10.0  | 8/26/19        | 125            | 69     | 0       |
| Wards  | 19042   | 16702 | 0.75             | 10.0  | 10.0  | 9/10/19        | 125            | 101    | 0       |
| Wards  | 19155   | 15733 | 0.69             | 10.0  | 9.7   | 8/5/19         | 116            | 83     | 0       |
| Wards  | 19156   | 17586 | 0.60             | 10.0  | 10.0  | 8/5/19         | 116            | 104    | 0       |
| Wards  | 19174   | 16617 | 0.67             | 10.0  | 10.0  | 8/26/19        | 125            | 99     | 15      |
| Wards  | 19175   | 14739 | 0.65             | 9.3   | 10.0  | 8/5/19         | 116            | 86     | 0       |
| Wards  | 19176   | 18347 | 0.67             | 9.7   | 9.7   | 8/15/19        | 116            | 93     | 0       |
| Wards  | 19177   | 15671 | 0.66             | 10.0  | 10.0  | 8/15/19        | 116            | 89     | 15      |
| Wards  | 19178   | 15179 | 0.70             | 10.0  | 9.7   | 8/15/19        | 116            | 102    | 0       |
| Wards  | 19179   | 18550 | 0.68             | 10.0  | 10.0  | 9/10/19        | 125            | 80     | 0       |
| Wards  | 19181   | 16058 | 0.70             | 10.0  | 10.0  | 9/10/19        | 125            | 82     | 0       |
| Grain sorghum dual-purpose | | | | | | | | | |
| Dyna-Gro Seed | Dual Forage SCA II | 15669 | 0.62 | 10.0 | 10.0 | 8/5/19 | 116 | 66 | 0 |
| Dyna-Gro Seed | GX13692 | 15618 | 0.68 | 9.7 | 10.0 | 8/5/19 | 116 | 72 | 0 |

Average 16265 1 10 10 119 88 2
LSD (0.05) 2499

Planting date: 5/17/2019
Emergence date: 5/27/2019

Values in bold are in the top least significant difference (LSD) group.
### Table 9b. 2019 Garden City, Kansas Silage Performance Test, Finney County

| Brand         | Variety    | CP  | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|---------------|------------|-----|--------|------|------|--------|--------|------------|----------|-------------|--------|-----------|
| Agrilead      | AL-Brutis  | 8.31| 7.58   | 2.24 | 34.50| 52.63  | 4.01   | 14.70      | 72.08    | 6.33        | 12.57  | 0.93      |
| Agrilead      | Brutis     | 8.97| 8.47   | 2.27 | 34.26| 52.92  | 3.63   | 14.38      | 72.81    | 7.04        | 10.40  | 0.94      |
| Alta Seeds    | ADV F7232  | 8.54| 7.90   | 2.06 | 36.49| 52.03  | 3.64   | 15.68      | 69.79    | 3.11        | 13.22  | 0.91      |
| Alta Seeds    | ADV XF025  | 8.40| 7.90   | 1.92 | 34.73| 49.91  | 3.35   | 16.39      | 67.18    | 6.93        | 11.72  | 1.01      |
| Alta Seeds    | ADV XF033  | 7.75| 6.93   | 1.97 | 36.60| 54.22  | 4.74   | 17.21      | 68.27    | 3.03        | 15.45  | 0.95      |
| Alta Seeds    | AF7102     | 8.26| 7.58   | 1.89 | 33.08| 46.37  | 3.53   | 15.54      | 66.48    | 6.19        | 15.84  | 1.21      |
| Alta Seeds    | AF7201     | 8.57| 8.18   | 1.81 | 34.82| 48.99  | 3.52   | 16.06      | 67.23    | 6.87        | 12.32  | 1.02      |
| Alta Seeds    | AF7401     | 8.14| 7.18   | 2.13 | 36.67| 51.52  | 3.62   | 16.24      | 68.45    | 3.16        | 12.87  | 0.89      |
| Dyna-Gro Seed | F74FS72 BMR| 10.06| 9.42  | 2.41 | 35.64| 51.19  | 3.61   | 15.33      | 70.01    | 4.41        | 11.91  | 0.88      |
| Dyna-Gro Seed | FX19125 BMR| 8.36| 7.98   | 1.94 | 35.55| 50.42  | 3.88   | 16.51      | 67.26    | 7.71        | 11.11  | 1.06      |
| Dyna-Gro Seed | F72FS05    | 8.07| 7.23   | 2.03 | 36.07| 52.57  | 4.62   | 17.01      | 67.58    | 3.20        | 16.11  | 0.97      |
| Dyna-Gro Seed | FX19178 BMR| 9.92| 9.39   | 2.26 | 34.65| 50.47  | 4.04   | 14.60      | 71.09    | 4.35        | 13.81  | 1.01      |
| Dyna-Gro Seed | FX19526 BMR| 9.20| 8.78   | 1.93 | 34.29| 50.27  | 3.76   | 14.33      | 71.50    | 3.20        | 15.10  | 1.10      |
| Dyna-Gro Seed | Super Sile 20| 8.51| 7.95   | 2.11 | 37.11| 54.55  | 4.48   | 18.43      | 66.22    | 7.51        | 10.83  | 0.82      |
| Dyna-Gro Seed | Super Sile 30| 8.78| 8.22   | 2.17 | 37.33| 54.02  | 4.35   | 18.14      | 66.41    | 6.19        | 10.81  | 0.84      |
| Dyna-Gro Seed | TopTon     | 7.29| 6.39   | 2.00 | 37.99| 52.76  | 4.44   | 18.51      | 64.91    | 5.89        | 12.60  | 0.82      |
| Fontanelle    | Nutri-Chomp| 7.29| 6.81   | 1.96 | 36.37| 55.77  | 3.74   | 15.41      | 72.35    | 13.00       | 5.91   | 0.77      |
| KSU (check)   | KS Orange  | 7.79| 6.98   | 2.19 | 36.13| 53.26  | 4.42   | 18.38      | 65.51    | 8.85        | 11.23  | 0.89      |
| MOJO          | Opal       | 9.65| 9.25   | 2.23 | 35.54| 51.05  | 4.28   | 18.31      | 64.13    | 4.83        | 12.87  | 1.04      |
| Star Seed     | Extreme BMR| 9.37| 8.97   | 1.90 | 32.55| 46.94  | 3.60   | 13.56      | 71.12    | 2.42        | 18.01  | 1.23      |
| Star Seed     | Packer     | 8.58| 8.00   | 2.08 | 35.29| 50.69  | 4.31   | 16.63      | 67.17    | 5.15        | 14.53  | 1.00      |

*continued*
### Table 9b. 2019 Garden City, Kansas Silage Performance Test, Finney County

| Brand   | Variety | CP     | Adj_CP  | NDFn  | ADF   | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|---------|---------|--------|---------|-------|-------|--------|--------|-----------|---------|-------------|--------|-----------|
| Wards   | 18096   | 9.27   | 8.82    | 1.87  | 34.53 | 48.27  | 4.14   | 16.08     | 66.62  | 2.52        | 16.95  | 1.12      |
| Wards   | 18116   | 7.85   | 7.19    | 1.83  | 35.19 | 49.40  | 3.75   | 16.45     | 66.68  | 4.94        | 14.93  | 1.10      |
| Wards   | 18118   | 8.50   | 8.06    | 1.95  | 34.26 | 49.12  | 3.61   | 16.52     | 66.35  | 7.67        | 13.02  | 1.07      |
| Wards   | 19038   | 8.79   | 8.31    | 2.07  | 36.03 | 53.84  | 4.06   | 16.46     | 69.39  | 5.76        | 10.84  | 0.92      |
| Wards   | 19040   | 8.87   | 8.42    | 1.97  | 36.46 | 52.11  | 4.11   | 15.93     | 69.42  | 5.91        | 10.94  | 0.96      |
| Wards   | 19042   | 8.50   | 7.95    | 2.17  | 38.78 | 56.37  | 4.42   | 17.63     | 68.70  | 5.98        | 8.07   | 0.83      |
| Wards   | 19155   | 8.68   | 8.15    | 1.86  | 31.85 | 44.76  | 3.26   | 14.77     | 67.01  | 7.45        | 15.60  | 1.19      |
| Wards   | 19156   | 7.23   | 6.57    | 1.78  | 37.64 | 52.88  | 4.78   | 19.06     | 63.94  | 4.88        | 14.83  | 0.87      |
| Wards   | 19174   | 8.20   | 7.77    | 1.82  | 35.89 | 51.14  | 3.42   | 16.67     | 67.37  | 5.65        | 11.69  | 0.96      |
| Wards   | 19175   | 8.39   | 7.86    | 1.83  | 34.00 | 47.05  | 3.57   | 16.26     | 65.42  | 3.41        | 17.62  | 1.12      |
| Wards   | 19176   | 7.63   | 7.01    | 2.00  | 38.61 | 56.03  | 4.87   | 19.58     | 65.07  | 4.54        | 12.34  | 0.81      |
| Wards   | 19177   | 8.33   | 7.77    | 1.87  | 35.64 | 49.50  | 3.65   | 16.96     | 65.74  | 4.44        | 14.12  | 1.05      |
| Wards   | 19178   | 8.89   | 8.23    | 2.14  | 35.54 | 49.80  | 3.53   | 16.87     | 66.12  | 3.16        | 15.03  | 0.95      |
| Wards   | 19179   | 8.75   | 8.24    | 2.02  | 36.24 | 52.66  | 4.19   | 16.28     | 69.03  | 3.69        | 14.03  | 0.95      |
| Wards   | 19181   | 9.12   | 8.68    | 2.04  | 34.56 | 50.19  | 3.25   | 15.66     | 68.80  | 5.70        | 12.44  | 1.02      |

**Grain sorghum dual-purpose**

| Brand   | Variety           | CP     | Adj_CP  | NDFn  | ADF   | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|---------|-------------------|--------|---------|-------|-------|--------|--------|-----------|---------|-------------|--------|-----------|
| Dyna-Gro Seed | Dual Forage SCA II | 8.64  | 8.08    | 1.70  | 33.75 | 46.91  | 4.07   | 15.40     | 67.16  | 1.62        | 20.57  | 1.14      |
| Dyna-Gro Seed | GX13692          | 9.05  | 8.60    | 1.88  | 35.64 | 48.39  | 4.16   | 15.46     | 68.02  | 2.55        | 15.92  | 1.06      |

**Average**

|        | CP     | Adj_CP  | NDFn  | ADF   | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|--------|--------|---------|-------|-------|--------|--------|-----------|---------|-------------|--------|-----------|
|        | 8.54   | 7.97    | 2.01  | 35.53 | 51.08  | 3.96   | 16.40     | 67.85  | 5.24        | 13.37  | 0.99      |

Values in bold are in the top least significant difference (LSD) group.
Table 9b, continued. 2019 Garden City, Kansas Silage Performance Test, Finney County

| Brand       | Variety      | Ash  | Ca  | P   | Mg  | K   | S   | NFC | TDN | NEL | NEG | NEM | RFV |
|-------------|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Forage sorghum                                    |               | %    | %   | %   | %   | %   | %   |     |     |     |     |     |     |
| Agrilead   | AL-Brutis    | 10.48| 0.24| 0.21| 0.19| 2.26| 0.14| 28.88| 58.59| 59.79| 30.49| 56.24| 106.80|
| Agrilead   | Brutis       | 10.92| 0.24| 0.22| 0.17| 2.22| 0.15| 27.53| 58.84| 60.07| 31.15| 56.95| 106.74|
| Alta Seeds | ADV F7232    | 12.27| 0.24| 0.25| 0.15| 2.24| 0.16| 27.31| 57.60| 58.69| 29.30| 54.93| 105.32|
| Alta Seeds | ADV XF025    | 12.08| 0.24| 0.23| 0.13| 2.11| 0.17| 29.53| 59.07| 60.33| 31.24| 57.05| 112.51|
| Alta Seeds | ADV XF033    | 9.94 | 0.24| 0.21| 0.16| 1.95| 0.14| 28.11| 57.42| 58.50| 29.30| 54.27| 101.76|
| Alta Seeds | AF7102       | 11.64| 0.25| 0.23| 0.14| 2.00| 0.16| 33.40| 60.30| 61.70| 32.77| 58.73| 123.50|
| Alta Seeds | AF7201       | 11.77| 0.24| 0.23| 0.13| 2.13| 0.16| 30.46| 59.36| 60.66| 31.73| 57.59| 114.29|
| Alta Seeds | AF7401       | 12.46| 0.24| 0.24| 0.16| 2.25| 0.16| 28.12| 57.43| 58.51| 28.82| 54.41| 105.87|
| Dyna-Gro Seed | F74FS72 BMR | 12.71| 0.27| 0.26| 0.18| 2.43| 0.18| 26.57| 57.38| 58.45| 29.58| 55.24| 108.56|
| Dyna-Gro Seed | FX19125 BMR | 12.08| 0.24| 0.22| 0.13| 2.09| 0.16| 29.02| 58.17| 59.33| 30.07| 55.77| 109.77|
| Dyna-Gro Seed | F72FS05     | 10.29| 0.24| 0.22| 0.16| 1.95| 0.14| 29.13| 57.75| 58.86| 29.24| 54.87| 105.17|
| Dyna-Gro Seed | FX19178 BMR | 12.14| 0.25| 0.25| 0.18| 2.29| 0.17| 27.11| 57.61| 58.70| 29.88| 55.57| 111.99|
| Dyna-Gro Seed | FX19526 BMR | 11.59| 0.24| 0.25| 0.16| 2.41| 0.17| 28.76| 58.83| 60.06| 31.27| 57.08| 112.98|
| Dyna-Gro Seed | Super Sile 20 | 10.97| 0.24| 0.22| 0.15| 2.25| 0.15| 26.26| 56.71| 57.70| 28.08| 53.61| 100.35|
| Dyna-Gro Seed | Super Sile 30 | 11.26| 0.24| 0.23| 0.14| 2.24| 0.16| 26.27| 56.81| 57.81| 28.34| 53.89| 100.49|
| Dyna-Gro Seed | TopTon       | 11.40| 0.24| 0.22| 0.14| 2.26| 0.13| 28.74| 56.74| 57.73| 27.55| 53.03| 101.63|
| Fontanelle  | Nutri-Chomp  | 10.81| 0.24| 0.18| 0.17| 2.49| 0.11| 26.32| 57.84| 58.96| 29.15| 54.77| 98.50|
| KSU (check) | KS Orange    | 9.63 | 0.24| 0.19| 0.13| 1.79| 0.14| 29.62| 58.51| 59.71| 30.17| 55.88| 103.63|
| MOJO        | Opal         | 10.62| 0.24| 0.24| 0.12| 2.12| 0.17| 28.87| 58.68| 59.89| 31.24| 57.05| 108.82|
| Star Seed   | Extreme BMR  | 10.97| 0.24| 0.26| 0.15| 2.30| 0.17| 32.38| 60.78| 62.24| 33.91| 59.98| 122.49|
| Star Seed   | Packer       | 11.31| 0.24| 0.23| 0.15| 2.16| 0.15| 29.49| 57.93| 59.06| 29.75| 55.43| 110.09|

continued
Table 9b, continued. 2019 Garden City, Kansas Silage Performance Test, Finney County

| Brand | Variety | Ash | Ca | P | Mg | K | S | NFC | TDN | NEL | NEG | NEM | RFV |
|-------|---------|-----|----|---|----|---|---|-----|-----|-----|-----|-----|-----|
| Wards 18096 | 11.27 | 0.24 | 0.26 | 0.12 | 2.13 | 0.17 | 30.94 | 59.07 | 60.32 | 31.57 | 57.42 | 117.27 |
| Wards 18116 | 12.38 | 0.24 | 0.25 | 0.12 | 2.14 | 0.15 | 30.10 | 58.27 | 59.44 | 29.92 | 55.61 | 113.13 |
| Wards 18118 | 11.74 | 0.24 | 0.23 | 0.13 | 2.10 | 0.16 | 30.51 | 59.26 | 60.54 | 31.55 | 57.39 | 115.47 |
| Wards 19038 | 10.67 | 0.24 | 0.23 | 0.16 | 2.28 | 0.16 | 26.86 | 58.03 | 59.17 | 30.01 | 55.70 | 102.52 |
| Wards 19040 | 11.37 | 0.24 | 0.23 | 0.16 | 2.17 | 0.16 | 27.67 | 57.80 | 58.91 | 29.74 | 55.41 | 105.22 |
| Wards 19042 | 11.33 | 0.24 | 0.23 | 0.16 | 2.38 | 0.15 | 24.14 | 55.96 | 56.87 | 27.09 | 52.52 | 94.62 |
| Wards 19155 | 12.14 | 0.24 | 0.26 | 0.13 | 2.23 | 0.16 | 34.09 | 60.76 | 62.21 | 33.58 | 59.61 | 129.34 |
| Wards 19156 | 10.45 | 0.24 | 0.19 | 0.13 | 1.95 | 0.14 | 29.36 | 57.23 | 58.29 | 28.26 | 53.80 | 101.97 |
| Wards 19174 | 11.98 | 0.24 | 0.23 | 0.13 | 2.26 | 0.16 | 28.54 | 58.68 | 59.90 | 30.65 | 56.41 | 107.95 |
| Wards 19175 | 11.41 | 0.24 | 0.25 | 0.12 | 2.03 | 0.17 | 32.86 | 60.23 | 61.62 | 32.77 | 58.73 | 120.66 |
| Wards 19176 | 10.13 | 0.24 | 0.19 | 0.12 | 2.04 | 0.14 | 26.40 | 56.47 | 57.43 | 27.40 | 52.86 | 95.50 |
| Wards 19177 | 12.14 | 0.24 | 0.23 | 0.13 | 2.23 | 0.17 | 29.86 | 58.61 | 59.81 | 30.58 | 56.33 | 112.00 |
| Wards 19178 | 11.79 | 0.24 | 0.25 | 0.12 | 2.22 | 0.17 | 29.71 | 58.90 | 60.14 | 31.15 | 56.96 | 111.22 |
| Wards 19179 | 11.14 | 0.24 | 0.25 | 0.13 | 2.31 | 0.16 | 27.52 | 57.69 | 58.80 | 29.54 | 55.19 | 104.59 |
| Wards 19181 | 11.67 | 0.24 | 0.25 | 0.15 | 2.34 | 0.17 | 29.05 | 59.58 | 60.89 | 32.21 | 58.11 | 111.63 |
| Grain sorghum dual-purpose | | | | | | | | | | | | |
| Dyna-Gro Seed | Dual Forage SCA II | 10.34 | 0.24 | 0.24 | 0.13 | 1.96 | 0.16 | 33.67 | 60.44 | 61.86 | 33.12 | 59.11 | 120.93 |
| Dyna-Gro Seed | GX13692 | 12.94 | 0.24 | 0.26 | 0.12 | 2.38 | 0.17 | 29.45 | 57.32 | 58.38 | 29.18 | 54.80 | 114.89 |
| Average | | | | | | | | | | | | 11.37 | 0.24 | 0.23 | 0.14 | 2.19 | 0.16 | 29.03 | 58.33 | 59.51 | 30.28 | 56.01 | 109.21 |

Values in bold are in the top least significant difference (LSD) group.
| Brand           | Variety          | Yield | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height (in.) | Lodging (%) |
|-----------------|------------------|-------|------------------|-------|-------|----------------|----------------|--------------|-------------|
| Forage sorghum  |                  | lb DM/a | %               |       |       |                |                |              |             |
| Alta Seeds      | ADV F7232        | 10451 | 0.59             | 8.0   | 8.0   | 9/24/19        | 132            | 57           | 0           |
| Alta Seeds      | ADV XF025        | 12355 | 0.64             | 7.7   | 8.3   | 9/18/19        | 106            | 89           | 0           |
| Alta Seeds      | ADV XF033        | 16286 | 0.59             | 8.7   | 9.0   | 9/22/19        | 132            | 68           | 0           |
| Alta Seeds      | AF7102           | 9574  | 0.68             | 9.7   | 9.7   | 9/8/19         | 106            | 69           | 0           |
| Alta Seeds      | AF7201           | 9601  | 0.66             | 8.7   | 8.7   | 9/14/19        | 106            | 78           | 0           |
| Alta Seeds      | AF7401           | 14891 | 0.61             | 7.7   | 8.0   | 9/24/19        | 132            | 75           | 0           |
| Dyna-Gro Seed   | F74FS72 BMR      | 12285 | 0.65             | 8.7   | 8.7   | 9/20/19        | 132            | 65           | 0           |
| Dyna-Gro Seed   | FX19125 BMR      | 11577 | 0.66             | 8.3   | 8.3   | 9/18/19        | 112            | 86           | 0           |
| Dyna-Gro Seed   | F72FS05          | 15946 | 0.60             | 9.0   | 9.0   | 9/18/19        | 132            | 69           | 10          |
| Dyna-Gro Seed   | FX19178 BMR      | 10817 | 0.59             | 8.0   | 8.0   | 9/23/19        | 132            | 57           | 0           |
| Dyna-Gro Seed   | FX19526 BMR      | 10629 | 0.64             | 8.3   | 8.3   | 9/14/19        | 106            | 60           | 0           |
| Dyna-Gro Seed   | Super Sile 20    | 13578 | 0.62             | 8.3   | 8.3   | 9/18/19        | 132            | 86           | 0           |
| Dyna-Gro Seed   | Super Sile 30    | 15518 | 0.61             | 8.0   | 7.7   | 9/23/19        | 132            | 89           | 0           |
| Dyna-Gro Seed   | Top Ton          | 16622 | 0.62             | 9.3   | 9.7   | 9/25/19        | 132            | 101          | 5           |
| Fontanelle      | Nutri-Chomp      | 9092  | 0.66             | 8.0   | 8.0   | 9/24/19        | 132            | 83           | 0           |
| KSU (check)     | KS Orange        | 12561 | 0.63             | 8.0   | 8.0   | 9/14/19        | 112            | 88           | 10          |
| MOJO            | Opal             | 13502 | 0.63             | 7.3   | 7.3   | 9/19/19        | 132            | 72           | 5           |
| Star Seed       | Extreme BMR      | 11182 | 0.67             | 8.0   | 8.0   | 9/8/19         | 106            | 59           | 0           |
| Star Seed       | Packer           | 13546 | 0.59             | 9.0   | 9.0   | 9/18/19        | 132            | 73           | 0           |
| Wards           | 18118            | 9508  | 0.67             | 8.7   | 9.0   | 9/14/19        | 112            | 78           | 15          |
| Wards           | 19038            | 15225 | 0.62             | 8.7   | 9.0   | 9/25/19        | 132            | 77           | 0           |
| Wards           | 19040            | 9709  | 0.57             | 8.0   | 8.0   | 9/18/19        | 132            | 59           | 0           |
| Wards           | 19042            | 12875 | 0.65             | 8.7   | 8.7   | 10/2/19        | 132            | 81           | 0           |
| Wards           | 19155            | 11828 | 0.66             | 8.0   | 8.3   | 9/14/19        | 112            | 69           | 35          |

continued
### Table 10. Silage performance test near Hays
#### 2019 Hays, Kansas Silage Performance Test, Ellis County

| Brand          | Variety               | Yield | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|----------------|-----------------------|-------|------------------|-------|-------|----------------|-----------------|--------|---------|
| Grain sorghum dual-purpose |                        |       |                  |       |       |                |                 |        |         |
| Dyna-Gro Seed | Dual Forage SCA II    | 10348 | 0.64             | 9.0   | 9.0   | 9/8/19         | 106             | 57     | 0       |
| Dyna-Gro Seed | GX13692               | 10775 | 0.67             | 9.3   | 9.3   | 9/6/19         | 106             | 66     | 0       |
| Average       |                        | 12319 | 1                | 8     | 9     | 122            | 74              | 3      | 3       |
| LSD (0.05)    | 4332                  |       |                  |       |       |                |                 |        |         |

Planting date: 6/6/2019  
Emergence date: 6/17/2019

Values in bold are in the top least significant difference (LSD) group.
| Brand                  | Variety          | CP  | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|------------------------|------------------|-----|--------|------|------|--------|--------|------------|---------|-------------|--------|----------|
| Forage sorghum         |                  |     |        |      |      |        |        |            |         |             |        |          |
| Alta Seeds             | ADV F7232        | 7.27| 6.83   | 1.41 | 28.00| 41.95  | 3.08   | 14.37      | 65.77   | 8.99        | 24.14  | 1.26     |
| Alta Seeds             | ADV XF025        | 6.84| 6.38   | 1.59 | 31.34| 47.34  | 3.57   | 14.56      | 69.06   | 7.12        | 19.43  | 1.21     |
| Alta Seeds             | ADV XF033        | 6.33| 5.68   | 1.29 | 32.63| 48.51  | 4.28   | 17.25      | 64.45   | 7.10        | 20.86  | 1.16     |
| Alta Seeds             | AF7102           | 6.93| 6.30   | 1.94 | 34.60| 52.78  | 3.99   | 15.73      | 70.08   | 9.03        | 13.42  | 0.93     |
| Alta Seeds             | AF7201           | 6.59| 6.10   | 1.67 | 32.66| 48.65  | 3.59   | 15.03      | 69.10   | 7.89        | 17.23  | 1.09     |
| Alta Seeds             | AF7401           | 6.13| 5.83   | 0.90 | 30.16| 44.56  | 2.51   | 16.31      | 63.20   | 11.53       | 21.47  | 1.18     |
| Dyna-Gro Seed          | F74FS72 BMR      | 6.85| 6.50   | 1.34 | 33.73| 49.35  | 3.24   | 16.66      | 66.16   | 10.62       | 15.53  | 0.95     |
| Dyna-Gro Seed          | FX19125 BMR      | 6.38| 5.91   | 1.63 | 31.46| 48.45  | 3.46   | 16.64      | 65.67   | 9.61        | 17.94  | 1.06     |
| Dyna-Gro Seed          | F72FS05          | 7.07| 6.53   | 1.34 | 36.70| 53.33  | 4.64   | 18.81      | 64.76   | 6.70        | 17.00  | 0.98     |
| Dyna-Gro Seed          | FX19178 BMR      | 6.08| 5.48   | 1.25 | 33.66| 47.96  | 3.46   | 15.99      | 66.46   | 8.21        | 18.29  | 1.01     |
| Dyna-Gro Seed          | FX19526 BMR      | 7.31| 6.67   | 1.79 | 31.53| 47.47  | 3.79   | 13.66      | 71.18   | 4.57        | 21.40  | 1.18     |
| Dyna-Gro Seed          | Super Sile 20     | 6.32| 5.83   | 1.11 | 36.14| 51.40  | 3.91   | 19.98      | 61.14   | 11.57       | 15.90  | 0.92     |
| Dyna-Gro Seed          | Super Sile 30     | 7.18| 6.72   | 1.31 | 36.06| 51.27  | 4.56   | 19.29      | 62.34   | 9.12        | 17.03  | 0.93     |
| Dyna-Gro Seed          | TopTon            | 6.16| 5.94   | 0.94 | 34.46| 49.26  | 3.58   | 18.88      | 61.63   | 13.40       | 16.60  | 0.98     |
| Fontanelle             | Nutri-Chomp      | 6.27| 5.94   | 1.58 | 34.54| 53.94  | 3.21   | 15.27      | 71.68   | 15.34       | 8.52   | 0.75     |
| KSU (check)            | KS Orange         | 6.10| 5.39   | 1.88 | 31.90| 49.81  | 3.77   | 16.27      | 67.35   | 12.28       | 15.79  | 0.95     |
| MOJO                   | Opal             | 7.51| 7.29   | 1.41 | 35.28| 51.18  | 3.90   | 18.30      | 63.74   | 9.96        | 14.04  | 0.93     |
| Star Seed              | Extreme BMR      | 6.49| 5.70   | 1.83 | 33.42| 50.93  | 3.68   | 14.26      | 71.85   | 6.36        | 17.10  | 1.03     |
| Star Seed              | Packer           | 7.19| 6.99   | 1.06 | 29.36| 43.40  | 3.25   | 16.24      | 62.40   | 10.22       | 22.59  | 1.26     |
| Wards                  | 18118            | 6.11| 5.56   | 1.67 | 33.68| 49.72  | 3.56   | 15.96      | 67.80   | 10.31       | 14.93  | 0.95     |
| Wards                  | 19038            | 6.24| 6.13   | 1.12 | 35.92| 52.74  | 3.46   | 19.14      | 63.71   | 15.37       | 10.18  | 0.77     |
| Wards                  | 19040            | 7.71| 7.67   | 1.12 | 32.84| 47.54  | 3.52   | 17.73      | 62.69   | 8.77        | 18.74  | 1.11     |
| Wards                  | 19042            | 6.67| 6.39   | 1.41 | 36.67| 53.88  | 4.00   | 18.84      | 65.10   | 14.73       | 8.61   | 0.71     |
| Wards                  | 19155            | 7.02| 6.39   | 1.71 | 31.14| 44.06  | 3.55   | 15.29      | 65.28   | 6.76        | 21.20  | 1.15     |
| Grain sorghum dual-purpose |                |     |        |      |      |        |        |            |         |             |        |          |
| Dyna-Gro Seed          | Dual Forage SCA II | 7.25| 6.59   | 1.65 | 31.57| 45.17  | 4.34   | 15.09      | 66.54   | 2.88        | 25.61  | 1.23     |
| Dyna-Gro Seed          | GX13692          | 7.65| 7.09   | 1.80 | 32.69| 46.68  | 4.31   | 15.13      | 67.39   | 3.31        | 22.92  | 1.15     |
| Average                |                  | 6.76| 6.30   | 1.45 | 33.16| 48.90  | 3.70   | 16.56      | 66.02   | 9.30        | 17.56  | 1.03     |

Values in bold are in the top least significant difference (LSD) group.
| Brand           | Variety       | Ash  | Ca   | P    | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  | RFV  |
|-----------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| **Forage sorghum** |               |      |      |      |      |      |      |      |      |      |      |      |      |
| Alta Seeds      | ADV F7232     | 7.17 | 0.24 | 0.23 | 0.13 | 1.24 | 0.11 | 42.76 | 66.89 | 69.04 | 40.90 | 67.71 | 146.64 |
| Alta Seeds      | ADV XF025     | 8.75 | 0.24 | 0.23 | 0.12 | 1.50 | 0.11 | 36.45 | 62.99 | 64.70 | 35.75 | 62.02 | 126.54 |
| Alta Seeds      | ADV XF033     | 7.17 | 0.24 | 0.22 | 0.12 | 1.59 | 0.10 | 37.11 | 62.81 | 64.49 | 35.28 | 61.49 | 119.42 |
| Alta Seeds      | AF7102        | 10.08 | 0.24 | 0.22 | 0.12 | 1.76 | 0.11 | 30.23 | 59.09 | 60.35 | 30.63 | 56.39 | 107.89 |
| Alta Seeds      | AF7201        | 9.10 | 0.24 | 0.22 | 0.12 | 1.62 | 0.10 | 35.24 | 62.13 | 63.74 | 34.53 | 60.67 | 118.93 |
| Alta Seeds      | AF7401        | 7.58 | 0.24 | 0.22 | 0.12 | 1.45 | 0.10 | 40.44 | 66.73 | 68.86 | 40.29 | 67.05 | 134.64 |
| Dyna-Gro Seed   | F74FS72 BMR   | 8.73 | 0.24 | 0.23 | 0.12 | 1.66 | 0.11 | 34.45 | 62.70 | 64.38 | 35.42 | 61.64 | 115.53 |
| Dyna-Gro Seed   | FX19125 BMR   | 8.17 | 0.24 | 0.20 | 0.12 | 1.42 | 0.11 | 36.57 | 63.29 | 65.03 | 35.96 | 62.25 | 121.28 |
| Dyna-Gro Seed   | F72FS05       | 7.70 | 0.24 | 0.25 | 0.12 | 1.76 | 0.11 | 31.25 | 60.10 | 61.48 | 32.04 | 57.93 | 104.03 |
| Dyna-Gro Seed   | FX19178 BMR   | 9.37 | 0.24 | 0.23 | 0.12 | 1.66 | 0.11 | 35.83 | 62.07 | 63.67 | 34.23 | 60.34 | 119.45 |
| Dyna-Gro Seed   | Super Sile 20 | 7.77 | 0.24 | 0.26 | 0.12 | 1.63 | 0.11 | 33.70 | 61.78 | 63.35 | 33.97 | 60.05 | 114.35 |
| Dyna-Gro Seed   | Super Sile 30 | 7.74 | 0.24 | 0.24 | 0.12 | 1.64 | 0.11 | 33.20 | 60.81 | 62.26 | 33.03 | 59.02 | 108.62 |
| Dyna-Gro Seed   | TopTon        | 7.60 | 0.24 | 0.25 | 0.12 | 1.53 | 0.10 | 35.94 | 63.37 | 65.12 | 36.07 | 62.35 | 114.35 |
| Fontanelle      | Nutri-Chomp   | 7.55 | 0.24 | 0.20 | 0.13 | 1.71 | 0.10 | 32.08 | 62.56 | 64.21 | 35.01 | 61.19 | 104.71 |
| KSU (check)     | KS Orange     | 7.33 | 0.24 | 0.17 | 0.12 | 1.12 | 0.10 | 36.70 | 63.03 | 64.74 | 35.47 | 61.70 | 117.02 |
| MOJO            | Opal          | 7.89 | 0.24 | 0.25 | 0.12 | 1.56 | 0.12 | 32.91 | 61.89 | 63.47 | 34.60 | 60.76 | 111.01 |
| Star Seed       | Extreme BMR   | 9.16 | 0.24 | 0.22 | 0.13 | 1.90 | 0.11 | 33.22 | 61.06 | 62.55 | 32.98 | 58.98 | 114.56 |
| Star Seed       | Packer        | 6.76 | 0.24 | 0.25 | 0.13 | 1.26 | 0.10 | 41.45 | 66.65 | 68.76 | 40.62 | 67.41 | 139.56 |
| Wards           | 18118         | 9.94 | 0.24 | 0.21 | 0.12 | 1.63 | 0.10 | 33.95 | 60.90 | 62.36 | 32.68 | 58.64 | 116.63 |
| Wards           | 19038         | 7.51 | 0.24 | 0.24 | 0.12 | 1.47 | 0.10 | 32.86 | 62.59 | 64.24 | 35.14 | 61.33 | 104.85 |
| Wards           | 19040         | 7.62 | 0.24 | 0.27 | 0.12 | 1.41 | 0.12 | 36.14 | 64.08 | 65.91 | 37.62 | 64.08 | 121.11 |
| Wards           | 19042         | 7.49 | 0.24 | 0.19 | 0.12 | 1.51 | 0.12 | 31.66 | 61.14 | 62.64 | 33.32 | 59.34 | 101.73 |
| Wards           | 19155         | 10.02 | 0.24 | 0.25 | 0.12 | 1.62 | 0.11 | 38.46 | 62.59 | 64.25 | 35.28 | 61.48 | 132.80 |
| **Grain sorghum dual-purpose** |               |      |      |      |      |      |      |      |      |      |      |      |      |
| Dyna-Gro Seed   | Dual Forage SCA II | 8.18 | 0.24 | 0.25 | 0.12 | 1.67 | 0.11 | 38.82 | 62.80 | 64.48 | 35.65 | 61.89 | 128.66 |
| Dyna-Gro Seed   | GX13692       | 9.21 | 0.24 | 0.25 | 0.12 | 1.79 | 0.12 | 36.11 | 61.36 | 62.88 | 33.93 | 60.01 | 124.57 |
| **Average**     |               | 8.24 | 0.24 | 0.23 | 0.12 | 1.57 | 0.11 | 35.53 | 62.61 | 64.28 | 35.22 | 61.43 | 118.68 |

Values in bold are in the top least significant difference (LSD) group.
## Table 11. Silage performance test near Scandia
### 2019 Scandia, Kansas Silage Performance Test, Republic County

| Brand            | Variety          | Yield | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|------------------|------------------|-------|------------------|-------|-------|----------------|-----------------|--------|---------|
| Forage sorghum   |                  |       |                  |       |       |                |                 |        |         |
| Alta Seeds       | ADV F7232        | 9458  | 0.78             | 10.0  | 10.0  | 9/10/19        | 116             | 78     | 0       |
| Alta Seeds       | ADV XF025        | 7197  | 0.75             | 10.0  | 10.0  | 8/20/19        | 89              | 109    | 0       |
| Alta Seeds       | ADV XF033        | 10766 | 0.73             | 10.0  | 10.0  | 9/10/19        | 116             | 92     | 0       |
| Alta Seeds       | AF7102           | 6638  | 0.80             | 9.0   | 9.7   | 8/20/19        | 89              | 86     | 0       |
| Alta Seeds       | AF7201           | 7937  | 0.75             | 10.0  | 10.0  | 8/20/19        | 89              | 105    | 0       |
| Alta Seeds       | AF7401           | 9812  | 0.78             | 10.0  | 10.0  | 9/14/19        | 116             | 79     | 0       |
| Dyna-Gro Seed    | F74F572 BMR      | 11903 | 0.74             | 10.0  | 10.0  | 9/14/19        | 116             | 77     | 0       |
| Dyna-Gro Seed    | FX19125 BMR      | 6907  | 0.74             | 10.0  | 10.0  | 8/20/19        | 89              | 111    | 0       |
| Dyna-Gro Seed    | F72F505          | 10895 | 0.73             | 9.7   | 10.0  | 9/10/19        | 116             | 89     | 0       |
| Dyna-Gro Seed    | FX19178 BMR      | 8807  | 0.72             | 9.7   | 10.0  | 9/3/19         | 116             | 70     | 0       |
| Dyna-Gro Seed    | FX19526 BMR      | 7082  | 0.76             | 10.0  | 10.0  | 8/27/19        | 104             | 72     | 0       |
| Dyna-Gro Seed    | Super Sile 20    | 9486  | 0.76             | 10.0  | 10.0  | 9/3/19         | 116             | 127    | 3       |
| Dyna-Gro Seed    | Super Sile 30    | 8818  | 0.76             | 10.0  | 10.0  | 9/10/19        | 116             | 137    | 7       |
| Dyna-Gro Seed    | TopTon           | 7401  | 0.74             | 9.7   | 10.0  | 9/10/19        | 116             | 142    | 20      |
| KSU (check)      | KS Orange        | 30330 | 0.70             | 8.7   | 10.0  | 8/27/19        | 104             | 120    | 17      |
| MOJO             | Opal             | 5308  | 0.76             | 7.3   | 9.0   | 9/6/19         | 116             | 99     | 0       |
| Star Seed        | Extreme BMR      | 7438  | 0.76             | 10.0  | 10.0  | 8/27/19        | 104             | 74     | 0       |
| Star Seed        | Packer           | 9811  | 0.76             | 10.0  | 10.0  | 9/3/19         | 116             | 105    | 0       |

*continued*
| Brand   | Variety       | Yield  | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|---------|---------------|--------|------------------|-------|-------|----------------|----------------|--------|---------|
| Wards   | 18096         | 9854   | 0.77             | 10.0  | 10.0  | 8/27/19        | 89             | 69     | 0       |
| Wards   | 18116         | 7885   | 0.76             | 9.7   | 10.0  | 8/27/19        | 89             | 106    | 0       |
| Wards   | 18118         | 8373   | 0.74             | 10.0  | 10.0  | 8/20/19        | 89             | 107    | 0       |
| Wards   | 19038         | 9482   | 0.76             | 9.7   | 10.0  | 9/14/19        | 116            | 93     | 0       |
| Wards   | 19040         | 9789   | 0.75             | 10.0  | 10.0  | 9/10/19        | 116            | 78     | 0       |
| Wards   | 19042         | 7450   | 0.79             | 9.7   | 10.0  | 9/17/19        | 116            | 109    | 0       |
| Wards   | 19155         | 7972   | 0.77             | 10.0  | 10.0  | 8/23/19        | 104            | 102    | 63      |
| Wards   | 19156         | 8088   | 0.72             | 10.0  | 10.0  | 8/27/19        | 89             | 124    | 43      |
| Wards   | 19174         | 8738   | 0.73             | 10.0  | 10.0  | 9/3/19         | 104            | 102    | 23      |
| Wards   | 19175         | 6863   | 0.75             | 8.3   | 9.0   | 8/20/19        | 89             | 101    | 0       |
| Wards   | 19176         | 8973   | 0.69             | 9.7   | 10.0  | 8/27/19        | 104            | 119    | 7       |
| Wards   | 19177         | 6270   | 0.72             | 9.7   | 10.0  | 8/27/19        | 104            | 105    | 7       |
| Wards   | 19178         | 5618   | 0.74             | 9.3   | 10.0  | 8/27/19        | 104            | 108    | 23      |
| Wards   | 19179         | 9867   | 0.75             | 10.0  | 10.0  | 9/3/19         | 116            | 89     | 0       |
| Wards   | 19181         | 7299   | 0.76             | 9.0   | 10.0  | 9/10/19        | 116            | 91     | 0       |
| Grain sorghum dual-purpose | | | | | | | | | |
| Dyna-Gro Seed | Dual Forage SCA II | 8094 | 0.75 | 9.3 | 9.7 | 8/20/19 | 89 | 70 | 0 |
| Dyna-Gro Seed | GX13692 | 7822 | 0.78 | 10.0 | 10.0 | 8/27/19 | 89 | 87 | 0 |

**Average**

|          | Yield  | Harvest moisture | Stand | Vigor | Flowering date | Days to harvest | Height | Lodging |
|----------|--------|------------------|-------|-------|----------------|----------------|--------|---------|
|          | 8984   | 1                | 10    | 10    |                | 105            | 98     | 6       |

**LSD (0.05)**

2116

**Planting date:** 6/14/2019  
**Emergence date:** 6/18/2019

Values in bold are in the top least significant difference (LSD) group.
| Brand          | Variety       | CP   | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|---------------|---------------|------|--------|------|------|--------|--------|-----------|---------|-------------|--------|-----------|
| Forage sorghum|               |      |        |      |      |        |        |           |         |             |        |           |
| Alta Seeds    | ADV F7232     | 8.49 | 8.22   | 2.00 | 41.71| 59.91  | 3.81  | 14.75     | 75.38  | 5.78        | 1.30   | 0.70      |
| Alta Seeds    | ADV XF025     | 9.13 | 9.05   | 2.25 | 38.47| 59.03  | 4.13  | 16.11     | 72.71  | 9.15        | 2.43   | 0.90      |
| Alta Seeds    | ADV XF033     | 7.63 | 7.22   | 1.93 | 40.18| 61.04  | 5.12  | 17.95     | 70.53  | 6.37        | 5.46   | 0.78      |
| Alta Seeds    | AF7102        | 8.98 | 8.90   | 2.11 | 35.06| 53.13  | 3.37  | 14.24     | 73.20  | 11.35       | 4.89   | 1.03      |
| Alta Seeds    | AF7201        | 9.41 | 9.23   | 2.26 | 37.68| 55.51  | 3.77  | 15.38     | 72.29  | 7.39        | 4.29   | 0.99      |
| Alta Seeds    | AF7401        | 8.57 | 8.29   | 2.08 | 41.76| 60.37  | 3.69  | 14.73     | 75.57  | 5.40        | 1.23   | 0.65      |
| Dyna-Gro Seed | F74FS72 BMR   | 8.97 | 8.70   | 2.10 | 36.60| 55.08  | 3.55  | 14.42     | 73.23  | 5.71        | 7.36   | 0.89      |
| Dyna-Gro Seed | FX19125 BMR   | 9.86 | 9.86   | 2.28 | 36.22| 55.49  | 3.82  | 15.51     | 72.05  | 9.20        | 4.10   | 1.05      |
| Dyna-Gro Seed | F72FS05       | 6.71 | 6.21   | 1.83 | 42.58| 63.87  | 5.50  | 19.03     | 70.20  | 6.24        | 3.97   | 0.66      |
| Dyna-Gro Seed | FX19178 BMR   | 8.58 | 8.27   | 1.94 | 36.47| 54.42  | 4.02  | 14.97     | 72.47  | 8.81        | 7.05   | 0.90      |
| Dyna-Gro Seed | FX19526 BMR   | 9.67 | 9.55   | 2.21 | 37.86| 57.40  | 4.05  | 12.99     | 77.37  | 5.98        | 3.64   | 0.95      |
| Dyna-Gro Seed | Super Sile 20  | 6.17 | 5.66   | 1.69 | 39.74| 58.61  | 4.75  | 18.04     | 69.22  | 13.13       | 4.24   | 0.65      |
| Dyna-Gro Seed | Super Sile 30  | 6.84 | 6.41   | 1.81 | 40.59| 59.33  | 4.92  | 18.45     | 68.90  | 12.48       | 3.13   | 0.63      |
| Dyna-Gro Seed | Top Ton       | 5.95 | 5.34   | 1.81 | 40.57| 57.64  | 4.52  | 18.61     | 67.70  | 14.32       | 3.06   | 0.56      |
| KSU (check)   | KS Orange     | 6.95 | 6.55   | 1.98 | 37.31| 55.50  | 3.78  | 17.21     | 69.00  | 13.85       | 4.50   | 0.66      |
| MOJO          | Opal          | 8.16 | 7.89   | 2.13 | 36.29| 53.38  | 3.73  | 16.91     | 68.32  | 14.77       | 2.94   | 0.71      |
| Star Seed     | Extreme BMR   | 9.80 | 9.70   | 2.21 | 37.04| 56.30  | 4.20  | 13.06     | 76.80  | 6.42        | 4.10   | 1.02      |
| Star Seed     | Packer        | 5.96 | 5.55   | 1.72 | 42.56| 61.86  | 4.98  | 18.02     | 70.86  | 10.64       | 1.83   | 0.67      |

continued
| Brand     | Variety | CP    | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|-----------|---------|-------|--------|------|------|--------|--------|-----------|---------|-------------|--------|-----------|
| Wards     | 18096   | 11.18 | 11.18  | 2.51 | 36.00| 56.79  | 4.44   | 14.80     | 73.93  | 8.12        | 2.87   | 1.07      |
| Wards     | 18116   | 8.04  | 7.82   | 2.09 | 38.57| 56.27  | 3.80   | 15.30     | 72.80  | 11.79       | 2.18   | 0.81      |
| Wards     | 18118   | 7.79  | 7.72   | 1.92 | 37.26| 55.60  | 3.70   | 15.43     | 72.25  | 13.73       | 2.75   | 0.87      |
| Wards     | 19038   | 7.19  | 6.88   | 1.85 | 39.93| 60.47  | 4.55   | 17.03     | 71.85  | 10.57       | 2.69   | 0.68      |
| Wards     | 19040   | 8.02  | 7.89   | 2.01 | 38.20| 57.66  | 4.21   | 16.09     | 72.07  | 11.33       | 2.26   | 0.78      |
| Wards     | 19042   | 6.20  | 5.80   | 1.88 | 41.09| 61.61  | 4.62   | 17.35     | 71.81  | 13.19       | 0.71   | 0.59      |
| Wards     | 19155   | 8.20  | 7.98   | 2.04 | 35.33| 52.34  | 3.45   | 14.54     | 72.23  | 15.16       | 3.44   | 0.89      |
| Wards     | 19156   | 10.22 | 10.19  | 2.39 | 38.75| 58.51  | 4.52   | 16.25     | 72.23  | 9.03        | 2.02   | 0.82      |
| Wards     | 19174   | 7.25  | 6.76   | 2.02 | 40.43| 58.28  | 3.58   | 14.96     | 74.32  | 8.33        | 2.90   | 0.70      |
| Wards     | 19175   | 9.74  | 9.48   | 2.33 | 37.09| 53.38  | 4.13   | 16.27     | 69.64  | 7.80        | 4.77   | 0.90      |
| Wards     | 19176   | 6.14  | 5.67   | 1.79 | 42.85| 63.21  | 5.40   | 20.26     | 67.95  | 10.53       | 2.84   | 0.61      |
| Wards     | 19177   | 7.07  | 6.84   | 1.84 | 38.41| 56.52  | 3.75   | 16.65     | 70.54  | 12.28       | 3.13   | 0.81      |
| Wards     | 19178   | 7.58  | 7.15   | 2.08 | 42.96| 60.79  | 4.41   | 17.31     | 71.53  | 6.51        | 1.30   | 0.74      |
| Wards     | 19179   | 9.02  | 8.90   | 2.10 | 38.22| 58.11  | 4.31   | 15.58     | 73.19  | 8.25        | 3.87   | 0.85      |
| Wards     | 19181   | 7.56  | 7.40   | 1.86 | 35.70| 53.58  | 3.13   | 14.36     | 73.20  | 14.02       | 3.68   | 0.84      |
| Grain sorghum dual-purpose |          | 8.24  | 7.99   | 2.06 | 38.69| 57.60  | 4.20   | 16.11     | 72.04  | 9.79        | 3.38   | 0.81      |

Values in bold are in the top least significant difference (LSD) group.
| Brand         | Variety     | Ash  | Ca  | P   | Mg  | K   | S   | NFC | TDN | NEL | NEG | NEM | RFV |
|--------------|-------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Forage sorghum |             |      |     |     |     |     |     |     |     |     |     |     |     |
| Alta Seeds   | ADV F7232   | 13.07| 0.24| 0.28| 0.12| 2.81| 0.17| 18.83| 54.30| 55.02| 24.88| 50.14| 85.42|
| Alta Seeds   | ADV XF025   | 10.48| 0.24| 0.22| 0.13| 2.18| 0.17| 21.71| 56.92| 57.93| 28.79| 54.37| 91.09|
| Alta Seeds   | ADV XF033   | 9.42 | 0.24| 0.20| 0.13| 1.89| 0.13| 22.06| 55.39| 56.23| 25.97| 51.32| 86.49|
| Alta Seeds   | AF7102      | 10.96| 0.24| 0.25| 0.13| 2.48| 0.16| 27.10| 59.57| 60.88| 32.25| 58.15| 105.04|
| Alta Seeds   | AF7201      | 11.32| 0.24| 0.26| 0.13| 2.48| 0.17| 24.03| 57.70| 58.81| 29.90| 55.59| 98.08|
| Alta Seeds   | AF7401      | 12.70| 0.24| 0.28| 0.12| 2.62| 0.16| 18.79| 54.70| 55.46| 25.45| 50.75| 84.54|
| Dyna-Gro Seed | F74FS72 BMR | 11.54| 0.24| 0.27| 0.12| 2.11| 0.16| 24.62| 57.81| 58.92| 29.83| 55.51| 99.96|
| Dyna-Gro Seed | FX19125 BMR | 10.57| 0.24| 0.25| 0.13| 2.31| 0.17| 24.32| 58.56| 59.76| 31.29| 57.11| 99.57|
| Dyna-Gro Seed | F72FS05     | 9.09 | 0.24| 0.19| 0.12| 1.96| 0.12| 20.49| 54.13| 54.83| 23.82| 49.00| 80.01|
| Dyna-Gro Seed | FX19178 BMR | 11.22| 0.24| 0.24| 0.14| 2.18| 0.15| 25.82| 57.47| 58.55| 29.19| 54.82| 102.31|
| Dyna-Gro Seed | FX19526 BMR | 12.27| 0.24| 0.26| 0.17| 2.91| 0.18| 20.91| 55.71| 56.59| 27.35| 52.82| 93.95|
| Dyna-Gro Seed | Super Sile 20 | 8.72 | 0.24| 0.17| 0.12| 1.97| 0.11| 26.54| 57.23| 58.28| 27.87| 53.37| 89.54|
| Dyna-Gro Seed | Super Sile 30 | 9.04 | 0.24| 0.19| 0.12| 2.16| 0.12| 24.97| 56.43| 57.38| 27.07| 52.51| 87.23|
| Dyna-Gro Seed | TopTon      | 9.03 | 0.24| 0.17| 0.12| 1.72| 0.10| 27.63| 57.47| 58.55| 28.07| 53.59| 90.47|
| KSU (check)  | KS Orange   | 8.77 | 0.24| 0.17| 0.12| 1.61| 0.12| 29.11| 59.80| 61.14| 31.64| 57.49| 97.71|
| MOJO         | Opal        | 9.70 | 0.24| 0.20| 0.13| 1.74| 0.13| 29.19| 59.66| 60.99| 31.97| 57.85| 103.26|
| Star Seed    | Extreme BMR | 11.55| 0.24| 0.26| 0.17| 2.78| 0.17| 22.54| 56.57| 57.54| 28.57| 54.14| 97.38|
| Star Seed    | Packer      | 10.21| 0.24| 0.20| 0.12| 2.26| 0.11| 22.01| 54.57| 55.31| 24.17| 49.37| 81.86|

**Table 11b, continued.** 2019 Scandia, Kansas Silage Performance Test, Republic County
| Brand   | Variety | Ash  | Ca  | P   | Mg  | K   | S   | NFC | TDN | NEL | NEG | NEM | RFV |
|---------|---------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Wards   | 18096   | 9.94 | 0.24| 0.25| 0.16| 2.61| 0.19| 22.53| 57.84| 58.95| 30.92| 56.70| 97.81|
| Wards   | 18116   | 11.00| 0.24| 0.22| 0.13| 2.23| 0.15| 24.97| 57.59| 58.68| 29.18| 54.81| 95.06|
| Wards   | 18118   | 10.39| 0.24| 0.22| 0.12| 2.23| 0.14| 26.26| 58.69| 59.91| 30.62| 56.37| 97.94|
| Wards   | 19038   | 8.80 | 0.24| 0.21| 0.12| 2.08| 0.12| 23.71| 57.07| 58.10| 28.11| 53.64| 86.33|
| Wards   | 19040   | 9.99 | 0.24| 0.20| 0.12| 2.04| 0.13| 24.56| 57.48| 58.55| 29.06| 54.66| 93.39|
| Wards   | 19042   | 8.50 | 0.24| 0.19| 0.12| 2.08| 0.10| 23.97| 56.86| 57.86| 27.39| 52.85| 84.18|
| Wards   | 19155   | 10.46| 0.24| 0.22| 0.13| 2.23| 0.14| 29.15| 59.91| 61.27| 32.35| 58.27| 106.10|
| Wards   | 19156   | 9.95 | 0.24| 0.23| 0.16| 2.24| 0.16| 21.88| 56.81| 57.81| 29.08| 54.69| 90.90|
| Wards   | 19174   | 11.53| 0.24| 0.23| 0.12| 2.33| 0.15| 23.27| 56.67| 57.65| 27.53| 53.01| 89.20|
| Wards   | 19175   | 10.78| 0.37| 0.23| 0.17| 2.23| 0.17| 26.53| 58.12| 59.27| 30.49| 56.26| 102.51|
| Wards   | 19176   | 8.86 | 0.24| 0.15| 0.12| 1.87| 0.11| 21.96| 54.72| 55.48| 24.42| 49.64| 80.73|
| Wards   | 19177   | 10.52| 0.24| 0.19| 0.12| 1.91| 0.14| 25.93| 58.10| 59.24| 29.46| 55.11| 95.20|
| Wards   | 19178   | 12.66| 0.24| 0.25| 0.12| 2.43| 0.15| 19.31| 53.46| 54.08| 23.30| 48.42| 82.86|
| Wards   | 19179   | 10.43| 0.24| 0.25| 0.12| 2.32| 0.16| 22.69| 56.80| 57.80| 28.54| 54.11| 93.13|
| Wards   | 19181   | 10.26| 0.24| 0.21| 0.12| 2.04| 0.13| 28.61| 60.30| 61.70| 32.62| 58.56| 103.40|

| Grain sorghum dual-purpose | Forage quality |
|---------------------------|----------------|
| Dyna-Gro Seed            | Dual Forage SCA II | 10.21 | 0.24 | 0.25 | 0.16 | 2.51 | 0.17 | 22.01 | 56.32 | 57.27 | 28.58 | 54.15 | 94.51 |
| Dyna-Gro Seed            | GX13692          | 10.34 | 0.24 | 0.25 | 0.17 | 2.63 | 0.18 | 21.86 | 57.06 | 58.09 | 29.67 | 55.34 | 95.30 |

Average                                                                 | 10.41 | 0.24 | 0.22 | 0.13 | 2.23 | 0.14 | 24.00 | 57.08 | 58.11 | 28.56 | 54.13 | 93.21 |

Values in bold are in the top least significant difference (LSD) group.
Table 12. Corn silage performance test near Garden City
2019 Garden City, Kansas Corn Silage Performance Test, Finney County

| Brand          | Variety | Yield lb DM/a | Harvest moisture % | Stand | Vigor | Flowering date | Days to harvest | Height in. | Lodging % |
|----------------|---------|---------------|--------------------|-------|-------|----------------|----------------|-----------|-----------|
| Dyna-Gro Seed | D54DC94 | 17468         | 0.62               | 9.5   | 10.0  | 7/12/19        | 116            | 97        | 0         |
| Dyna-Gro Seed | D55QC73 | 17871         | 0.64               | 10.0  | 10.0  | 7/12/19        | 116            | 102       | 0         |
| Dyna-Gro Seed | D57VC75 | 18301         | 0.51               | 9.7   | 10.0  | 7/16/19        | 125            | 97        | 0         |
| Dyna-Gro Seed | D58VC65 | 17461         | 0.59               | 10.0  | 10.0  | 7/16/19        | 116            | 89        | 0         |
| Dyna-Gro Seed | D58QC72 | 18397         | 0.62               | 9.7   | 10.0  | 7/16/19        | 116            | 98        | 0         |
| Dyna-Gro Seed | D58RR70 | 15731         | 0.63               | 10.0  | 9.3   | 7/16/19        | 116            | 101       | 0         |
| Average       |         | 17538         | 1                  | 10    | 10    | -              | 118            | 97        | 0         |
| LSD (0.05)    |         | 986           |                    |       |       |                |                |           |           |

Planting date: 5/17/2019
Emergence date: 5/27/2019

Values in bold are in the top least significant difference (LSD) group.
Table 12b. 2019 Garden City, Kansas Corn Silage Performance Test, Finney County

Forage quality

| Brand          | Variety | CP   | Adj_CP | NDFn | ADF | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|----------------|---------|------|--------|------|-----|--------|--------|-----------|---------|-------------|--------|-----------|
| Dyna-Gro Seed  | D54DC94 | 8.98 | 8.98   | 1.42 | 26.74| 43.48  | 3.65   | 12.66     | 70.87   | 5.37        | 27.64  | 1.94      |
| Dyna-Gro Seed  | D55QC73 | 9.38 | 9.38   | 1.50 | 26.09| 42.31  | 3.63   | 12.43     | 70.64   | 6.59        | 26.40  | 2.00      |
| Dyna-Gro Seed  | D57VC75 | 8.38 | 8.38   | 1.30 | 28.44| 47.38  | 3.84   | 13.57     | 71.38   | 6.13        | 23.70  | 1.78      |
| Dyna-Gro Seed  | D58VC65 | 8.97 | 8.97   | 1.41 | 25.06| 41.22  | 3.60   | 12.03     | 70.87   | 5.21        | 29.97  | 2.13      |
| Dyna-Gro Seed  | D58QC72 | 9.13 | 9.13   | 1.38 | 23.91| 39.45  | 3.35   | 11.42     | 71.03   | 5.92        | 30.95  | 2.28      |
| Dyna-Gro Seed  | D58RR70 | 8.94 | 8.94   | 1.39 | 26.35| 42.94  | 3.51   | 12.15     | 71.64   | 5.76        | 28.33  | 1.98      |
| Average        |         | 8.96 | 8.96   | 1.40 | 26.10| 42.80  | 3.60   | 12.38     | 71.07   | 5.83        | 27.83  | 2.02      |

Forage quality

| Brand          | Variety | Ash  | Ca    | P     | Mg   | K    | S    | NFC  | TDN  | NEL  | NEG  | NEM  |
|----------------|---------|------|-------|-------|------|------|------|------|------|------|------|------|
| Dyna-Gro Seed  | D54DC94 | 6.86 | 0.30  | 0.25  | 0.19 | 1.29 | 0.12 | 39.15| 66.84| 68.98| 41.68| 68.59|
| Dyna-Gro Seed  | D55QC73 | 7.10 | 0.32  | 0.25  | 0.20 | 1.30 | 0.13 | 39.70| 67.03| 69.20| 42.07| 69.02|
| Dyna-Gro Seed  | D57VC75 | 6.75 | 0.31  | 0.23  | 0.21 | 1.34 | 0.12 | 36.01| 65.32| 67.29| 39.52| 66.18|
| Dyna-Gro Seed  | D58VC65 | 6.63 | 0.30  | 0.25  | 0.19 | 1.24 | 0.13 | 41.47| 67.99| 70.26| 43.09| 70.17|
| Dyna-Gro Seed  | D58QC72 | 6.62 | 0.29  | 0.25  | 0.18 | 1.28 | 0.12 | 42.90| 69.16| 71.56| 44.63| 71.89|
| Dyna-Gro Seed  | D58RR70 | 6.64 | 0.29  | 0.24  | 0.18 | 1.24 | 0.13 | 39.89| 67.52| 69.73| 42.52| 69.53|
| Average        |         | 6.77 | 0.30  | 0.25  | 0.19 | 1.28 | 0.13 | 39.86| 67.31| 69.50| 42.25| 69.23|

Values in bold are in the top least significant difference (LSD) group.
Table 13. Corn silage performance test near Hays
2019 Hays, Kansas Corn Silage Performance Test, Ellis County

| Brand           | Variety | Yield lb DM/a | Harvest moisture % | Stand | Vigor | Flowering date | Days to harvest | Height in. | Lodging % |
|-----------------|---------|---------------|--------------------|-------|-------|----------------|----------------|-----------|-----------|
| Dyna-Gro Seed   | D54DC94 | 10426         | 0.58               | 9.0   | 9.0   | 7/30/19        | 104            | 62        | 10        |
| Dyna-Gro Seed   | D55QC73 | 9722          | 0.65               | 9.0   | 9.0   | 8/3/19         | 104            | 72        | 25        |
| Dyna-Gro Seed   | D57VC75 | 9698          | 0.62               | 8.7   | 8.3   | 8/3/19         | 104            | 74        | 27        |
| Dyna-Gro Seed   | D58VC65 | 8433          | 0.61               | 9.0   | 9.0   | 8/3/19         | 104            | 62        | 33        |
| Dyna-Gro Seed   | D58QC72 | 10830         | 0.63               | 9.3   | 9.3   | 8/3/19         | 104            | 72        | 33        |
| Dyna-Gro Seed   | D58RR70 | 10894         | 0.64               | 8.3   | 8.7   | 8/8/19         | 104            | 75        | 25        |
| Average         |         | 10000         | 0.62               | 9     | 9     | -              | 104            | 70        | 26        |
| LSD (0.05)      |         | 1250          |                    |       |       |                |                |           |           |

Planting Date: 6/6/2019
Emergence Date: 6/17/2019

Values in bold are in the top least significant difference (LSD) group.
### Table 13b. 2019 Hays, Kansas Silage Performance Test, Ellis County

#### Forage quality

| Brand            | Variety | CP  | Adj_CP | NDFn | ADF  | aNDFom | Lignin | uNDFom240 | NDFD240 | WSC (Sugar) | Starch | TFA (Fat) |
|------------------|---------|-----|--------|------|------|--------|--------|-----------|---------|-------------|--------|-----------|
| Dyna-Gro Seed    | D54DC94 | 7.17| 7.17   | 1.08 | 25.67| 42.38  | 3.25   | 12.45     | 70.57   | 5.58        | 32.17  | 1.95      |
| Dyna-Gro Seed    | D55QC73 | 6.89| 6.77   | 1.23 | 30.46| 48.60  | 3.81   | 14.77     | 69.52   | 6.71        | 21.34  | 1.37      |
| Dyna-Gro Seed    | D57VC75 | 7.08| 7.03   | 1.18 | 28.16| 46.80  | 3.38   | 13.00     | 72.09   | 7.26        | 23.61  | 1.82      |
| Dyna-Gro Seed    | D58VC65 | 7.35| 7.35   | 1.17 | 27.03| 44.60  | 3.49   | 13.28     | 70.20   | 6.23        | 27.90  | 1.83      |
| Dyna-Gro Seed    | D58QC72 | 6.73| 6.73   | 1.01 | 28.82| 47.63  | 3.44   | 13.00     | 72.53   | 4.76        | 29.16  | 1.88      |
| Dyna-Gro Seed    | D58RR70 | 6.88| 6.87   | 1.00 | 28.50| 46.55  | 3.32   | 12.52     | 73.11   | 5.51        | 27.74  | 1.87      |
| **Average**      |         | 7.02| 6.99   | 1.11 | 28.11| 46.09  | 3.45   | 13.17     | 71.34   | 6.01        | 26.99  | 1.79      |

#### Ash, Ca, P, Mg, K, S, NFC, TDN, NEL, NEG, NEM

| Brand            | Variety | Ash | Ca  | P   | Mg  | K   | S   | NFC | TDN | NEL | NEG | NEM |
|------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dyna-Gro Seed    | D54DC94 | 6.09| 0.24| 0.23| 0.16| 1.14| 0.10| 42.49| 68.69| 71.04| 43.29| 70.40|
| Dyna-Gro Seed    | D55QC73 | 6.54| 0.26| 0.22| 0.16| 1.18| 0.11| 36.84| 64.77| 66.68| 38.20| 64.72|
| Dyna-Gro Seed    | D57VC75 | 6.57| 0.28| 0.22| 0.20| 1.15| 0.11| 37.91| 66.49| 68.59| 40.47| 67.24|
| Dyna-Gro Seed    | D58VC65 | 6.25| 0.26| 0.23| 0.17| 1.13| 0.11| 40.14| 67.29| 69.49| 41.61| 68.52|
| Dyna-Gro Seed    | D58QC72 | 5.58| 0.23| 0.20| 0.15| 1.15| 0.10| 38.19| 67.30| 69.50| 41.42| 68.30|
| Dyna-Gro Seed    | D58RR70 | 6.20| 0.23| 0.21| 0.15| 1.16| 0.10| 38.50| 67.15| 69.33| 41.26| 68.13|
| **Average**      |         | 6.20| 0.25| 0.22| 0.17| 1.15| 0.11| 39.01| 66.95| 69.10| 41.04| 67.88|

Values in bold are in the top least significant difference (LSD) group.
Figure 1. Precipitation and temperature during the 2019 growing season near Garden City, KS. Top pane: daily and mean (1981 to 2019) high and low temperature. Bottom pane: daily and mean (1981 to 2019) cumulative precipitation.
Figure 2. Precipitation and temperature during the 2019 growing season near Hays, KS. Top pane: daily and mean (1981 to 2019) high and low temperature. Bottom pane: daily and mean (1981 to 2019) cumulative precipitation.
Figure 3. Precipitation and temperature during the 2019 growing season near Scandia, KS. Top pane: daily and mean (1981 to 2019) high and low temperature. Bottom pane: daily and mean (1981 to 2019) cumulative precipitation.
