



West Central Research, Extension, & Education Center, North Platte

2022 Summer Cover Crop Variety Trial

UNIVERSITY of NEBRASKA
LINCOLN

| Type | Species | Variety | Stand count (2ft ²) | Std err | Height (H1) (ft) | Std err | Height (H2) (ft) | Std err | Biomass (tons/acre) | Std err | CN ratio | Std err | CP (%) | Std err | TDN (%) | Std err | RFQ (%) | Std err |
|--------------------|-----------------|-------------|------------------------------------|------------|---------------------|------------|------------------------|------------|------------------------|------------|-------------|------------|-----------|------------|------------|------------|------------|------------|
| Grasses | | | | | | | | | | | | | | | | | | |
| 1 | Sorghum-sudan | Queen | 25 | 3 | 1.5 | 0.13 | 7.0 | 0.35 | 17.8 | 4.1 | 39 | 2.1 | 8 | 0.2 | 62 | 1.1 | 135 | 9 |
| 2 | Sorghum-sudan | WS902 | 26 | 3 | 1.5 | 0.08 | 4.7 | 0.09 | 12.5 | 1.9 | 33 | 1.5 | 8 | 0.3 | 60 | 1.6 | 135 | 10 |
| 3 | Sorghum-sudan | Sugar | 28 | 5 | 1.7 | 0.05 | 6.7 | 0.32 | 15.5 | 1.5 | 41 | 1.8 | 8 | 0.6 | 61 | 1.3 | 122 | 7 |
| 4 | Sudan-grass | Piper | 49 | 5 | 1.9 | 0.07 | 7.5 | 0.29 | 16.5 | 2.6 | 46 | 8.3 | 7 | 0.2 | 54 | 1.2 | 88 | 6 |
| 5 | Forage-sorghum | WS404 | 20 | 1 | 1.4 | 0.07 | 5.6 | 0.22 | 15.8 | 2.1 | 40 | 4.0 | 7 | 0.4 | 65 | 1.0 | 151 | 7 |
| 6 | Forage-sorghum | Bundle | 19 | 2 | 1.0 | 0.04 | 4.8 | 0.25 | 14.5 | 4.7 | 38 | 2.3 | 8 | 0.7 | 63 | 1.8 | 141 | 8 |
| 7 | Pearl-millet | Tifleaf | 33 | 5 | 1.1 | 0.06 | 4.0 | 0.17 | 8.0 | 1.5 | 26 | 2.3 | 11 | 1.0 | 61 | 1.1 | 115 | 3 |
| 8 | Foxtail-millet | German | 129 | 22 | 0.8 | 0.07 | 3.4 | 0.19 | 5.0 | 1.5 | 29 | 2.3 | 8 | 0.7 | 60 | 1.5 | 108 | 5 |
| 9 | Corn | BMR grazing | 7 | 1 | 1.7 | 0.08 | 6.2 | 0.28 | 10.5 | 3.5 | 35 | 2.1 | 8 | 0.2 | 72 | 1.1 | 164 | 5 |
| 10 | Teff | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Legumes | | | | | | | | | | | | | | | | | | |
| 11 | Sunnhemp | - | 16 | 1 | 0.6 | 0.03 | 4.2 | 0.38 | 3.5 | 0.5 | 28 | 3.1 | - | - | - | - | - | - |
| 12 | Cowpea | Iron | 13 | 2 | 0.7 | 0.03 | 2.4 | 0.32 | 2.3 | 0.9 | 18 | 1.8 | - | - | - | - | - | - |
| Broadleaves | | | | | | | | | | | | | | | | | | |
| 13 | Buckwheat | Mancan | 27 | 4 | 0.8 | 0.04 | 4.0 | 0.28 | 3.3 | 0.8 | 24 | 0.8 | - | - | - | - | - | - |
| 14 | Sunflower | Black oil | 6 | 1 | 0.5 | 0.09 | 6.0 | 0.20 | 9.0 | 1.4 | 27 | 1.1 | - | - | - | - | - | - |
| 15 | African cabbage | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mixes | | | | | | | | | | | | | | | | | | |
| 16 | Simple mix | 4-species | 19 | 3 | - | - | - | - | 22.0 | 7.9 | 36 | 1.6 | - | - | - | - | - | - |
| 17 | Grazing mix | 5-species | 23 | 2 | - | - | - | - | 14.5 | 1.2 | 50 | 4.5 | 7 | 0.5 | 57 | 1.5 | 99 | 5 |
| 18 | Soil builder | 6-species | 11 | 1 | - | - | - | - | 15.8 | 0.9 | 38 | 2.0 | - | - | - | - | - | - |
| 19 | Pollinator | 5-species | 12 | 1 | - | - | - | - | 11.0 | 2.0 | 38 | 3.4 | - | - | - | - | - | - |
| 20 | High diversity | 12-species | 22 | 3 | - | - | - | - | 15.8 | 3.9 | 35 | 1.4 | - | - | - | - | - | - |

†H: Height; Std err: Standard error; C: Carbon; N: nitrogen; CP: Crude Protein; TDN: Total Digestible Nutrients; RFQ: Relative Forage Quality. The stand error value (n = 4) is for each corresponding parameter on the left column.

- ❖ Simple mix: sorghum-sudan (queen), sunnhemp, buckwheat, and sunflower
- ❖ Grazing mix: sudan-grass, pearl-millet, BMR corn, cowpea, and African cabbage
- ❖ Soil builder: sorghum-sudan (queen), forage sorghum (WS404), sunnhemp, cowpea, sunflower, and African cabbage
- ❖ Pollinator: forage sorghum (WS404), sunnhemp, cowpea, buckwheat, and sunflower
- ❖ High diversity: sorghum-sudan (queen), sudan-grass, forage sorghum (WS404), pearl millet, foxtail millet, BMR corn, teff, sunnhemp, cowpea, buckwheat, sunflower, and African cabbage
- ❖ Stand count was recorded three weeks after planting on July 11, 2022
- ❖ Heights were recorded only in sole cover crops
- ❖ H1: Cover crop height recorded at the time of stand count (i.e., three weeks after planting on July 11, 2022)
- ❖ H2: Cover crop height recorded seven weeks after planting on August 09, 2022
- ❖ Only 10 treatments focusing grass species were selected to assess forage potential of summer cover crops

Management details

Note: The pivot under which our plots were located does not have the capacity for variable rate irrigation. Thus, it received similarly high amounts of water as adjacent experiments with high-yielding corn. In addition, N applied through the pivot to the high-yielding corn was also applied to the cover crops.

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| Cooperator/site: | WCREEC/North Platte County |
| Soil type: | Cozad silt loam |
| Planting date: | June 20, 2022 |
| Seeding depth: | 1.5" |
| Soil moisture at planting: | Adequate at full profile |
| Implement/tools: | DCS research drill |
| Rows/plot: | 6 |
| Row spacing: | 10" |
| Plot length: | 30' |
| Alley width: | 3' |
| Tillage: | No-till |
| Previous crop: | Soybean |
| Pre-plant herbicide: | 32 oz Roundup and 3 oz Callisto (05/27/2022), and 12 oz Paraquat and 32 oz Roundup (06/21/2022) |
| Fertilizer at planting: | None |
| Irrigation: | 18" |
| Fertilizer N | 150 lbs. N per acre |
| Total precipitation during growing period: | 2.5" |
| Termination date: | September 19, 2022 |