



Roger's Memorial Farm, Lincoln

2022 Summer Cover Crop Variety Trial (Rainfed)

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 | 3 | 0 | 2.0 | 0.11 | 4.1 | 0.11 | 2.1 | 0.6 | 53 | 6.1 | 4 | 0.5 | 68 | 0.5 | 142 | 5 |
| 2 | Sorghum-sudan | WS902 | 4 | 1 | 1.8 | 0.10 | 2.7 | 0.18 | 1.0 | 0.2 | 32 | 3.2 | 9 | 0.9 | 71 | 1.5 | 193 | 11 |
| 3 | Sorghum-sudan | Sugar | 4 | 1 | 2.3 | 0.14 | 5.7 | 0.22 | 2.7 | 0.8 | 49 | 7.2 | 6 | 1.1 | 68 | 0.8 | 137 | 7 |
| 4 | Sudan-grass | Piper | 5 | 1 | 2.3 | 0.20 | 6.2 | 0.22 | 1.6 | 0.2 | 56 | 4.4 | 4 | 0.4 | 63 | 1.0 | 109 | 6 |
| 5 | Forage-sorghum | WS404 | 4 | 2 | 1.8 | 0.15 | 4.3 | 0.21 | 1.8 | 0.6 | 46 | 9.7 | 8 | 2.4 | 72 | 1.8 | 180 | 23 |
| 6 | Forage-sorghum | Viking | 4 | 1 | 1.9 | 0.06 | 4.3 | 0.17 | 1.6 | 0.4 | 47 | 6.0 | 5 | 1.1 | 71 | 1.5 | 184 | 16 |
| 7 | Pearl-millet | Tifleaf | 3 | 0 | 1.6 | 0.12 | 3.2 | 0.09 | 1.8 | 0.3 | 27 | 2.0 | 9 | 0.6 | 69 | 1.2 | 160 | 8 |
| 8 | Foxtail-millet | German | 1 | 0 | 1.8 | 0.09 | 1.9 | 0.24 | 0.5 | 0.4 | 27 | 4.0 | 11 | 1.4 | 70 | 2.3 | 145 | 16 |
| 9 | Corn | BMR grazing | 11 | 2 | 2.3 | 0.07 | 2.8 | 0.08 | 1.2 | 0.2 | 49 | 2.1 | 6 | 0.3 | 71 | 1.8 | 163 | 8 |
| 10 | Teff | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Legumes | | | | | | | | | | | | | | | | | | |
| 11 | Sunnhemp | - | 5 | 1 | 0.8 | 0.04 | 3.3 | 0.50 | 0.8 | 0.3 | 18 | 2.0 | - | - | - | - | - | - |
| 12 | Cowpea | Iron | 8 | 2 | 1.0 | 0.07 | 1.5 | 0.16 | 0.7 | 0.1 | 22 | 1.5 | - | - | - | - | - | - |
| Broadleaves | | | | | | | | | | | | | | | | | | |
| 13 | Buckwheat | Mancan | 27 | 1 | 0.8 | 0.05 | 1.5 | 0.15 | 0.5 | 0.1 | 24 | 1.4 | - | - | - | - | - | - |
| 14 | Sunflower | Black oil | 2 | 1 | 0.9 | 0.05 | 2.2 | 0.25 | 0.8 | 0.2 | 23 | 2.7 | - | - | - | - | - | - |
| 15 | African cabbage | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mixes | | | | | | | | | | | | | | | | | | |
| 16 | Simple mix | 4-species | 13 | 1 | - | - | - | - | 1.5 | 0.3 | 43 | 5.3 | - | - | - | - | - | - |
| 17 | Grazing mix | 5-species | 17 | 4 | - | - | - | - | 1.4 | 0.2 | 49 | 7.7 | 5 | 1.1 | 63 | 1.4 | 114 | 8 |
| 18 | Soil builder | 6-species | 15 | 2 | - | - | - | - | 1.5 | 0.2 | 43 | 5.4 | - | - | - | - | - | - |
| 19 | Pollinator | 5-species | 16 | 2 | - | - | - | - | 1.4 | 0.3 | 28 | 2.1 | - | - | - | - | - | - |
| 20 | High diversity | 12-species | 16 | 1 | - | - | - | - | 1.4 | 0.1 | 39 | 6.5 | - | - | - | - | - | - |

†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-grasses, 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 five weeks after planting on August 17, 2022
- ❖ Heights were recorded only in sole cover crops
- ❖ H1: Cover crop height recorded at the time of stand count (i.e., five weeks after planting on August 17, 2022)
- ❖ H2: Cover crop height recorded thirteen weeks after planting on October 11, 2022
- ❖ Only 10 treatments focusing grass species were selected to assess forage potential of summer cover crops

Management details

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| Cooperator/site: | RMF/Lancaster County |
| Soil type: | Silty clay loam |
| Planting date: | July 12, 2022 |
| Seeding depth: | 1.5" |
| Soil moisture at planting: | Fairly dry |
| Implement/tools: | DCS research drill |
| Rows/plot: | 6 |
| Row spacing: | 10" |
| Plot length: | 50' |
| Plot width: | 15' |
| Tillage: | No-till |
| Previous crop: | Wheat |
| Pre-plant herbicide: | None |
| Fertilizer at planting: | None |
| Irrigation: | None |
| Fertilizer N | None |
| Total precipitation during growing period: | 2.8" |
| Termination date: | October 11, 2022 |