

PROJECT TITLE: Statewide Durum Variety Performance – 2012 (4W4145)

PRINCIPAL INVESTIGATOR:

J. Eckhoff, Agronomist, EARC, Sidney, MT

Personnel:

S. Lanning, Department of Plant Sciences, Bozeman

D.M. Wichman, CARC, Moccasin, MT

P. Lamb, NARC, Havre, MT

K. Kephart, SARC, Huntley, MT

J. Miller, WTARC, Conrad, MT

S. Loomer, WREC, Williston, ND

OBJECTIVE: To evaluate new and existing varieties and experimental lines of durum under various growing conditions and environments in Montana.

RESULTS: The 2012 Statewide durum yield trial was grown at one irrigated and seven dryland sites. The irrigated site was at Sidney, and dryland sites were at Bozeman, Huntley, Havre, Moccasin, Conrad, Sidney, and Williston, ND. Replicated multiple-row plots were established at all locations using standard research techniques. Summaries of heading, height, test weight, protein content, seed weight, sawfly damage, and yield are in Tables 1-7. A summary of all characters across sites is shown in Table 8.

Earliest blooming line across sites was Kronos, latest blooming line was D7-12 (Table 1). Shortest line across sites was D1-35, tallest line was Tioga (Table 2). MT05158 had the greatest test weight across sites (Table 3). Mountrail had the highest protein content across sites (Table 4). Divide and Alkabo had the heaviest seed across sites (Table 5). Alkabo had the most sawfly damage. Westmore had the most solid stems (Table 6).

Highest yielding varieties at each site were Kronos at **Williston**, Kronos at **Sidney dryland**, Mountrail at **Sidney irrigated**, Strongfield at **Conrad**, D7-12 at **Moccasin**, Alzada at **Havre**, Alzada at **Huntley** and Grenora at **Bozeman** (Table 7). Highest yielding across dryland sites were Alkabo and Kronos (Table 7).

SUMMARY: Highest yielding varieties at each site were Kronos at **Williston**, Kronos at **Sidney dryland**, Mountrail at **Sidney irrigated**, Strongfield at **Conrad**, D7-12 at **Moccasin**, Alzada at **Havre**, Alzada at **Huntley** and Grenora at **Bozeman** (Table 7). Highest yielding across dryland sites were Alkabo and Kronos (Table 7).

FUNDING SUMMARY: Expenditure information to be provided by OSP. No other grants support this project.

MWBC FY2012 GRANT SUBMISSION PLANS: It is planned to submit this project for funding consideration in the next fiscal year.

Table 1. Heading (days from planting) of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney Dry | Sidney Irr | Conrad | Moccasin | Havre | Huntley | Bozeman | Average |
|--------------|-----------|---------------|---------------|--------|----------|--------|---------|---------|---------|
| Mountrail | 63.0 | 64.0 | 60.7 | 76.7 | 74.3 | 64.3 | 73.7 | 62.0 | 67.3 |
| Divide | 64.0 | 65.3 | 61.3 | 76.0 | 72.7 | 65.7 | 73.3 | 61.7 | 67.5 |
| Alkabo | 62.0 | 63.3 | 59.7 | 76.0 | 73.0 | 66.7 | 73.0 | 61.7 | 66.9 |
| Grenora | 61.7 | 63.0 | 60.3 | 75.3 | 72.7 | 67.3 | 73.3 | 61.7 | 66.9 |
| Tioga | 63.7 | 65.7 | 60.0 | 75.7 | 75.3 | 67.3 | 73.0 | 62.3 | 67.9 |
| Silver | 59.7 | 60.0 | 58.0 | 72.3 | 69.3 | 64.3 | 73.3 | 60.0 | 64.6 |
| Alzada | 59.0 | 60.7 | 57.7 | 72.7 | 70.0 | 64.7 | 73.0 | 60.0 | 64.7 |
| Kronos | 57.0 | 59.7 | 58.3 | 70.3 | 69.0 | 67.7 | 73.3 | 59.3 | 64.3 |
| Westmore | 56.0 | 59.3 | 57.3 | 72.0 | 69.3 | 69.3 | 74.0 | 59.3 | 64.6 |
| D6-419 | 61.0 | 63.7 | 58.3 | 75.3 | 71.3 | 70.0 | 73.0 | 61.3 | 66.7 |
| D7-12 | 65.0 | 67.7 | 60.3 | 77.3 | 72.7 | 68.0 | 76.0 | 64.0 | 68.9 |
| D1-35 | 61.3 | 62.3 | 60.0 | 73.7 | 71.7 | 65.7 | 73.7 | 61.7 | 66.3 |
| Strongfield | 64.3 | 65.0 | 60.7 | 76.0 | 73.0 | 69.7 | 73.3 | 61.7 | 68.0 |
| Westhope | 63.3 | 65.0 | 59.0 | 76.3 | 73.7 | 70.3 | 73.7 | 63.0 | 68.0 |
| Belfield | 57.0 | 59.7 | 57.3 | 70.3 | 69.0 | 69.7 | 73.3 | 59.3 | 64.5 |
| Normanno | 60.3 | 61.0 | 58.3 | 71.7 | 69.7 | 69.7 | 74.0 | 61.0 | 65.7 |
| MT06584 | 62.7 | 63.3 | 60.0 | 77.0 | 73.3 | 69.7 | 74.7 | 62.0 | 67.8 |
| MT05158 | 62.7 | 64.7 | 60.3 | 76.0 | 72.7 | 68.0 | 74.0 | 62.0 | 67.5 |
| MT05166 | 63.0 | 64.0 | 63.0 | 76.7 | 72.7 | 69.0 | 74.3 | 63.3 | 68.3 |
| MT05183 | 62.3 | 64.3 | 60.0 | 76.3 | 72.3 | 67.7 | 73.7 | 62.0 | 67.3 |
| DG Max | | 62.3 | 60.0 | | | | | | 61.2 |
| DG05884 | | 62.7 | 60.3 | | | | | | 61.5 |
| Average | 61.5 | 63.03 | 59.6 | 74.7 | 71.9 | 67.7 | | 61.5 | 65.7 |
| Probability | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | <0.001 | |
| CV (S/mean) | 1.1 | 1.479 | 1.5 | 0.8 | 0.6 | 0.6 | | 0.31 | |
| CV (SE/mean) | 0.6 | 0.8541 | 0.9 | 0.4 | | 0.4 | | | |
| LSD 5% | 1.1 | 1.536 | 1.5 | 1.0 | 1.8 | 1.9 | | 0.94 | |

Table 2. Height in inches of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney | | Conrad | Moccasin | Havre | Huntley | Bozeman | Average |
|--------------|-----------|--------|--------|--------|----------|--------|---------|---------|---------|
| | | Dry | Irr | | | | | | |
| Mountrail | 34.6 | 30.6 | 34.9 | 36.7 | 22.8 | 31.2 | 30.0 | 31.8 | 31.6 |
| Divide | 34.1 | 32.4 | 37.0 | 37.7 | 23.2 | 28.8 | 33.3 | 33.1 | 32.5 |
| Alkabo | 33.0 | 30.6 | 36.2 | 37.0 | 21.9 | 27.6 | 30.7 | 31.0 | 31.0 |
| Grenora | 30.7 | 29.3 | 34.1 | 33.0 | 22.2 | 27.0 | 28.1 | 30.4 | 29.4 |
| Tioga | 37.3 | 33.5 | 36.0 | 39.3 | 26.1 | 31.3 | 33.9 | 34.1 | 33.9 |
| Silver | 29.8 | 24.5 | 30.6 | 27.7 | 21.0 | 25.5 | 26.1 | 24.9 | 26.2 |
| Alzada | 30.0 | 28.2 | 31.8 | 28.0 | 22.3 | 26.5 | 26.9 | 26.2 | 27.5 |
| Kronos | 28.5 | 24.9 | 29.9 | 26.0 | 21.7 | 22.6 | 24.2 | 22.8 | 25.1 |
| Westmore | 27.5 | 25.9 | 29.0 | 24.7 | 21.4 | 24.5 | 24.1 | 23.5 | 25.1 |
| D6-419 | 31.0 | 28.0 | 31.8 | 29.0 | 20.9 | 26.9 | 26.2 | 27.6 | 27.7 |
| D7-12 | 28.1 | 26.4 | 28.6 | 26.7 | 21.3 | 23.3 | 25.7 | 25.9 | 25.7 |
| D1-35 | 27.5 | 24.4 | 27.8 | 23.7 | 21.4 | 23.5 | 24.2 | 24.0 | 24.6 |
| Strongfield | 34.4 | 31.1 | 34.1 | 39.3 | 22.3 | 30.6 | 31.6 | 30.5 | 31.7 |
| Westhope | 34.4 | 31.0 | 35.2 | 35.0 | 21.9 | 29.1 | 29.4 | 31.2 | 30.9 |
| Belfield | 28.5 | 26.8 | 30.1 | 26.3 | 22.2 | 25.9 | 24.5 | 24.9 | 26.1 |
| Normanno | 28.1 | 26.0 | 28.2 | 26.0 | 19.2 | 23.3 | 25.1 | 24.0 | 25.0 |
| MT06584 | 30.0 | 26.2 | 27.8 | 26.0 | 20.7 | 24.6 | 23.7 | 25.4 | 25.6 |
| MT05158 | 28.7 | 25.3 | 30.3 | 27.3 | 22.6 | 25.0 | 23.4 | 27.6 | 26.3 |
| MT05166 | 28.8 | 25.6 | 30.8 | 29.3 | 21.5 | 24.0 | 23.5 | 27.0 | 26.3 |
| MT05183 | 28.0 | 25.3 | 29.5 | 27.0 | 20.6 | 25.0 | 24.8 | 26.4 | 25.8 |
| DG Max | | 31.8 | 39.1 | | | | | | 35.4 |
| DG05884 | | 29.8 | 38.1 | | | | | | 33.9 |
| Average | 30.6 | 28.1 | 32.3 | 30.3 | 21.9 | 26.3 | 27.0 | 27.6 | 28.0 |
| Probability | <0.001 | <0.001 | <0.001 | <0.001 | 0.47 | <0.001 | | | |
| CV (S/mean) | 3.0 | 4.644 | 6.6 | 5.9 | 10.6 | 5.9 | 4.6 | | |
| CV (SE/mean) | 1.7 | 2.681 | 3.8 | 3.4 | | 3.4 | | | |
| LSD 5% | 1.5 | 2.1 | 3.5 | 3.0 | 3.9 | 2.6 | 2.0 | | |

Table 3. Test weight as lb/bu of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney | Sidney | Conrad | Moccasin | Havre | Huntley | Bozeman | Average |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | Dry | Irr | | | | | | |
| Mountrail | 55.5 | 57.2 | 59.0 | 60.0 | 55.5 | 54.2 | 55.6 | 60.2 | 57.1 |
| Divide | 56.5 | 58.8 | 59.8 | 61.0 | 58.5 | 56.6 | 57.9 | 61.4 | 58.8 |
| Alkabo | 57.0 | 59.0 | 58.0 | 61.5 | 58.5 | 57.7 | 58.3 | 62.2 | 59.0 |
| Grenora | 55.3 | 57.7 | 58.7 | 61.2 | 58.0 | 55.2 | 57.0 | 61.6 | 58.1 |
| Tioga | 55.5 | 58.8 | 59.5 | 62.0 | 58.5 | 55.7 | 57.7 | 62.2 | 58.7 |
| Silver | 54.9 | 57.7 | 57.5 | 60.8 | 55.5 | 57.2 | 57.7 | 62.1 | 57.9 |
| Alzada | 56.0 | 58.0 | 57.7 | 60.6 | 56.5 | 55.8 | 57.9 | 61.7 | 58.0 |
| Kronos | 55.5 | 58.2 | 56.8 | 58.8 | 56.5 | 57.1 | 57.8 | 60.9 | 57.7 |
| Westmore | 54.3 | 56.3 | 57.3 | 59.7 | 55.5 | 55.3 | 55.7 | 59.3 | 56.7 |
| D6-419 | 56.0 | 58.5 | 59.5 | 59.7 | 57.0 | 56.2 | 58.3 | 61.3 | 58.3 |
| D7-12 | 52.7 | 56.5 | 56.0 | 56.9 | 56.5 | 54.1 | 55.2 | 59.9 | 56.0 |
| D1-35 | 50.9 | 53.8 | 56.0 | 55.9 | 52.0 | 49.9 | 51.7 | 58.8 | 53.6 |
| Strongfield | 54.9 | 57.8 | 59.0 | 61.9 | 58.5 | 54.3 | 56.7 | 61.4 | 58.1 |
| Westhope | 58.0 | 59.5 | 59.7 | 60.6 | 59.5 | 57.2 | 58.1 | 62.0 | 59.3 |
| Belfield | 56.5 | 58.2 | 58.8 | 61.5 | 58.5 | 56.6 | 57.3 | 61.8 | 58.7 |
| Normanno | 55.2 | 57.8 | 57.2 | 59.2 | 58.0 | 56.5 | 57.4 | 60.4 | 57.7 |
| MT06584 | 54.3 | 57.0 | 57.0 | 60.0 | 57.5 | 53.3 | 56.8 | 60.8 | 57.1 |
| MT05158 | 58.5 | 60.8 | 61.3 | 63.5 | 61.0 | 58.4 | 58.5 | 62.3 | 60.6 |
| MT05166 | 55.7 | 59.2 | 58.7 | 60.7 | 59.5 | 56.7 | 57.8 | 61.9 | 58.8 |
| MT05183 | 54.5 | 58.2 | 58.0 | 61.4 | 58.5 | 55.5 | 58.4 | 61.6 | 58.3 |
| DG Max | | 59.8 | 60.2 | | | | | | 60.0 |
| DG05884 | | 60.5 | 60.7 | | | | | | 60.6 |
| Average | 55.4 | 58.15 | 58.5 | 60.4 | 57.5 | 55.7 | 57.1 | 61.2 | 58.0 |
| Probability | <0.001 | <0.001 | <0.001 | <0.001 | 0.00 | <0.001 | | | |
| CV (S/mean) | 1.0 | 1.222 | 1.6 | 1.1 | 1.3 | 1.7 | 1.3 | | |
| CV (SE/mean) | 0.7 | 0.7057 | 0.9 | 0.7 | | 1.0 | | | |
| LSD 5% | 1.2 | 1.2 | 1.5 | 1.1 | 1.6 | 1.6 | 1.2 | | |

Table 4. Grain protein as percent of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney Dry | Sidney Irr | Moccasin | Havre | Huntley | Bozeman | Average |
|--------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Mountrail | 16.17 | 14.87 | 14.07 | 18.15 | 18.61 | 17.44 | 15.00 | 16.33 |
| Divide | 15.64 | 14.67 | 14.33 | 17.50 | 17.50 | 15.83 | 13.88 | 15.62 |
| Alkabo | 16.57 | 14.58 | 13.52 | 18.15 | 17.28 | 16.06 | 13.48 | 15.66 |
| Grenora | 15.53 | 14.28 | 13.45 | 17.29 | 17.49 | 15.35 | 13.67 | 15.29 |
| Tioga | 17.82 | 14.17 | 14.00 | 17.79 | 18.42 | 16.31 | 13.59 | 16.01 |
| Silver | 16.33 | 14.41 | 14.25 | 18.05 | 16.64 | 15.89 | 13.85 | 15.63 |
| Alzada | 15.53 | 12.94 | 14.58 | 16.16 | 15.97 | 14.41 | 13.53 | 14.73 |
| Kronos* | 15.68 | 13.08 | 14.33 | 16.45 | 15.69 | 14.87 | 13.28 | 14.77 |
| Westmore* | 16.35 | 13.68 | 15.21 | 17.56 | 16.99 | 15.30 | 14.49 | 15.65 |
| D6-419 * | 16.28 | 13.19 | 13.86 | 17.21 | 16.72 | 15.46 | 13.79 | 15.22 |
| D7-12 * | 15.95 | 13.89 | 13.21 | 14.06 | 17.01 | 14.58 | 11.76 | 14.35 |
| D1-35* | 16.36 | 13.65 | 14.71 | 15.57 | 18.82 | 15.80 | 13.47 | 15.48 |
| Strongfield* | 17.91 | 13.90 | 15.20 | 16.48 | 19.73 | 16.14 | 14.84 | 16.31 |
| Westhope* | 16.37 | 14.62 | 14.53 | 15.99 | 19.23 | 16.62 | 13.67 | 15.86 |
| Belfield* | 15.74 | 13.40 | 14.37 | 15.11 | 16.80 | 15.41 | 13.47 | 14.90 |
| Normanno* | 16.38 | 13.16 | 14.04 | 14.15 | 16.66 | 14.85 | 13.18 | 14.63 |
| MT06584 | 16.56 | 14.16 | 15.01 | 14.18 | 18.94 | 16.14 | 13.59 | 15.51 |
| MT05158 | 15.75 | 13.54 | 13.44 | 14.18 | 17.60 | 15.33 | 13.59 | 14.78 |
| MT05166 | 16.54 | 13.49 | 13.71 | 14.92 | 18.15 | 15.81 | 13.28 | 15.13 |
| MT05183 | 16.94 | 14.03 | 13.44 | 14.76 | 18.25 | 15.14 | 13.56 | 15.16 |
| DG Max | | 12.90 | 14.24 | | | | | 13.57 |
| DG05884 | | 12.63 | 14.19 | | | | | 13.41 |
| Average | 16.32 | 13.78 | 14.17 | 16.19 | 17.62 | 15.64 | 13.65 | 15.34 |
| Probability | 0.123 | 0.306 | <0.001 | | | | | |
| CV (S/mean) | 4.4 | 7.4 | 2.5 | | | | | |
| CV (SE/mean) | 3.1 | 4.273 | 1.4 | | | | | |
| LSD 5% | 1.49 | 1.681 | 0.59 | | | | | |

Table 5. Weight of 100 seed in gm of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney | | Moccasin | Havre | Huntley | Bozeman | Moccasin |
|-------------|-----------|--------|------|----------|-------|---------|---------|-------------|
| | | Dry | Irr | | | | | |
| Mountrail | 3.31 | 3.42 | 3.70 | 2.39 | 2.30 | 3.65 | 3.91 | 3.24 |
| Divide | 3.40 | 3.62 | 4.08 | 3.72 | 2.68 | 3.42 | 4.17 | 3.58 |
| Alkabo | 3.21 | 3.66 | 4.10 | 3.30 | 2.89 | 3.88 | 4.02 | 3.58 |
| Grenora | 3.21 | 3.52 | 3.62 | 3.31 | 2.61 | 3.39 | 4.22 | 3.41 |
| Tioga | 3.06 | 3.90 | 3.91 | 3.55 | 2.68 | 3.15 | 4.30 | 3.51 |
| Silver | 2.81 | 3.33 | 3.40 | 2.87 | 2.59 | 3.12 | 4.12 | 3.18 |
| Alzada | 3.14 | 3.86 | 3.73 | 2.85 | 2.86 | 3.38 | 4.80 | 3.52 |
| Kronos | 3.08 | 3.79 | 3.96 | 2.90 | 3.34 | 3.23 | 4.62 | 3.56 |
| Westmore | 2.85 | 3.35 | 3.47 | 3.49 | 2.29 | 3.08 | 3.76 | 3.18 |
| D6-419 | 2.90 | 3.86 | 3.76 | 2.86 | 2.57 | 3.32 | 4.16 | 3.35 |
| D7-12 | 2.74 | 3.17 | 3.41 | 3.00 | 2.14 | 3.09 | 3.60 | 3.02 |
| D1-35 | 2.79 | 3.49 | 3.28 | 2.85 | 2.28 | 3.13 | 4.43 | 3.18 |
| Strongfield | 3.00 | 3.54 | 3.78 | 3.45 | 2.33 | 3.32 | 4.04 | 3.35 |
| Westhope | 3.15 | 3.64 | 3.89 | 3.40 | 2.82 | 3.29 | 4.24 | 3.49 |
| Belfield | 3.18 | 3.26 | 3.60 | 3.26 | 2.62 | 3.18 | 4.32 | 3.35 |
| Normanno | 3.25 | 3.59 | 3.99 | 3.34 | 2.82 | 3.56 | 4.30 | 3.55 |
| MT06584 | 2.73 | 3.56 | 3.32 | 3.13 | 2.06 | 3.20 | 4.41 | 3.20 |
| MT05158 | 3.08 | 3.51 | 3.64 | 3.32 | 2.56 | 3.33 | 3.96 | 3.34 |
| MT05166 | 3.00 | 3.14 | 3.37 | 3.06 | 2.44 | 3.08 | 4.05 | 3.16 |
| MT05183 | 3.17 | 3.43 | 3.73 | 3.16 | 2.38 | 3.17 | 4.39 | 3.35 |
| DG Max | | 3.45 | 3.98 | | | | | 3.71 |
| DG05884 | | 3.48 | 3.81 | | | | | 3.64 |
| Average | 3.05 | 3.52 | 3.70 | 3.16 | 2.56 | 3.30 | 4.19 | 3.36 |

Table 6. Sawfly damage (percent cut) and stem solidness of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Havre percent cutting | Bozeman stem solidness |
|--------------|-----------------------------|------------------------------|
| Mountrail | 13.3 | 7.9 |
| Divide | 6.7 | 7.9 |
| Alkabo | 16.7 | 6.7 |
| Grenora | 8.3 | 6.9 |
| Tioga | 6.7 | 6.3 |
| Silver | 4.0 | 10.2 |
| Alzada | 2.3 | 8.0 |
| Kronos | 2.3 | 10.7 |
| Westmore | 1.0 | 15.9 |
| D6-419 | 2.3 | 7.9 |
| D7-12 | 1.0 | 11.2 |
| D1-35 | 1.0 | 10.5 |
| Strongfield | 2.3 | 8.7 |
| Westhope | 8.3 | 8.1 |
| Belfield | 1.0 | 8.8 |
| Normanno | 1.0 | 9.8 |
| MT06584 | 1.0 | 12.5 |
| MT05158 | 1.0 | 11.5 |
| MT05166 | 1.0 | 10.9 |
| MT05183 | 2.3 | 7.8 |
| Average | 4.2 | 9.4 |
| Probability | <0.001 | <0.001 |
| CV (S/mean) | 52.5 | 21.4 |
| CV (SE/mean) | 30.3 | |
| LSD 5% | 3.6 | 3.3 |

Table 7. Yield in bu/ac of durum lines and varieties in the 2012 statewide durum yield trial.

| entry | Williston | Sidney | Sidney | Conrad | Moccasin | Havre | Huntley | Bozeman | Average |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | Dry | Irr | | | | | | |
| Mountrail | 39.8 | 34.2 | 82.6 | 77.3 | 21.4 | 27.9 | 36.3 | 48.6 | 46.0 |
| Divide | 37.7 | 33.3 | 73.2 | 72.8 | 20.1 | 28.0 | 40.3 | 49.4 | 44.3 |
| Alkabo | 38.2 | 37.4 | 78.2 | 80.8 | 22.0 | 29.7 | 39.1 | 50.3 | 47.0 |
| Grenora | 37.0 | 32.9 | 76.9 | 73.7 | 20.6 | 26.0 | 39.9 | 54.3 | 45.2 |
| Tioga | 35.5 | 36.2 | 70.4 | 73.0 | 22.2 | 30.1 | 39.8 | 51.2 | 44.8 |
| Silver | 37.2 | 31.9 | 66.6 | 71.3 | 19.1 | 28.3 | 40.3 | 47.2 | 42.7 |
| Alzada | 39.1 | 38.7 | 58.5 | 73.2 | 22.0 | 34.4 | 45.6 | 47.1 | 44.8 |
| Kronos | 41.2 | 44.7 | 67.3 | 76.1 | 20.6 | 32.9 | 44.9 | 48.5 | 47.0 |
| Westmore | 38.1 | 37.2 | 72.0 | 77.2 | 21.1 | 32.0 | 42.4 | 49.6 | 46.2 |
| D6-419 | 38.0 | 37.8 | 74.7 | 67.9 | 21.0 | 32.9 | 40.1 | 45.3 | 44.7 |
| D7-12 | 32.2 | 33.6 | 61.2 | 69.6 | 24.9 | 28.0 | 36.0 | 48.5 | 41.8 |
| D1-35 | 38.7 | 34.2 | 62.2 | 67.3 | 20.3 | 26.5 | 37.6 | 49.8 | 42.1 |
| Strongfield | 34.9 | 32.7 | 66.0 | 84.5 | 23.6 | 27.8 | 40.6 | 47.5 | 44.7 |
| Westhope | 37.4 | 36.9 | 75.7 | 61.3 | 21.4 | 26.4 | 35.9 | 46.9 | 42.7 |
| Belfield | 35.0 | 34.3 | 57.1 | 70.9 | 21.1 | 31.8 | 39.5 | 45.8 | 41.9 |
| Normanno | 37.5 | 36.0 | 69.1 | 68.7 | 21.5 | 32.4 | 45.0 | 48.9 | 44.9 |
| MT06584 | 36.6 | 36.0 | 57.9 | 74.5 | 22.7 | 32.3 | 37.0 | 50.4 | 43.4 |
| MT05158 | 38.8 | 34.4 | 76.1 | 74.7 | 23.4 | 30.4 | 36.2 | 49.1 | 45.4 |
| MT05166 | 36.4 | 34.4 | 75.2 | 77.8 | 24.0 | 28.3 | 33.6 | 47.8 | 44.7 |
| MT05183 | 35.5 | 36.2 | 73.4 | 80.6 | 23.0 | 31.6 | 40.6 | 41.0 | 45.2 |
| DG Max | | 39.0 | 77.3 | | | | | | 58.2 |
| DG05884 | | 36.6 | 77.5 | | | | | | 57.1 |
| Average | 37.2 | 35.9 | 70.4 | 73.7 | 21.81 | 29.9 | 39.5 | 48.4 | 44.6 |
| Probability | <0.001 | 0.040 | <0.001 | 0.143 | 0.72 | <0.001 | | 0.05 | |
| CV (S/mean) | 4.6 | 9.9 | 6.2 | 10.4 | 13.1 | 7.8 | 6.7 | 7.1 | |
| CV (SE/mean) | 2.7 | 5.7 | 3.6 | 6.0 | | 4.5 | | | |
| LSD 5% | 2.8 | 5.8 | 7.2 | 12.6 | 4.7 | 3.8 | 4.4 | 5.7 | |

Table 8. Across site summary of durum lines and varieties in the 2011 statewide durum yield trial.

| entry | Source ¹ | Heading* | Height, in | Test wt, lb/bu | Grain protein, % | 100-seed wt, gm | Yield, bu/ac, all sites | Yield, bu/ac, dryland sites |
|-----------------|---------------------|----------|------------|----------------|------------------|-----------------|-------------------------|-----------------------------|
| Mountrail | NDSU | 67.3 | 31.6 | 57.1 | 16.33 | 3.24 | 46.0 | 40.8 |
| Divide | NDSU | 67.5 | 32.5 | 58.8 | 15.62 | 3.58 | 44.3 | 40.2 |
| Alkabo | NDSU | 66.9 | 31.0 | 59.0 | 15.66 | 3.58 | 47.0 | 42.5 |
| Grenora | NDSU | 66.9 | 29.4 | 58.1 | 15.29 | 3.41 | 45.2 | 40.7 |
| Tioga | NDSU | 67.9 | 33.9 | 58.7 | 16.01 | 3.51 | 44.8 | 41.1 |
| Silver | MSU | 64.6 | 26.2 | 57.9 | 15.63 | 3.18 | 42.7 | 39.3 |
| Alzada | WB | 64.7 | 27.5 | 58.0 | 14.73 | 3.52 | 44.8 | 42.8 |
| Kronos | APB | 64.3 | 25.1 | 57.7 | 14.77 | 3.56 | 47.0 | 44.1 |
| Westmore | APB | 64.6 | 25.1 | 56.7 | 15.65 | 3.18 | 46.2 | 42.5 |
| D6-419 | APB | 66.7 | 27.7 | 58.3 | 15.22 | 3.35 | 44.7 | 40.4 |
| D7-12 | APB | 68.9 | 25.7 | 56.0 | 14.35 | 3.02 | 41.8 | 39.0 |
| D1-35 | APB | 66.3 | 24.6 | 53.6 | 15.48 | 3.18 | 42.1 | 39.2 |
| Strongfield | WB | 68.0 | 31.7 | 58.1 | 16.31 | 3.35 | 44.7 | 41.7 |
| Westhope | WB | 68.0 | 30.9 | 59.3 | 15.86 | 3.49 | 42.7 | 38.0 |
| Belfield | WB | 64.5 | 26.1 | 58.7 | 14.90 | 3.35 | 41.9 | 39.8 |
| Normanno | BA | 65.7 | 25.0 | 57.7 | 14.63 | 3.55 | 44.9 | 41.4 |
| MT06584 | MSU | 67.8 | 25.6 | 57.1 | 15.51 | 3.20 | 43.4 | 41.4 |
| MT05158 | MSU | 67.5 | 26.3 | 60.6 | 14.78 | 3.34 | 45.4 | 41.0 |
| MT05166 | MSU | 68.3 | 26.3 | 58.8 | 15.13 | 3.16 | 44.7 | 40.3 |
| MT05183 | MSU | 67.3 | 25.8 | 58.3 | 15.16 | 3.35 | 45.2 | 41.2 |
| overall average | | | 66.5 | 58.0 | 15.34 | | 3.36 | 40.9 |

*days from planting

¹/WB – WestBred, APB – Arizona Plant Breeders, BA – Barilla, DG – Dakota Growers