



# North Dakota Durum Wheat

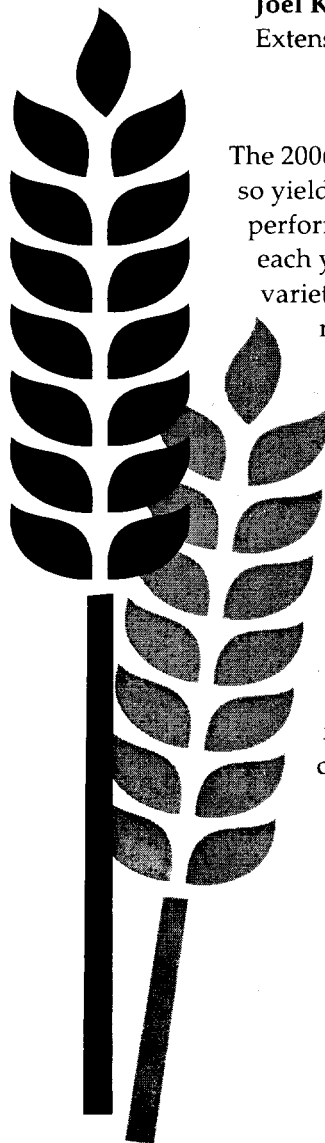
## Variety Trial Results for 2006 and Selection Guide

Compiled by

**Joel K. Ransom**  
Extension Agronomist

**Brian Sorenson**  
Extension Wheat Quality Specialist

**Elias Elias**  
Durum Breeder



The 2006 growing season was unusually dry, particularly in the latter half of the season, so yields this season were slightly below average for most locations where testing was performed. Disease pressure generally was low at all locations. Durum varieties are tested each year at multiple sites throughout North Dakota. The relative performance of these varieties is presented in table form. Variety performance data are used to provide variety recommendations to producers. Some varieties may not be included in the tables due to insufficient testing, lack of seed availability, or they offer no yield or disease advantage over similar varieties. Additional data from county sites are available in the "Crop Production Guide 2007" (No. 17) and from each Research Extension Center at [www.ag.ndsu.nodak.edu/aginfo/variety/hrrsw.htm](http://www.ag.ndsu.nodak.edu/aginfo/variety/hrrsw.htm). Descriptions of the most commonly grown varieties in the region are included for informational purposes. To decrease the potential of making errors when choosing a variety, producers should use data combined from multiple locations and years. For example, use data from the sites with high disease pressure in 2005 together with data from 2006 to select varieties that are high yielding and disease resistant.

Information contained in this publication is based on research conducted by the following North Dakota Agricultural Experiment Station scientists, plant breeders, cereal chemists and plant pathologists.

Frank Manthey – Cereal Science  
Timothy Friesen – USDA  
Jack Rasmussen – Plant Pathology  
Tika Adhikari – Plant Pathology  
Shaukat Ali – Plant Pathology  
Marcia McMullen – Plant Pathology  
Robert Stack – Plant Pathology

Blaine Schatz – Carrington  
Steve Zwinger – Carrington  
Pat Carr – Dickinson  
Eric Eriksmoen – Hettinger  
Bryan Hanson – Langdon  
Mark Halvorson – Minot  
Neil Riveland – Williston

5  
AA.3  
J9  
18  
NDSU  
N.D. Agricultural Experiment Station  
NDSU Extension Service

North Dakota State University, Fargo, North Dakota 58105

NOVEMBER 2006

0.1067

222

Durum wheat varieties currently grown in North Dakota are described in the following tables. Successful durum production depends on numerous factors, including selecting the right variety for a particular area. The information included in this publication is meant to aid in selecting that variety or group of varieties. Characteristics to evaluate in selecting a variety are yield potential in your area, test weight, straw strength and plant height, reaction to important diseases and maturity. Selecting varieties with good milling and pasta quality also is important to maintain market recognition.

Every growing season differs; therefore, when selecting a top-yielding variety, use data that summarize several years and locations. Choose the variety that, on average, performs the best at multiple locations near you, and if data is available, for several years.

Presentation of data for the entries tested does not imply approval or endorsement by the authors or agencies conducting the test. North Dakota State University approves the reproduction of any table in the publication only if no portion is deleted, appropriate footnotes are given and the order of the data is not rearranged.

### **List of Tables**

- Table 1. 2006 North Dakota durum wheat variety description, agronomic traits.
- Table 2. North Dakota durum wheat variety quality descriptions, milling and processing data, averaged for five years (2001-2005) from advanced yield trials.
- Table 3. North Dakota durum wheat variety quality descriptions, milling and processing data, for 2005 at all locations in the advanced yield trials.
- Table 4. Yield of durum varieties at three locations in eastern North Dakota, 2006.
- Table 5. Yield of durum varieties at four locations in western North Dakota, 2006.
- Table 6. Protein of durum varieties at five locations in North Dakota, 2006.
- Table 7. Test weight of durum varieties at seven locations in North Dakota, 2006.

**Table 1. 2006 North Dakota durum wheat variety descriptions, agronomic traits.**

| Variety       | Agent or Origin <sup>1</sup> | Year Released | Chaff Color | Height | Straw Strength | Maturity | Reaction to Disease <sup>2</sup> |           |                |      |
|---------------|------------------------------|---------------|-------------|--------|----------------|----------|----------------------------------|-----------|----------------|------|
|               |                              |               |             |        |                |          | Stem Rust                        | Leaf Rust | Foliar Disease | Scab |
| AC Avonlea    | Can.                         | 1997          | white       | med    | med.           | med.     | R                                | R         | M              | S    |
| AC Melita     | Can.                         | 1995          | white       | tall   | med.           | med.     | R                                | NA        | NA             | S    |
| AC Morse      | Can.                         | 1996          | white       | s.dwf. | strong         | med.     | R                                | R         | M              | NA   |
| AC Navigator  | Can.                         | 1999          | white       | s.dwf. | weak           | med.     | R                                | R         | M              | S    |
| AC Pathfinder | Can.                         | 1999          | white       | med.   | weak           | med.     | R                                | R         | M              | S    |
| Alkabo        | ND                           | 2005          | white       | med.   | v.strong       | med.     | R                                | R         | M              | MS   |
| Alzada        | WB                           | 2004          | White       | s.dwf  | strong         | early    | R                                | NA        | NA             | NA   |
| Belzer        | ND                           | 1997          | white       | tall   | med.           | late     | R                                | R         | M              | MR   |
| Ben           | ND                           | 1996          | white       | med.   | strong         | med.     | R                                | R         | MR             | S*   |
| Cando         | ND                           | 1975          | tan         | s.dwf. | v.strong.      | med.     | R                                | R         | M              | VS   |
| Dilse         | ND                           | 2002          | white       | med.   | strong         | late     | R                                | R         | M              | MS   |
| Divide        | ND                           | 2005          | white       | med.   | strong         | med.     | R                                | R         | M              | MR   |
| Dressler      | AgriPro                      | 1996          | white       | tall   | med.           | med.     | R                                | MR        | NA             | VS   |
| Fjord         | AgriPro                      | 1986          | white       | tall   | strong         | m.early  | R                                | R         | M              | S    |
| Grande D'Oro  | WB/DGP                       | 2005          | white       | med.   | m.strong       | med.     | R                                | R         | M              | NA   |
| Grenora       | ND                           | 2005          | white       | med.   | strong         | med.     | R                                | R         | M              | MS   |
| Kari          | AgriPro                      | 1998          | white       | med    | strong         | med      | R                                | R         | M              | S    |
| Kyle          | Can.                         | 1984          | white       | tall   | weak           | med.     | R                                | MR        | M              | NA   |
| Laker         | WB                           | 1985          | white       | s.dwf. | strong         | med.     | R                                | MR        | S              | S    |
| Lebsock       | ND                           | 1999          | white       | med    | strong         | med      | R                                | R         | M              | MS   |
| Lloyd         | ND                           | 1983          | white       | s.dwf. | v.strong       | med.     | R                                | MR        | S              | VS   |
| Maier         | ND                           | 1998          | white       | med    | strong         | m-late   | R                                | R         | M              | S*   |
| Medora        | Can.                         | 1983          | white       | tall   | strong         | m.early  | R                                | R         | MS             | VS   |
| Monroe        | ND                           | 1985          | white       | tall   | med.           | early    | R                                | R         | M              | VS   |
| Mountrail     | ND                           | 1998          | white       | med    | strong         | late     | R                                | R         | M              | S*   |
| Munich        | ND                           | 1995          | white       | med.   | v.strong       | med.     | R                                | R         | MR             | S*   |
| Pierce        | ND                           | 2001          | white       | med.   | m.strong       | med.     | R                                | R         | MS             | S    |
| Plaza         | ND                           | 1999          | white       | s.dwf. | v. strong      | late     | R                                | R         | M              | MS   |
| Plenty        | Can.                         | 1990          | white       | tall   | weak           | late     | R                                | R         | MR             | MS   |
| Primo D'Oro   | WB/DGP                       | 2004          | white       | tall   | med.           | m.early  | R                                | R         | MS             | NA   |
| Renville      | ND                           | 1988          | white       | tall   | med.           | med.     | R                                | R         | M              | S*   |
| Rugby         | ND                           | 1973          | tan         | tall   | strong         | m.early  | R                                | R         | MR             | S*   |
| Vic           | ND                           | 1979          | white       | tall   | med.           | m.early  | R                                | R         | MR             | S*   |
| Voss          | AgriPro                      | 1994          | white       | s.dwf. | v.strong       | med.     | R                                | MR        | MS             | S    |

1 Refers to agent or developer: WB = Westbred, ND = North Dakota, DGP = Dakota Growers Pasta.

2 R = resistant; MR = moderately resistant (slow rusters); M = intermediate; MS = moderately susceptible; S = susceptible; VS = very susceptible; Foliar Disease = reaction to tan spot and septoria leaf spot complex. Letter ratings for head blight (scab) based on visual head symptoms. \* Indicates yields and/or quality often have been higher than would be expected based on visual symptoms.

**Table 2. North Dakota durum wheat variety quality descriptions, milling and processing data, averaged for five years (2001-2005) from advanced yield trials.**

| Variety    | Test Weight | Wheat Protein    | Vitreous Kernels | Large Kernels | Falling Number | Mixograph Score  | Pasta Color       | Spaghetti Firmness | Overall Quality <sup>4</sup> |
|------------|-------------|------------------|------------------|---------------|----------------|------------------|-------------------|--------------------|------------------------------|
|            | lb/bu       | (%) <sup>1</sup> | %                | %             | sec            | 1-8 <sup>2</sup> | 1-12 <sup>3</sup> | g*cm               |                              |
| AC Avonlea | 59.5        | 15.3             | 92               | 56            | 461            | 6                | 9.0               | 6.8                | good                         |
| Alkabo     | 61.0        | 14.4             | 88               | 54            | 389            | 7                | 9.2               | 6.4                | good                         |
| Belzer     | 59.3        | 14.6             | 90               | 59            | 405            | 7                | 9.0               | 6.6                | good                         |
| Ben        | 61.0        | 14.7             | 92               | 62            | 394            | 7                | 8.8               | 6.4                | good                         |
| Dilse      | 60.5        | 15.4             | 92               | 50            | 383            | 7                | 9.0               | 7.3                | excellent                    |
| Divide     | 60.3        | 14.9             | 90               | 57            | 421            | 7                | 9.0               | 6.7                | excellent                    |
| Grenora    | 59.9        | 14.5             | 92               | 57            | 427            | 7                | 9.1               | 6.5                | good                         |
| Lebsock    | 61.5        | 14.2             | 90               | 56            | 401            | 6                | 8.9               | 6.2                | good                         |
| Maier      | 60.5        | 15.0             | 92               | 52            | 410            | 7                | 9.1               | 7.1                | excellent                    |
| Mountrail  | 60.2        | 14.3             | 90               | 47            | 406            | 5                | 8.7               | 6.1                | average                      |
| Munich     | 59.6        | 14.6             | 91               | 46            | 391            | 5                | 9.2               | 6.5                | good                         |
| Pierce     | 61.3        | 14.4             | 92               | 48            | 402            | 7                | 9.2               | 6.5                | excellent                    |
| Plaza      | 59.7        | 14.2             | 87               | 44            | 415            | 6                | 8.8               | 6.0                | average                      |
| Renville   | 60.2        | 14.7             | 92               | 46            | 391            | 6                | 9.1               | 6.8                | good                         |
| Rugby      | 60.4        | 14.7             | 91               | 50            | 374            | 3                | 8.8               | 5.1                | 5                            |
| Average    | 60.3        | 14.7             | 91               | 52            | 405            | 6                | 9.0               | 6.5                |                              |

For footnotes, see those below Table 3.

**Table 3. North Dakota durum wheat variety quality descriptions, milling and processing data, for 2005 at all locations in the advanced yield trials.**

| Variety      | Test Weight | Wheat Protein    | Vitreous Kernels | Large Kernels | Falling Number | Mixograph Score  | Pasta Color       | Spaghetti Firmness | Overall Quality <sup>4</sup> |
|--------------|-------------|------------------|------------------|---------------|----------------|------------------|-------------------|--------------------|------------------------------|
|              | lb/bu       | (%) <sup>1</sup> | %                | %             | sec            | 1-8 <sup>2</sup> | 1-12 <sup>3</sup> | g*cm               |                              |
| AC Avonlea   | 58.6        | 15.4             | 98               | 43            | 490            | 6                | 9.1               | 7.0                | good                         |
| AC Navigator | 58.5        | 14.9             | 97               | 37            | 473            | 7                | 9.0               | 7.1                | good                         |
| Alkabo       | 60.9        | 14.4             | 91               | 44            | 394            | 7                | 9.4               | 6.2                | good                         |
| Belzer       | 59.3        | 14.6             | 93               | 53            | 420            | 7                | 9.3               | 6.5                | good                         |
| Ben          | 60.3        | 15.0             | 96               | 48            | 408            | 7                | 8.9               | 6.5                | good                         |
| Dilse        | 60.2        | 15.3             | 96               | 38            | 404            | 7                | 9.1               | 7.2                | excellent                    |
| Divide       | 59.2        | 14.8             | 92               | 37            | 435            | 8                | 9.3               | 6.9                | excellent                    |
| Grande D'Oro | 60.3        | 14.6             | 92               | 34            | 402            | 6                | 8.9               | 6.4                | average                      |
| Grenora      | 59.2        | 14.5             | 95               | 47            | 456            | 7                | 9.4               | 6.4                | good                         |
| Lebsock      | 61.0        | 14.4             | 93               | 42            | 417            | 6                | 9.0               | 6.1                | good                         |
| Maier        | 59.9        | 15.1             | 96               | 40            | 429            | 7                | 9.1               | 7.0                | excellent                    |
| Mountrail    | 59.3        | 14.5             | 93               | 38            | 399            | 5                | 8.8               | 5.9                | average                      |
| Munich       | 58.1        | 15.1             | 97               | 33            | 392            | 6                | 9.1               | 6.5                | good                         |
| Pierce       | 60.6        | 14.3             | 94               | 29            | 401            | 7                | 9.3               | 6.6                | excellent                    |
| Plaza        | 57.9        | 14.3             | 90               | 23            | 440            | 6                | 8.8               | 6.0                | average                      |
| Primo D'Oro  | 60.6        | 14.8             | 94               | 37            | 394            | 6                | 9.3               | 6.6                | good                         |
| Renville     | 59.0        | 15.1             | 94               | 31            | 405            | 6                | 9.2               | 7.0                | good                         |
| Rugby        | 59.4        | 15.1             | 95               | 37            | 383            | 4                | 8.8               | 4.9                | 5                            |
| Average      | 59.6        | 14.8             | 94               | 38            | 419            | 6                | 9.1               | 6.5                |                              |

<sup>1</sup>Wheat protein is reported on a 12% moisture basis.

<sup>2</sup>Mixograph: 1=very weak and 8=very strong dough mixing properties, indicating strong gluten proteins.

<sup>3</sup>Spaghetti Color Score: Higher number indicates better color, with 8+ typically considered good.

<sup>4</sup>Overall Quality is determined based on agronomic, milling and spaghetti processing performance.

<sup>5</sup>Rugby is desired for certain pastas, such as bow-ties, but not for long goods (e.g., spaghetti).

Note: Varieties grown at fewer than five locations are not included in this table.

**Table 4. Yield of durum varieties at three locations in eastern North Dakota in 2006 with three-year averages.**

| Variety      | Prosper           |       | Carrington |       | Langdon |       | Average <sup>1</sup> |       |
|--------------|-------------------|-------|------------|-------|---------|-------|----------------------|-------|
|              | 2006              | 2 Yr. | 2006       | 3 Yr. | 2006    | 3 Yr. | 2006                 | 3 Yr. |
|              | ------(bu/A)----- |       |            |       |         |       |                      |       |
| AC Navigator | --                | --    | 49.9       | 42.7  | 65.5    | 57.5  | 57.7                 | 50.1  |
| Alkabo       | 101.9             | 72.9  | 44.3       | 51.9  | 68.6    | 72.1  | 56.5                 | 62.0  |
| Belzer       | --                | --    | 41.2       | 49.9  | 68.1    | 68.3  | 54.7                 | 59.1  |
| Ben          | --                | --    | 44.1       | 48.8  | 65.3    | 66.1  | 54.7                 | 57.5  |
| Dilse        | --                | --    | 43.0       | 49.0  | 65.1    | 66.8  | 54.1                 | 57.9  |
| Divide       | 96.5              | 77.7  | 44.6       | 54.6  | 63.9    | 70.1  | 54.3                 | 62.4  |
| Grande D'Oro | --                | --    | 44.9       | --    | 70.7    | 71.1  | 57.8                 | --    |
| Grenora      | 107.1             | 77.3  | 44.8       | 52.4  | 68.9    | 73.6  | 56.9                 | 63.0  |
| Lebsock      | 96.6              | 74.5  | 41.7       | 50.9  | 63.7    | 68.5  | 52.7                 | 59.7  |
| Maier        | 96.6              | 69.2  | 46.2       | 50.5  | 61.1    | 62.7  | 53.7                 | 56.6  |
| Mountrail    | 112.5             | 79.5  | 44.9       | 52.7  | 70.5    | 70.0  | 57.7                 | 61.4  |
| Pierce       | 104.6             | 79.3  | 41.0       | 50.4  | 56.8    | 65.1  | 48.9                 | 57.8  |
| Plaza        | --                | --    | 34.9       | 39.2  | 65.7    | 69.8  | 50.3                 | 54.5  |
| Primo D'Oro  | --                | --    | 43.0       | 49.1  | 58.0    | 61.1  | 50.5                 | 55.1  |
| Rugby        | --                | --    | 38.4       | 46.2  | 57.4    | --    | 47.9                 | --    |
| Strongfield  | --                | --    | 38.3       | --    | 63.9    | --    | 51.1                 | --    |
| Mean         | 102.3             | 75.8  | 42.0       | 49.2  | 65.6    | 67.5  | 53.8                 | 58.2  |

<sup>1</sup>Does not include data from Prosper.**Table 5. Yield of durum varieties at four locations in western North Dakota in 2006 with three-year averages.**

| Variety      | Minot             |       | Williston |       | Dickinson |       | Hettinger |       | Average |       |
|--------------|-------------------|-------|-----------|-------|-----------|-------|-----------|-------|---------|-------|
|              | 2006              | 3 Yr. | 2006      | 3 Yr. | 2006      | 3 Yr. | 2006      | 3 Yr. | 2006    | 3 Yr. |
|              | ------(bu/A)----- |       |           |       |           |       |           |       |         |       |
| AC Navigator | 70.0              | 74.1  | 26.4      | 37.6  | 54.9      | 42.6  | --        | --    | --      | --    |
| Alkabo       | 70.4              | 78.8  | 28.0      | 43.3  | 54.6      | 45.2  | 30.5      | 36.1  | 45.9    | 50.9  |
| Alzada       | 67.3              | --    | 29.3      | --    | 52.5      | 39.6  | 35.6      | --    | 46.2    | --    |
| Belzer       | 77.9              | 78.1  | 24.1      | 38.8  | 47.9      | 42.1  | 30.6      | 35.2  | 45.1    | 48.6  |
| Ben          | 70.8              | 76.4  | 26.7      | 40.0  | 47.2      | 41.2  | 34.9      | 37.1  | 44.9    | 48.7  |
| Dilse        | 70.5              | 78.5  | 23.9      | 39.2  | 48.3      | 43.7  | 30.9      | 33.5  | 43.4    | 48.7  |
| Divide       | 71.4              | 83.3  | 26.3      | 41.6  | 50.4      | 42.6  | 34.2      | 36.7  | 45.6    | 51.1  |
| Grand D'Oro  | 74.3              | --    | 24.8      | --    | 51.4      | --    | 36.8      | 37.5  | 46.8    | --    |
| Grenora      | 81.3              | 87.3  | 26.9      | 42.1  | 52.2      | 44.2  | 35.3      | 39.6  | 48.9    | 53.3  |
| Lebsock      | 67.2              | 75.2  | 26.2      | 40.7  | 50.1      | 42.5  | 33.4      | 37.2  | 44.2    | 48.9  |
| Maier        | 63.6              | 74.5  | 26.1      | 40.1  | 49.8      | 43.1  | --        | --    | --      | --    |
| Mountrail    | 72.9              | 77.5  | 27.8      | 40.7  | 53.2      | 44.6  | 34.5      | 38.8  | 47.1    | 50.4  |
| Pierce       | 71.3              | 81.3  | 26.5      | 39.3  | 49.1      | 43.2  | 32.2      | 35.7  | 44.8    | 49.9  |
| Plaza        | 65.2              | 78.3  | 22.5      | 39.1  | 45.3      | 40.2  | 32.0      | 34.4  | 41.3    | 48.0  |
| Primo D'Oro  | 70.7              | 75.1  | 25.3      | --    | 45.7      | 40.3  | 31.1      | 35.6  | 43.2    | --    |
| Rugby        | 63.5              | 69.6  | 24.7      | 38.2  | 46.5      | 39.1  | 31.1      | 31.1  | 41.5    | 44.5  |
| Strongfield  | 83.7              | --    | 24.0      | --    | 54.6      | --    | 30.2      | --    | 48.1    | --    |
| Mean         | 71.3              | 77.7  | 25.8      | 40.0  | 49.6      | 42.3  | 31.6      | 36.0  | 45.1    | 49.4  |

**Table 6. Protein of durum varieties at five locations in North Dakota, 2006.**

| Variety        | Carrington | Minot | Williston | Dickinson | Hettinger | Average |
|----------------|------------|-------|-----------|-----------|-----------|---------|
| ------(%)----- |            |       |           |           |           |         |
| AC Navigator   | 15.3       | 15.5  | 16.4      | 15.1      | --        | --      |
| Alkabo         | 15.7       | 15.1  | 15.9      | 14.9      | 16.9      | 15.7    |
| Alzada         | --         | 15.4  | 15.4      | 14.6      | 16.4      | --      |
| Belzer         | 15.9       | 15.0  | 17.2      | 15.4      | 17.1      | 16.1    |
| Ben            | 16.2       | 15.7  | 17.0      | 15.8      | 17.8      | 16.5    |
| Dilse          | 16.1       | 16.4  | 17.6      | 16.4      | 18.6      | 17.0    |
| Divide         | 16.8       | 14.8  | 16.5      | 15.8      | 17.2      | 16.2    |
| Grande D'Oro   | 15.9       | 15.0  | 16.6      | 14.9      | 17.0      | 15.9    |
| Grenora        | 15.5       | 15.1  | 15.8      | 15.5      | 16.9      | 15.8    |
| Lebsock        | 16.3       | 15.6  | 16.0      | 15.1      | 16.5      | 15.9    |
| Maier          | 15.5       | 16.4  | 16.9      | 16.3      | 18.4      | 16.7    |
| Mountrail      | 15.7       | 15.9  | 16.1      | 14.6      | 17.0      | 15.9    |
| Pierce         | 15.9       | 15.5  | 16.2      | 15.6      | 17.6      | 16.2    |
| Plaza          | 17.0       | 14.8  | 17.8      | 15.7      | 17.2      | 16.5    |
| Primo D'Oro    | 16.0       | 15.6  | 16.7      | 16.1      | 17.8      | 16.4    |
| Rugby          | 17.2       | 15.3  | 17.5      | 16.4      | 18.0      | 16.9    |
| Strongfield    | 16.6       | 15.7  | 17.1      | 16.0      | 19.4      | 17.0    |
| Mean           | 15.5       | 15.5  | 16.6      | 15.6      | 17.6      | 16.3    |

**Table 7. Test weight of durum varieties at seven locations in North Dakota, 2006.**

| Variety             | Prosper | Carrington | Langdon | Minot | Williston | Dickinson | Hettinger | Average <sup>1</sup> |
|---------------------|---------|------------|---------|-------|-----------|-----------|-----------|----------------------|
| ------(lbs/bu)----- |         |            |         |       |           |           |           |                      |
| AC Navigator        | --      | 59.8       | 60.4    | 59.8  | 58.7      | 59.5      | --        | --                   |
| Alkabo              | 61.8    | 59.9       | 61.5    | 59.8  | 58.1      | 57.5      | 58.2      | 59.2                 |
| Alzada              | --      | --         | --      | 61.2  | 57.5      | 57.0      | 57.6      | --                   |
| Belzer              | --      | 56.8       | 60.3    | 60.0  | 54.8      | 55.2      | 55.7      | 57.1                 |
| Ben                 | --      | 60.6       | 61.4    | 60.7  | 58.2      | 57.3      | 57.8      | 59.3                 |
| Dilse               | --      | 59.6       | 60.7    | 60.4  | 57.2      | 56.1      | 57.4      | 58.6                 |
| Divide              | 62.1    | 60.0       | 61.4    | 61.2  | 57.2      | 56.1      | 57.4      | 58.9                 |
| Grande D'Oro        | --      | 60.0       | 61.5    | 60.8  | 58.3      | 57.2      | 58.6      | 59.4                 |
| Grenora             | 61.2    | 58.0       | 60.2    | 59.6  | 56.7      | 55.7      | 57.7      | 58.0                 |
| Lebsock             | 62.1    | 61.0       | 61.9    | 60.6  | 58.8      | 57.6      | 58.7      | 59.8                 |
| Maier               | 62.6    | 59.5       | 60.8    | 60.4  | 57.5      | 56.9      | 53.6      | 58.1                 |
| Mountrail           | 62.1    | 57.6       | 60.7    | 60.2  | 56.8      | 55.7      | 57.6      | 58.1                 |
| Pierce              | 62.7    | 58.9       | 60.7    | 61.2  | 58.2      | 56.3      | 57.8      | 58.9                 |
| Plaza               | --      | 60.4       | 60.3    | 61.5  | 57.2      | 54.6      | 57.6      | 58.6                 |
| Primo D'Oro         | --      | 60.1       | 61.4    | 61.2  | 58.2      | 55.8      | 58.4      | 59.2                 |
| Rugby               | --      | 58.0       | 61.3    | 59.6  | 56.9      | 54.4      | 57.1      | 57.9                 |
| Strongfield         | --      | 57.6       | 60.3    | 60.8  | 56.8      | 54.4      | 57.2      | 57.9                 |
| Mean                | 62.1    | 56.0       | 61.2    | 60.5  | 57.4      | 56.8      | 57.4      | 58.6                 |

<sup>1</sup>Does not include data from Prosper.

**For more information on this and other topics, see: [www.ag.ndsu.edu](http://www.ag.ndsu.edu)**

This publication may be copied for noncommercial, educational purposes in its entirety with no changes.

Requests to use any portion of the document (including text, graphics or photos) should be sent to [permission@ndsuext.nodak.edu](mailto:permission@ndsuext.nodak.edu).

Include exactly what is requested for use and how it will be used.