

PROJECT TITLE: Evaluation of durum varieties and lines under no-till continuous cropping in central Montana.

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OBJECTIVES:

Evaluate the relative agronomic performance of durum varieties under no-till continuous cropping in central Montana.

METHODS:

Trial was seeded in continuous crop lentil stubble with a five row double disk drill designed for no-till applications with serrated offset disk openers. Row spacing is 11 inches (accommodates a 4 ft header). The target seed depth is ½ to 1 inch into the soil. Starter, “pop-up”, fertilizer is placed with the seed at a rate of NPKS: 10+10+10+05 lbs per acre. Top dress nitrogen, 45 lbs/a applied post seeding. Yield is determined from three replications, test weight from two reps, and protein content from one rep per nursery.

RESULTS:

2008 growing conditions were marginal for spring seeded cereals. Winter and early spring weather was dry with frequent cold windy days. Late April wind driven snow drifted in variable depth across the nursery area. Durum seedling emergence was not uniform within a plot or across the nursery. Mid-late May precipitation improved the stand and accelerated growth. June 10th hail beat some of the plants down, though did not cause stem breakage as the plants were just reaching jointing stage.

Grain yields were poor with an overall mean yield of 17.6 bu/a acre (Table 1). Normanno was the top yielder with 22.3 bu/a. Mean test weight was 58.6 and mean protein content was 13.3 %. Strongfield had the top three mean yield at 29.8 bu/a (Table 2).

SUMMARY:

Strongfield continued exhibit its potential to be one of the top producing durum varieties in central Montana ranking second high for varieties in the 2008 nursery and having the high three year mean yield at 29.8 bu/a. Durum yields were similar to the hard red spring wheat yields an adjacent nursery.

FUTURE PLANS:

These trials will be continued in 2009 provided funding is available.

**Table 1 2008 Durum lines and cultivar evaluations in no-till recrop.
Exp. 987008 Central Agricultural Research Center. Moccasin, Montana**

| Variety | Entry | Head Date | Plant Height | Grain Yield | Test Weight | Protein Content |
|-------------------|-------|---------------|---------------|---------------|---------------|-----------------|
| | # | d of y | cm | bu/a | lbs/bu | % |
| Mountrail | 1 | 185 | 57.3 | 11.7 | 56.8 | 14.5 |
| Divide | 2 | 185 | 61.7 | 12.6 | 58.7 | 14.2 |
| Pierce | 3 | 185 | 61.3 | 14.7 | 59.5 | 13.8 |
| Alkabo | 4 | 184 | 61.0 | 19.0 | 60.7 | 13.2 |
| Grenora | 5 | 184 | 54.7 | 14.9 | 59.9 | 13.0 |
| Alzada | 6 | 182 | 57.0 | 17.6 | 59.4 | 13.5 |
| Strongfield* | 7 | 185 | 62.7 | 20.9 | 58.6 | 14.0 |
| Lebsock | 8 | 185 | 56.3 | 12.1 | 59.9 | 13.9 |
| Dilse | 9 | 185 | 64.0 | 21.2 | 59.1 | 14.5 |
| Svevo* | 10 | 184 | 51.7 | 13.9 | 58.0 | 14.0 |
| Levante* | 11 | 182 | 51.3 | 16.6 | 57.8 | 13.3 |
| Normanno* | 12 | 182 | 53.3 | 22.3 | 58.1 | 13.0 |
| Saragolla* | 13 | 182 | 53.0 | 18.6 | 58.7 | 12.8 |
| Cimmyt#5 | 14 | 185 | 48.3 | 17.6 | 58.5 | 12.7 |
| Cimmyt#8 | 15 | 185 | 56.0 | 18.6 | 58.9 | 12.3 |
| Cimmyt#11 | 16 | 184 | 54.0 | 19.4 | 56.8 | 12.6 |
| MT02525 | 17 | 182 | 58.0 | 17.7 | 58.9 | 12.5 |
| MT02DH55 | 18 | 185 | 67.0 | 20.0 | 56.3 | 13.3 |
| MT03012 | 19 | 182 | 56.3 | 15.9 | 57.5 | 13.5 |
| MT01649 | 20 | 183 | 50.7 | 23.9 | 57.0 | 13.5 |
| MT02DH75 | 21 | 185 | 63.0 | 18.9 | 58.4 | 12.8 |
| MT02DH82 | 22 | 184 | 66.3 | 15.2 | 59.7 | 13.1 |
| MT04174 | 23 | 181 | 55.7 | 19.4 | 59.0 | 13.0 |
| MT01695 | 24 | 183 | 55.3 | 21.1 | 61.9 | 11.8 |
| Mean | | 183.7 | 57.33 | 17.65 | 58.64 | 13.3 |
| P-value | | 0 | 0.0004 | 0.4187 | 0.0005 | |
| CV1 | | 0.4721 | 8.548 | 31.07 | 1.535 | |
| LSD (0.05) | | 1.425 | 8.054 | 9.012 | 1.862 | |

Seeded: 18-April-2008 into continuous crop lentil stubble
Fertilizer: NPKS 10-10-10-5 with seed and top dress 45 lbs N
Weed Control: Bronate at 1.5 pints per acre in pre-joint
Comment: Above average precipitation in May and below average in June and July. Variable snow drifting on 22-April-08 contributed to variable emergence and plant available water.
Some hail damage was experienced on 10-June.

Any varieties heading after day 184 were recorded as heading on 185.

**Table 2 Spring durum three year grain yields under no-till recrop.
Central Agricultural Research Center. Moccasin, Montana**

| Line/cultivar | 2006 | 2007 | 2008 | Average |
|----------------------|-------------|--------------|--------------|----------------|
| | | | bu/a | |
| Alkabo | 37.0 | 29.0 | 19.0 | 28.3 |
| Alzada | 31.8 | 35.4 | 17.6 | 28.2 |
| Divide | 37.1 | 33.1 | 12.6 | 27.6 |
| Grenora | 39.0 | 30.1 | 14.9 | 28.0 |
| Levante* | | 28.9 | 16.6 | 22.8 |
| Mountrail | 31.5 | 29.8 | 11.7 | 24.3 |
| Normanno* | | 31.7 | 22.3 | 27.0 |
| Pierce | 33.5 | 26.5 | 14.7 | 24.9 |
| Strongfield* | 38.7 | 29.7 | 20.9 | 29.8 |
| MT01695 | 33.5 | 32.3 | 21.1 | 29.0 |
| MT02525 | 29.9 | 29.3 | 17.7 | 25.6 |
| MT02DH55 | 34.3 | 28.9 | 20.0 | 27.7 |
| MT02DH82 | 33.6 | 29.4 | 15.2 | 26.1 |
| MT03012 | 29.4 | 27.0 | 15.9 | 24.1 |
| MT04174 | | 29.4 | 19.4 | 24.4 |
| Mean | 33.1 | 29.44 | 17.65 | |