

## Organic Wheat Variety Evaluation with Alfalfa as an Under-story Crop, Comstock—Clay County

**Cooperator:** Lynn Brakke  
**Nearest Town:** Comstock  
**Soil Type:** Wheatville clay loam  
**Tillage:** Fall chiseled, spring cultivated  
**Previous Crop:** Soybean  
**Planting Date:** The entire plot area was under seeded with alfalfa on 4-28-05  
Wheat was seeded 4-28-05  
**Row Width:** 12 inches  
**Fertilizer:** 900 lbs/a of “Creekwood” 5-4-3 was applied fall 2004  
**Weed Control:** None  
**Herbicide:** None, field is certified organic  
**Harvest Date:** 7-29-05  
**Experimental Design:** Randomized complete block with 4 replications

### Purpose of Study:

To evaluate spring wheat varieties for yield, protein, test weight, plant height, population, wheat heads and leaf disease when grown under a certified organic production system.

### Results:

Walworth yielded significantly more than Banton, Hanna and Granite. Walworth was the top yielding variety at Fertile in 2002 and 2003, and at Comstock in 2004. In organic production protein premiums can be a major part of the income Alsen provided the highest protein percent but this was not significantly different from Dapps, Glenn, Freyr, Steel-ND and Granite. We observed significant differences in test weight, plant height, population, wheat heads per acre and disease on the flag leaf.



| Variety   | 2005 Yield <sup>1</sup> (bu/a) | Protein (%) | Test Weight (lb/bu) | Plant Height 7-26-05 (inches) | Plants Population <sup>2</sup> (million/a) | Wheat Heads (million/a) | % Flag Leaf Diseased <sup>3</sup> 7-7-05 |
|-----------|--------------------------------|-------------|---------------------|-------------------------------|--|-------------------------|--|
| Walworth  | 45.5                           | 11.9        | 57.8                | 34.8                          | 1.75                                       | 1.71                    | 60.0                                     |
| Ulen      | 44.6                           | 12.0        | 58.9                | 32.0                          | 1.69                                       | 1.58                    | 46.3                                     |
| Granger   | 44.5                           | 11.2        | 57.0                | 36.8                          | 1.67                                       | 1.51                    | 17.5                                     |
| Freyr     | 44.4                           | 12.5        | 55.0                | 33.3                          | 1.57                                       | 1.55                    | 12.5                                     |
| Oklee     | 43.2                           | 11.3        | 60.8                | 32.3                          | 1.73                                       | 1.60                    | 40.0                                     |
| Steele-ND | 43.2                           | 12.3        | 59.0                | 32.8                          | 1.76                                       | 1.89                    | 21.3                                     |
| Knudson   | 43.0                           | 12.1        | 54.9                | 29.5                          | 1.55                                       | 1.40                    | 8.8                                      |
| Alsen     | 43.0                           | 12.9        | 58.2                | 31.9                          | 1.66                                       | 1.70                    | 31.9                                     |
| Glenn     | 42.3                           | 12.6        | 61.1                | 34.5                          | 1.72                                       | 1.76                    | 31.3                                     |
| Dapps     | 41.3                           | 12.8        | 57.9                | 36.3                          | 1.63                                       | 1.68                    | 13.8                                     |
| Banton    | 39.4                           | 12.1        | 60.0                | 33.0                          | 1.74                                       | 1.64                    | 31.3                                     |
| Hanna     | 38.3                           | 11.6        | 56.4                | 34.3                          | 1.79                                       | 1.69                    | 23.8                                     |
| Granite   | 33.1                           | 12.3        | 54.7                | 31.0                          | 1.49                                       | 1.30                    | 10.0                                     |
| LSD 0.05  | 4.9                            | 0.6         | 1.0                 | 2.1                           | 0.15                                       | 0.27                    | 13.5                                     |

<sup>1</sup> Corrected to 13.5% moisture.

<sup>2</sup> Stand counts were taken on 6-2-05.

<sup>3</sup> Including leaf rust, septoria and tan spot.