

**2009 Crop
Micro Milling and Baking Evaluation
Set 2009 M07**

**2009 Northern Uniform Winter Wheat Scab Nursery
Herb Ohm, Purdue University
Entries # 910553 - 910612**

A total of 60 samples were grown by Purdue University in West Lafayette, IN. The standard quality data was compared to the “historical average” for the cultivar Freedom, and quality scores for all entries are adjusted to this average. Of the 831 cultivars in the SWQL database of Allis-milled cultivars, Freedom ranks 593rd for Milling Score based on data from 11 millings. The following table compares the checks, Truman, Freedom, and Ernie, with its “historical data” from the Micro Milling databases. We have coded in blue text the values for the check that are within two standard deviations of the mean of the previous observations in the micro database for that cultivar. Values in black are outside of the normal range observed for the check cultivar.

Pre-harvest sprouting was present within this nursery, especially within the samples Ernie and B0390207. A significant number of the samples had FHB infected kernels along with weathering. All samples were aspirated to remove FHB affected kernels. The lower than average test weights indicate weathering. There were two samples that were less than 80g, MD02W81-08-2 and RCUOGTR34, thus a test weight was unavailable. An increase in sucrose SRC value was present for the three checks. Due to the relatively large sucrose SRC, Truman, Freedom, and Ernie also had a lower than average baking quality score suggesting that for this nursery baking scores may be generally lower than expected. Samples ACF12004 and the five Nebraska entries, 910567 - 910571, have hard wheat profiles and should be evaluated as such for quality. The three checks ranked correctly against the database so the results for the breeding lines should be predictive of future performance. Therefore, we expect the results of the evaluations to be predictive of future performance of these breeding lines, if released as cultivars.

2009 NUWWSN

| ENTRY | MILLING | BAKING | SOFT. | TEST | ADJ. | SOFT. | FLOUR | LACTIC | SUCROSE |
|------------------------------|---------|---------|--------|-------|-------|--------|-------|--------|---------|
| | QUALITY | QUALITY | EQUIV. | WT. | YIELD | EQUIV. | PROT. | ACID | SRC |
| | SCORE | SCORE | SCORE | LB/BU | % | % | % | SRC | % |
| Nursery Average | 67.38 | 47.53 | 58.74 | 61.45 | 68.67 | 54.21 | 9.02 | 90.73 | 89.78 |
| Allis Database - Freedom | 61.43 | 54.53 | 64.83 | 60.20 | 76.90 | | 8.20 | 86.00 | |
| | | | | | | | | | |
| Truman | 64.53 | 55.03 | 64.69 | 60.72 | 68.10 | 56.29 | 8.51 | 86.75 | 89.09 |
| Truman - Average | 62.42 | 57.34 | 64.69 | 61.43 | 68.94 | 55.62 | 8.61 | 85.85 | 83.57 |
| Truman - Standard Deviation | 3.89 | 16.77 | 5.65 | 0.67 | 1.11 | 3.20 | 0.96 | 5.60 | 4.83 |
| | | | | | | | | | |
| Freedom | 61.43 | 54.53 | 64.83 | 59.23 | 67.48 | 56.34 | 8.52 | 80.35 | 89.32 |
| Freedom - Average | 61.81 | 64.39 | 61.41 | 59.74 | 69.13 | 53.82 | 8.61 | 78.69 | 81.29 |
| Freedom - Standard Deviation | 6.35 | 15.44 | 5.43 | 0.88 | 1.21 | 2.07 | 0.47 | 5.00 | 2.16 |
| | | | | | | | | | |
| Ernie | 66.05 | 51.07 | 56.71 | 60.50 | 68.40 | 53.50 | 8.37 | 80.59 | 89.11 |
| Ernie - Average | 55.77 | 65.16 | 68.14 | 60.25 | 68.25 | 54.86 | 8.86 | 88.34 | 84.74 |
| Ernie - Standard Deviation | 4.10 | 14.44 | 10.27 | 1.65 | 0.83 | 2.48 | 0.71 | 11.27 | 3.86 |

Conditional formatting set:

Blue = values less than two standard deviations from the mean of the database average

Black = values greater than two standard deviations from the mean of the database average

Comments from Ed Souza

The Northern Uniform Winter Wheat Scab Nursery was provided to the SWQL by the Purdue University Wheat Breeding Program. Thanks to Herb Ohm and his team for providing the material for this evaluation.

When taken as a whole, the check genotypes had flour yields that were less than normally expected. However, the milling yield was within the normal range for the checks based on previous evaluations. In most nurseries, the 67% flour extraction is a common cut-off level, with breeding lines have less flour yield being classed as poor milling wheat genotypes. Freedom milled poorer than average in this set. Even though it was within the expected range for the cultivar, it was at the extreme low end of its performance particularly relative to the other checks. Therefore, lines with flour yield less than Freedom likely are poor milling yield genotypes. After milling yield, the next most heritable trait we evaluate is softness equivalent. As noted above, the nursery included several true hard wheat lines. All of the other breeding lines in this nursery are likely truly soft wheat genotypes. However some are more coarse milling than necessary and selecting toward larger values for softness equivalent (particularly above 52%) will identify lines with better utility for a wider range of soft wheat products, particularly cakes.

Selecting sequentially genotypes in the nursery based on milling yield, softness equivalent, and sucrose SRC will identify lines with above average quality for a wide range of applications. Using those criteria, the best quality lines in the nursery were P053A1-6-7, NY03179FHB-10, NY03189FHB-10, NY03179FHB-12, NYW103-102-9103, IL04-7874, 03M1539#031, and VA07W-600. Most of the lines in the nursery were relatively weak gluten as measured by lactic acid SRC. Three exceptions were KY00C-2567-01, OH04-264-58 and VA07W-672. These were significantly stronger gluten than the check cultivars in this trial.

Please contact me if you have questions concerning this trial.

Best regards,
Edward Souza