

**2008 Crop  
Advance Milling and Baking Evaluation Nursery 2008A16**

**Illinois Variety Trial, University of Illinois, Urbana and Brownstown Locations.  
Cooperator: Emerson Nafziger and Darin Joos. Samples facilitated by Fred Kolb  
Entries # 821001 to # 821024**

A total of 64 samples were grown at Urbana IL and 60 at Brownstown IL. Only 41 of the cultivars were in common between the two locations. The standard data is compared to the “historical average” for the cultivar, and quality scores for all entries are adjusted to this average. The samples in this nursery were compared to entry Patterson. Of the 831 cultivars in the SWQL database of Allis-milled cultivars, Patterson ranks 208<sup>th</sup> for Milling Score based on data from 18 millings. The following table compares the Patterson standard with the “historical data” from the Advanced Milling databases at Urbana and Brownstown.

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 – Urbana	72.1	54.4	74.7	59.97	71.43	59.00	9.11	101.01	84.02
Nursery Average – Brownstown	52.9	54.2	61.6	61.45	70.45	55.39	8.88	112.48	89.81
Allis Database – Patterson	73.5	68.9	75.3	56.66	77.83		8.79		
Patterson – Urbana trial	73.50	68.85	75.27	58.76	71.40	59.57	8.51	106.63	87.54
Patterson – Brownstown trial	73.50	68.85	75.27	59.52	71.71	59.19	9.43	104.08	83.02
Patterson – Average Advanced Database	62.5	70.4	65.0	64.6	72.0	55.9	9.1	115.0	91.5
Patterson – Standard Deviation Adv. Database	1.2	3.1	0.9	2.3	1.0	3.0	0.4	7.9	5.6

Other check cultivars that were summarized included Pioneer 25R47 and Truman. The comparison of those cultivars to the Advance Database is given on the worksheets title Historical for each location. In comparing all the checks, test weights for both of these locations were lower than average and softness equivalents greater than normal. Both locations had some weathering and sprouting that likely contributed to the reduction in test weight of samples and the increase in softness equivalent. The inspection of the grain condition identified 0% to over 10% tombstoned kernels in the samples. Aspiration likely minimized the impact of the disease on end-use quality. However, Fusarium affected kernels still likely contributed to a reduction in the milling quality scores and test weight, particularly at Brownstown, which appeared to have a greater incidence of Fusarium affected kernels than did Urbana.

Additional information about these extension trials is posted at: <http://vt.cropsci.uiuc.edu/wheat.html>. Grain yield from this web-site has been included on the score sheets.

**Notes for 2008 Evaluations:** The AACC has recommended modifications to the sugar snap cookie method. The SWQL adopted the new method for the 2008 crop year. The results of cookie data should be more accurate and reproducible. The diameters of the cookies will be generally larger than with the old method. The rankings of the cultivars should be generally similar to the old method. However the increase in diameter will be relatively smaller in better quality cultivars than in poorer quality or for very strong gluten lines.

### **Evaluation of Cultivars and Breeding Lines**

Evaluation of means across locations can provide a more reliable estimate of the genetic potential of a cultivar's milling and baking quality. In this trial, the following comments are based on the two location averages for the 41 cultivar planted in two locations. Based on other evaluations, Patterson and Pioneer 25R47 are considered to be excellent milling wheat cultivars and Truman below average but still acceptable. In this trial the average flour yield for the three cultivars were: Patterson - 71.6%, Pioneer 25R47 - 72.0%, and Truman - 68.4%. None of the cultivars were significantly poorer than Truman for flour yield. Any of cultivars with greater than 72% flour extraction are likely to have excellent flour yield when milled commercially. Softness equivalent is our best predictor of break flour yield. Larger values for break flour yield or softness equivalent are often indicators of cultivars that produce good cake flour. Pioneer 25R47 has an excellent softness equivalent and break flour yield. Lines that have softness equivalents within 4 % points of Pioneer

25R47's value (64.7%), also likely are very soft milling wheats with excellent break flour yields. For this trial, we used all four of the SRC solvents. Selecting cultivars with low sodium carbonate SRC and sucrose SRC will identify lines that have good flour quality for most soft wheat quality products. Using these two traits in combination with the milling data, the best quality soft wheats in this trial for cookies or cakes are: EXCEL 209, Vigoro 9723, MWS 135, Lewis 830, FS 628, Pioneer 25R47, and Cooper. Cultivars that are used for cracker manufacture often require greater than average gluten strength as measured by lactic acid SRC. Cultivars with strong gluten, as measured by lactic acid that also had generally acceptable quality for other traits were: BECK 122, FS 628, IL00-8530, Lewis 830, MWS 135, Vigoro 9712, and Vigoro 9723. FS 628, Lewis 830, MWS 135, and Vigoro 9723 appeared in both of these lists. They may have adaptation to a broad range of soft wheat products. Given that cultivars appear under different brands several of these cultivars may be synonymous. Still, it appears you have a number of good quality cultivars for recommendation to growers, to millers, and for use in your future crossing programs.

Please contact me if you have questions concerning these evaluations.

Best regards,  
Edward Souza