

Final Harvest Summary of HRW October 24, 2014

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Weather and Harvest: Even though drought conditions have persisted over the last 4 years in much of the southern and central Great Plains, early growth of the 2014 HRW wheat crop (root and tiller development) was generally very good across all planting regions. Wheat producers in most areas reported adequate moisture at planting which prevailed through late fall and early winter. However, through the remainder of growing season, most areas of Kansas southward received well below average precipitation and remained in severe to exceptional drought conditions. In contrast, Nebraska through the upper Great Plains and across the Pacific Northwest entered the winter with very good soil moisture conditions throughout the soil profile which extended into the spring.

The wheat crop in parts of southern Kansas, Oklahoma and Texas suffered a hard freeze on April 15, 2014. This coupled with the ongoing drought did extensive damage to the crop. As the crop matured in Texas and Oklahoma during late May USDA condition ratings fell to from between 67% -75% of the crop in those 2 states being rated in the poor to very poor categories. Just 2 weeks later in early June harvest was brought to a standstill in these same areas by relentless rain storms. While the rain was too late to help the majority of the crop in Texas, Oklahoma and southern Kansas, it was beneficial to northern Kansas, western Nebraska and Northeastern Colorado.

In July, as the Pacific Northwest and the Montana crops were reaching heading through the final stages of maturity (and during the highest water demands by the plant), hot temperatures caused excessive stress and shortened the grain filling period. However, much like the Great Plains area, as combines started cutting the rain started to fall across much of the northern US slowing harvest. Large areas of Montana and North Dakota received over 10" (25.4 cm) of rain during the last half of August.

Wheat and Grade Data: The overall composite 2014 HRW crop official grade averaged 66% Grade #1 (Gulf tributary averaging 54% and PNW tributary averaging 84%) when considering all protein levels and weighting for and the production. The overall dockage level of 0.4% was below last year's average of 0.6% and the 5-year average of 0.5%. Total defects of 1.4% are significantly below last year's average of 2.0% and 5-year average of 1.6%. Foreign material, shrunken and broken, and wheat ash contents were also equal to or better than the 5-year average. Overall test weight averaged 60.7 lbs/bu (79.9 kg/hl) which is equal to the 5-year average of 60.8 lbs/bu (79.9 kg/hl) and significantly above the 2013 average of 59.9 lbs/bu (78.8 kg/hl). The overall average thousand kernel weight of 30.7 g is significantly above (almost 5 grams) the 2013 average of 26.0 g and the 5-year average of 29.0 g. Average kernel diameter of 2.62 mm was slightly larger than the 2013 average of 2.50 mm, but similar to the 5-year average of 2.59 mm. The average protein of 13.3% is similar to the 2013 average of 13.4% and is almost a full percentage point above the 5-year average of 12.4%. The kernel characteristics were generally smaller in the with higher protein southern region and larger with lower protein in the northern production region. Protein content splits varied across the testing region and by tributary with approximately 10% of samples being in the < 11.5% protein content category, 22% in the 11.5% – 12.5% category and 68% in the < 12.5% category. Average falling number for this crop was 385 sec., compared to a 2013 average of 421 sec., and comparable to the 5-year average of 410 sec. and indicative of sound wheat.

Flour and Baking Data: The Buhler flour yield overall averaged (73.9%), and is below the 2013 average of 76.1%, but above the 5-year average of 72.7%, the difference in the 5-year average is mostly attributable to the instillation of a new tandem Buhler Experimental mill used 2 years ago for testing. Flour ash contents are lower than 2013 and the 5-year average and within acceptable ranges. Protein loss during flour conversion averaged 0.7% (when wheat is converted to 14% mb), this was below the 5-year average of 1.1%. Gluten index values averaged 92.1% which was lower than the 5-year average of 95.4%. The W value of 266 (10^{-4} J) was comparable to 2013 and the 5-year average. Overall average water absorption (WA) was 60.3% which was higher than the 2013 absorption of 59.8% and is significantly higher than the 5-year average of 57.9%. Farinograph development time and stability were 6.2 min and 9.3 min. respectively, development time was

comparable to 2013, but higher than the 5-year average. Stability time was lower than the 5-year average of 12.6 min. Overall loaf volume averaged 859 cc, this was comparable to 2013 (860 cc), but significantly higher than the 5 year average of 816 cc. When evaluating gluten index, W value, water absorption, development time, stability and loaf volume, it would appear there is protein quantity and quality present in the 2014 HRW crop.

Summary: The 2014 HRW crop can be defined as unique, and like the 2013 crop has very good wheat protein that translates into high flour protein which has functionality. Water absorption is over well over 2 percentage points higher than the high protein crop of last year. Loaf volumes are very good and again significantly exceed long-term averages. Kernel characteristics are average overall with significantly lower shrunken and broken as compared to short and long-term averages. This crop meets or exceeds typical HRW contract specifications and provides high value to the customer.

Final 2014

Samples

Tst	Exp	MST	Pro %	DKG	TKW	FN	Grade	Test Weight	FM	DMG	S&B	DEF
525	530	11.7	13.3	0.4	30.7	385	1HRW	60.7 79.9	0.1	0.5	0.8	1.4

Final 2013

Samples

Tst	Exp	MST	Pro %	DKG	TKW	FN	Grade	Test Weight	FM	DMG	S&B	DEF
534	Final	10.9	13.4	0.6	26.0	421	2HRW	59.9 78.8	0.2	0.1	1.6	2.0

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