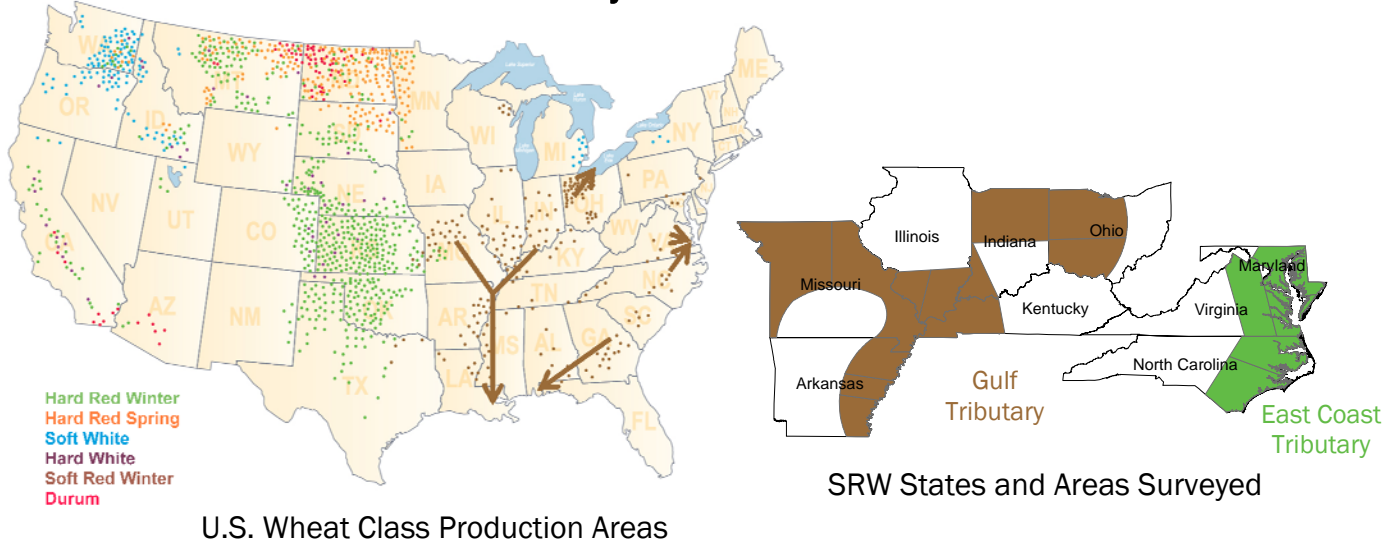




2012 Soft Red Winter Wheat Quality Survey



Survey Overview



Weather and Harvest: Soft red winter wheat (SRW) is grown over a wide area of the eastern United States. The area seeded to SRW in the fall of 2011 was about 8.3 million acres, down 3 percent from 2010. While there were large acreage increases in the Southeast, large decreases occurred in most states in the Corn Belt and Northeast, primarily due to a late row crop harvest. In Ohio, a record low area was planted due to wet soil conditions in fall 2011. Average yields per acre are also estimated to be about 3% lower than last year. Temperatures through the winter months were abnormally high. By May 1, 2012, winter wheat conditions in the major SRW growing states were predominately rated fair to excellent, with less than 10% rated as poor or very poor. Conditions in Ohio were slightly poorer, as planting was delayed by a late fall harvest and some wheat areas had excessive moisture in the winter months. Harvest began in mid-May in Arkansas, several weeks ahead of the normal pace. North Carolina experienced some rain delays in May and Ohio lagged somewhat behind other states in crop maturity. However, harvesting got underway and continued well ahead of the normal pace in all areas and was essentially complete in the major SRW states in early July, about two weeks earlier than normal.

Survey Methods: Sample collection and analysis were conducted by the Great Plains Analytical Laboratory (formerly CII Laboratory Services), Kansas City, Missouri. For 2012, 492 samples were collected from elevators in 18 reporting areas across nine states. Samples were collected at two different times reflecting early and late harvest. Test weight, moisture, protein, thousand kernel weight, wheat ash and falling number were determined on individual samples, while the remaining tests were determined on 36 composite samples. The results were weighted by five-year average production for the 18 reporting areas and combined into "Composite Average", "East Coast" and "Gulf" values. Gulf-tributary states include Arkansas, Illinois, Indiana, Kentucky, Missouri, and Ohio and account for about 81% of production in the states surveyed. East Coast-tributary states include Maryland, North Carolina and Virginia and represent the remaining 19% of production in the states surveyed. The states surveyed typically account for 60%-70% of total SRW production.

Wheat and Grade Data: The 2012 SRW crop averages US Grade #1. The overall average test weight of 60.2 lb/bu (79.2 kg/hl) is about 1.4 lb/bu (1.8 kg/hl) above 2011 and the five-year average and reflects the sound milling quality of the crop. The Gulf-tributary average test weight of 60.5 lb/bu (79.5 kg/hl) is 2.2 lb/bu (2.7 kg/hl) above the five-year average. The lower East Coast test weight of 59.2 lb/bu (77.9 kg/hl) results from lower values in North Carolina, where harvest was delayed by rain. The sound physical quality of the Gulf area

samples is also reflected in the averages for damaged kernels (0.8%) and total defects (1.4%), which are lower than the five-year averages of 1.2% and 2.0%, respectively. East Coast values for these two averages are similar to the five-year averages. Protein content of 9.9% (12% moisture basis) is lower than last year and the five-year average, mainly as a result of lower average values in the Gulf area. Averages of DON values in all states are less than 1.0 ppm and most are below 0.5 ppm, well below historical average values. The composite average falling number of 329 is similar to the five-year average. North Carolina is the only state with an average falling number less than 300.

Flour and Baking Data: Buhler laboratory mill flour extraction is well above the already high 2011 value and 3.8 percentage points higher than the five-year average, consistent with the higher test weight values and large kernel size and suggesting that the crop has very good milling characteristics. While farinograph absorption is above the five-year averages, average farinograph peak and stability times and alveograph W values are all slightly below last year and the five-year averages. Composite average loaf volume and cookie spread ratio values are also somewhat below last year and the five-year averages.

Summary: The 2012 SRW crop had generally very good growing conditions with unusually mild temperatures resulting in early crop maturity and an early harvest. The crop is very sound with high test weight values in most areas, large kernel size and good milling characteristics, and is relatively free of higher DON values. However, the crop has somewhat lower than the five-year average protein, dough processing and end product values. Buyers are encouraged to craft specifications carefully to be sure that they receive qualities that meet their needs either for traditional soft wheat products or blending with stronger wheat.

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Soft Red Winter 2012 Survey - All Samples

	Composite Average			East Coast*			Gulf Ports*		
	2012	2011	5-Year	2012	2011	5-Year	2012	2011	5-Year
Wheat Grade Data									
Test Weight (lb/bu)	60.2	58.8	58.7	59.2	59.6	59.8	60.5	58.7	58.5
Test Weight (kg/hl)	79.2	77.4	77.2	77.9	78.4	78.7	79.5	77.2	77.0
Damage - Total (%)	0.8	0.7	1.2	1.1	1.1	1.1	0.8	0.6	1.2
Foreign Material (%)	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
Shrunken and Broken (%)	0.5	0.4	0.6	0.5	0.4	0.5	0.5	0.5	0.6
Total Defects (%)	1.5	1.3	1.8	1.7	1.6	1.6	1.4	1.2	1.9
Grade	1	2	2	2	2	2	1	2	2
Wheat Non-Grade Data									
Dockage (%)	0.7	0.6	0.9	0.8	0.8	0.9	0.7	0.6	0.8
Moisture (%)	12.7	12.9	12.9	13.1	12.7	12.9	12.6	12.9	13.0
Protein (%) 12%/0% mb	9.9/11.2	10.2/11.6	10.1/11.5	10.2/11.6	10.3/11.7	10.4/11.8	9.8/11.1	10.2/11.6	10.1/11.5
Wheat Ash (%) 14%/0% mb	1.50/1.75	1.53/1.78	1.55/1.80	1.46/1.70	1.46/1.70	1.50/1.74	1.51/1.76	1.54/1.79	1.56/1.82
1000 Kernel Weight (g)	34.2	31.9	32.6	35.9	33.4	33.8	33.8	31.6	32.4
Wheat Falling Number (sec)	329	328	331	306	346	339	334	324	329
Kernel Size (%) lg/med/sm	85/14/01	82/17/01	82/17/01	86/13/01	83/16/01	83/16/01	85/14/01	82/17/01	82/17/01
Single Kernel Hardness	29.2	28.9	21.2	23.3	28.2	23.8	30.5	29.0	20.7
Single Kernel Weight (mg)	33.9	32.3	31.5	34.8	33.2	32.8	33.7	32.2	31.3
Single Kernel Diameter (mm)	2.66	2.64	2.33	2.68	2.64	2.37	2.65	2.64	2.32
Sedimentation (cc)	13.4	11.9	12.4	14.6	13.1	14.6	13.2	11.6	11.9
DON (ppm)	0.3	1.1	1.2	0.5	0.5	0.7	0.3	1.2	1.3
Flour Data									
Lab Mill Extraction (%)	73.4	71.4	69.6	73.3	71.2	69.0	73.5	71.4	69.8
Flour Color - *L	93.2	93.4	93.4	93.0	93.5	93.4	93.2	93.4	93.4
Flour Color - *a	-2.8	-3.1	-3.1	-2.8	-3.2	-3.1	-2.8	-3.1	-3.1
Flour Color - *b	8.3	8.1	8.3	8.3	8.4	8.2	8.3	8.1	8.3
Flour Protein (%) 14%/0% mb	8.4/9.8	8.6/10.0	8.5/9.9	8.8/10.2	8.6/10.0	8.7/10.1	8.3/9.7	8.7/10.1	8.5/9.8
Flour Ash (%) 14%/0% mb	0.46/0.54	0.44/0.51	0.44/0.51	0.46/0.54	0.43/0.50	0.43/0.50	0.46/0.54	0.44/0.51	0.44/0.52
Wet Gluten (%)	22.2	23.6	22.6	23.6	23.5	22.4	21.9	23.7	22.7
Gluten Index	73.5	79.6	76.9	74.8	79.5	81.1	73.1	79.7	76.0
Falling Number (sec)	342	339	336	315	346	338	348	337	336
Amylograph (65g) (BU)	603	614	641	425	687	618	644	598	645
Starch Damage (%)	4.9	4.3	4.4	5.0	4.3	4.5	4.8	4.3	4.3
Solvent Retention Capacity									
Water/50% Sucrose	58/111	54/103	55/108	60/109	54/105	55/111	58/109	54/100	54/106
5% Lactic Acid/5% Na ₂ CO ₃	112/84	113/78	112/81	115/85	113/80	114/82	111/84	110/78	110/80
Dough Properties									
Farinograph Peak (min)	1.6	1.9	1.7	1.8	2.2	1.9	1.5	1.8	1.6
Farinograph Stability (min)	2.7	3.0	2.9	2.7	2.7	3.0	2.7	3.0	2.9
Farinograph Absorption (%)	53.2	52.7	52.0	53.3	53.5	52.6	53.1	52.6	51.9
Alveograph P (mm)	41	36	39	39	37	43	41	36	38
Alveograph L (mm)	87	92	87	99	95	87	84	92	87
Alveograph W (10-4 joules)	86	85	89	89	83	98	85	86	88
Alveograph P/L	0.47	0.39	0.45	0.40	0.38	0.49	0.49	0.39	0.44
Baking Evaluation									
Crumb Grain	5.2	5.2	5.3	5.3	5.2	5.5	5.2	5.2	5.3
Crumb Texture	5.5	5.1	5.3	5.6	5.2	5.5	5.5	5.1	5.3
Loaf Volume (cc)	676	740	732	700	734	725	671	741	734
Cookie Spread Ratio	7.9	9.4	9.2	7.7	9.3	8.7	8.0	9.4	9.3
% Area Production	100.0%			18.8%			81.2%		

* East Coast - Maryland, Virginia, North Carolina; Gulf Ports - Arkansas, Illinois, Indiana, Kentucky, Missouri, Ohio

2012 State Summary

All Samples

	Arkansas	Missouri	Illinois	Indiana	Ohio	Kentucky	North Carolina	Virginia	Maryland
Wheat Grade Data - from Individual Samples									
Test Weight (Lab) (lb/bu)	60.2	60.5	61.3	60.8	59.9	60.1	58.0	60.5	59.6
Count	46	79	60	80	64	35	53	33	42
Wheat Grade Data - from Area Composite Samples									
Test Weight (lb/bu)	60.1	60.2	61.4	60.9	59.9	60.2	58.0	60.6	59.7
Test Weight (kg/hl)	79.0	79.2	80.8	80.1	78.8	79.1	76.3	79.7	78.5
Damage - Total (%)	0.8	0.9	0.4	0.7	1.0	1.0	1.3	0.6	1.2
Foreign Material (%)	0.3	0.2	0.1	0.2	0.3	0.0	0.3	0.0	0.1
Shrunken and Broken (%)	0.5	0.5	0.5	0.4	0.5	0.4	0.6	0.3	0.5
Total Defects (%)	1.6	1.6	0.9	1.2	1.8	1.4	2.2	1.0	1.8
Grade	1	1	1	1	2	1	2	1	2
Wheat Non-Grade Data - from Individual Samples									
Moisture (%)	12.6	12.7	12.5	13.1	12.6	13.5	13.8	13.0	13.1
Protein (%) 12%/0% mb	10.4/11.9	10.2/11.5	9.8/11.1	9.6/10.9	8.6/9.7	11.0/12.5	11.0/12.5	9.9/11.3	9.8/11.1
Ash (%) 14%/0% mb	1.52/1.77	1.54/1.79	1.52/1.77	1.51/1.76	1.47/1.71	1.53/1.78	1.45/1.69	1.48/1.72	1.48/1.73
1000 Kernel Weight (g)	31.5	33.1	34.4	36.0	33.1	37.2	34.4	37.4	36.3
Wheat Falling Number (sec)	344	332	334	320	337	327	284	312	325
DON (ppm)	0.1	0.4	0.5	0.2	0.2	0.3	0.2	0.8	0.7
Wheat Non-Grade Data - from Area Composite Samples									
Dockage (%)	1.1	0.7	0.6	0.6	0.7	0.5	1.0	0.9	0.5
Moisture (Lab) (%)	12.3	12.3	12.8	12.8	12.7	13.0	13.6	13.2	12.3
Protein (Lab) (%)	10.2	10.4	10.1	9.7	8.4	10.6	10.9	10.0	9.8
Kernel Size (%) lg/med/sm	79/20/01	84/15/01	86/13/01	87/12/01	85/14/01	90/10/00	85/14/01	89/10/01	85/14/01
Single Kernel Hardness	29.4	32.0	33.8	31.7	27.6	27.3	24.9	21.8	22.2
Single Kernel Weight (mg)	30.9	31.9	34.9	36.1	33.0	37.8	33.6	35.5	35.6
Single Kernel Diameter (mm)	2.59	2.62	2.68	2.70	2.62	2.76	2.65	2.70	2.70
Sedimentation (cc)	15.0	13.4	13.7	12.8	9.4	17.0	16.2	14.6	13.0
DON (ppm)	0.1	0.4	0.7	0.3	0.2	0.2	0.3	0.9	0.7
Flour Data									
Lab Mill Extraction (%)	70.9	73.5	74.9	73.1	74.2	72.8	72.4	74.1	73.7
Flour Color - *L	93.6	93.2	93.0	93.1	93.3	93.3	93.0	92.8	93.1
Flour Color - *a	-3.4	-2.7	-2.7	-2.7	-2.8	-2.6	-2.8	-2.8	-3.0
Flour Color - *b	8.6	8.4	8.4	8.2	8.3	7.7	8.5	8.2	7.9
Flour Protein (%) 14%/0% mb	8.8/10.2	8.7/10.1	8.6/9.9	8.3/9.6	7.1/8.3	9.2/10.6	9.2/10.7	8.8/10.2	8.3/9.7
Flour Ash (%) 14%/0% mb	0.44/0.51	0.48/0.56	0.47/0.55	0.47/0.55	0.44/0.52	0.46/0.54	0.44/0.51	0.45/0.52	0.49/0.57
Wet Gluten (%)	23.9	23.3	23.2	21.7	16.1	25.3	24.4	24.2	22.1
Gluten Index	79.9	67.8	64.5	73.6	80.3	76.7	74.9	71.0	72.3
Falling Number (sec)	335	357	354	350	344	345	280	352	329
Amylograph (65g) (BU)	690	701	615	533	649	625	297	487	539
Starch Damage (%)	4.2	4.4	4.8	5.5	5.2	5.3	4.6	5.1	5.5
Dough Properties									
Farinograph Peak (min)	2.0	1.6	1.3	1.3	1.2	1.9	1.8	1.7	1.8
Farinograph Stability (min)	3.5	2.6	2.8	2.6	1.9	3.0	2.7	2.5	3.0
Farinograph Absorption (%)	53.2	53.6	53.2	53.6	51.9	54.3	53.2	53.4	53.5
Alveograph P (mm)	42	42	41	45	38	44	40	38	38
Alveograph L (mm)	109	90	83	78	61	90	99	94	101
Alveograph W (10-4 joules)	109	89	81	89	62	94	94	83	84
Alveograph P/L	0.39	0.47	0.50	0.57	0.63	0.49	0.41	0.41	0.37
Baking Evaluation									
Crumb Grain	5.4	5.6	5.7	5.5	4.2	5.0	5.5	5.1	5.0
Crumb Texture	5.9	5.3	5.9	5.8	5.0	5.0	6.0	6.0	4.3
Loaf Volume (cc)	705	658	673	696	639	683	686	708	732
Cookie Spread Ratio	8.2	7.9	7.9	7.9	8.0	8.0	7.6	7.7	7.7

Soft Red Winter 2012 Survey - All Samples

	Arkansas			Missouri		Illinois		Indiana		Ohio		Kentucky	North Carolina		Virginia		Maryland	
	S	C	N	W	E	W	E	S	N	S	N		S	NE	W	E	W	E
Wheat Grade Data - from Individual Samples																		
Test Weight (Lab) (lb/bu)	59.6	60.7	60.1	60.4	60.6	61.1	61.6	61.0	60.6	58.7	60.3	60.1	57.7	59.2	60.3	60.5	58.9	59.9
Count	12	18	16	38	41	39	21	36	44	23	41	35	30	23	12	21	12	30
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	59.9	60.3	59.9	60.1	60.3	61.2	61.8	61.1	60.7	58.7	60.2	60.2	57.7	59.0	60.5	60.6	59.2	59.9
Test Weight (kg/hl)	78.7	79.3	78.8	79.1	79.3	80.5	81.2	80.3	79.8	77.2	79.2	79.1	76.0	77.6	79.5	79.7	77.9	78.8
Damage - Total (%)	1.0	1.0	0.4	1.3	0.7	0.4	0.4	1.0	0.4	1.0	1.0	1.0	1.4	1.0	0.4	0.7	1.0	1.3
Foreign Material (%)	0.2	0.5	0.2	0.0	0.3	0.0	0.2	0.2	0.2	0.2	0.3	0.0	0.3	0.4	0.2	0.0	0.3	0.0
Shrunken and Broken (%)	0.6	0.4	0.6	0.6	0.5	0.6	0.4	0.3	0.5	0.6	0.5	0.4	0.7	0.5	0.8	0.2	0.7	0.4
Total Defects (%)	1.8	1.9	1.1	1.9	1.5	0.9	0.9	1.5	1.0	1.8	1.8	1.4	2.3	1.8	1.3	0.9	2.0	1.7
Grade	2	1	2	1	1	1	1	1	1	2	1	1	3	2	1	1	2	2
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	13.1	12.3	12.4	12.9	12.5	12.4	12.7	13.6	12.5	12.5	12.6	13.5	13.8	14.1	13.0	12.9	13.6	12.8
Protein (%) 12% mb	11.0	10.3	10.2	10.1	10.2	9.8	9.7	10.0	9.1	8.6	8.6	11.0	11.2	10.3	10.1	9.9	9.9	9.7
Ash (%) 14% mb	1.54	1.52	1.50	1.55	1.52	1.55	1.49	1.51	1.51	1.44	1.48	1.53	1.46	1.43	1.54	1.45	1.53	1.47
1000 Kernel Weight (g)	32.2	31.6	30.8	32.6	33.5	33.8	35.2	37.5	34.5	32.7	33.2	37.2	33.9	36.4	36.5	37.7	35.5	36.7
Wheat Falling Number (sec)	341	347	344	332	332	332	336	317	322	329	339	327	275	313	331	306	315	330
DON (ppm)	0.1	0.0	0.0	0.4	0.4	0.5	0.4	0.3	0.2	0.7	0.0	0.3	0.2	0.4	0.7	0.8	0.7	0.7
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	1.7	0.8	1.0	0.8	0.7	0.6	0.6	0.6	0.6	1.2	0.5	0.5	1.2	0.6	0.5	1.0	0.7	0.5
Moisture (%)	12.9	12.0	12.3	12.5	12.2	12.9	12.5	13.3	12.4	12.9	12.7	13.0	13.6	13.5	13.2	13.2	12.7	12.2
Protein (%) 12% mb	11.3	9.7	9.9	10.2	10.5	10.1	10.0	9.9	9.5	8.3	8.4	10.6	11.2	9.7	10.2	9.9	10.4	9.6
Kernel Size Large (Over 7) (%)	83	75	80	82	86	85	87	90	86	86	86	89	84	86	88	89	82	86
Kernel Size Medium (Over 9) (%)	16	24	19	18	14	14	13	10	14	13	14	10	15	14	11	10	17	13
Kernel Size Small (Thru 9) (%)	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	2	1
Single Kernel Hardness	30.3	29.1	28.9	36.5	29.0	32.4	35.6	34.1	29.3	24.8	28.4	27.3	25.3	23.6	20.7	22.2	25.8	20.6
Single Kernel Weight (mg)	31.7	29.8	31.9	32.2	31.8	34.5	35.5	37.2	34.9	32.9	33.0	37.8	33.2	35.1	35.1	35.7	35.2	35.8
Single Kernel Diameter (mm)	2.64	2.55	2.60	2.64	2.60	2.67	2.70	2.73	2.67	2.64	2.62	2.76	2.64	2.69	2.69	2.71	2.70	2.71
Sedimentation (cc)	17	15	14	13	14	14	14	14	12	9	10	17	17	14	15	15	13	13
DON (ppm)	0.2	0.1	0.1	0.4	0.4	0.8	0.4	0.4	0.1	0.7	0.1	0.2	0.3	0.5	1.0	0.8	0.8	0.6
Flour Data																		
Lab Mill Extraction (%)	72.8	69.1	71.7	72.6	74.2	75.0	74.8	73.2	73.0	74.8	74.0	72.8	72.0	73.7	74.8	73.8	74.2	73.5
Flour Color - *L	93.3	93.8	93.6	93.0	93.4	92.9	93.2	93.1	93.2	93.3	93.3	93.3	92.9	93.4	92.8	92.9	92.9	93.3
Flour Color - *a	-3.3	-3.4	-3.4	-2.6	-2.7	-2.7	-2.7	-2.6	-2.9	-2.6	-2.9	-2.6	-2.8	-2.8	-2.9	-2.8	-2.9	-3.1
Flour Color - *b	8.4	8.6	8.9	8.6	8.3	8.5	8.3	8.1	8.3	8.2	8.3	7.7	8.6	8.4	8.4	8.2	7.7	8.0
Flour Protein (%) 14% mb	9.4	8.6	8.4	8.7	8.7	8.6	8.5	8.5	8.0	7.4	7.1	9.2	9.4	8.6	9.0	8.7	8.6	8.3
Flour Ash (%) 14% mb	0.46	0.44	0.41	0.47	0.50	0.49	0.46	0.46	0.48	0.44	0.45	0.46	0.43	0.48	0.43	0.46	0.52	0.48
Wet Gluten (%)	26.5	23.0	22.5	24.0	22.8	23.4	23.0	23.3	20.1	18.8	15.4	25.3	24.8	23.1	23.6	24.4	23.7	21.4
Gluten Index	88.4	77.3	74.9	74.3	63.5	55.2	77.4	71.0	76.4	67.4	84.0	76.7	72.0	85.2	87.2	64.9	63.1	76.4
Falling Number (sec)	343	329	335	347	364	352	358	336	365	342	345	345	270	318	367	347	318	335
Amylograph (65g) (BU)	660	730	660	650	735	640	580	440	630	610	660	625	260	430	545	465	455	575
Starch Damage (%)	4.6	4.0	4.2	4.8	4.2	4.8	4.9	5.6	5.4	4.8	5.3	5.3	4.6	4.6	5.4	5.0	6.0	5.3
Dough Properties																		
Farinograph Peak (min)	2.5	2.0	1.5	1.7	1.5	1.2	1.5	1.6	1.0	1.0	1.3	1.9	1.8	1.8	2.2	1.6	1.5	1.9
Farinograph Stability (min)	4.0	3.5	3.0	2.4	2.7	2.6	3.1	3.1	2.1	1.8	2.0	3.0	2.7	2.6	2.8	2.4	3.0	3.0
Farinograph Absorption (%)	54.4	52.5	53.0	54.3	53.2	53.2	53.3	54.2	53.0	51.7	52.0	54.3	53.3	52.9	53.0	53.6	53.6	53.5
Alveograph P (mm)	42	44	39	45	40	42	41	49	41	36	39	44	42	39	37	39	37	38
Alveograph L (mm)	118	104	107	90	90	83	84	70	86	62	61	90	108	88	103	92	105	99
Alveograph W (10-4 joules)	112	112	103	96	85	79	84	93	85	60	63	94	106	81	83	83	79	87
Alveograph P/L	0.36	0.42	0.37	0.50	0.44	0.50	0.49	0.69	0.47	0.58	0.64	0.49	0.39	0.44	0.36	0.43	0.35	0.38
Baking Evaluation																		
Crumb Grain	5.5	5.5	5.0	5.0	6.0	5.5	6.0	6.0	5.0	5.0	4.0	5.0	5.5	5.5	5.5	5.0	5.0	5.0
Crumb Texture	5.5	7.0	4.5	5.0	5.5	5.5	6.5	6.0	5.5	5.0	5.0	5.0	6.0	6.0	6.0	6.0	4.0	4.5
Loaf Volume (cc)	700	713	700	650	663	708	625	675	718	600	650	683	693	663	675	720	720	738
Cookie Spread Ratio	8.0	8.3	8.4	7.9	7.9	8.1	7.8	7.9	8.1	8.3	7.9	8.0	7.7	7.6	7.7	7.8	7.4	7.8

N-North, S-South, E-East, W-West, C-Central, NE-North East, NA-Not Available

Soft Red Winter 2012 Survey - Early Samples

	Arkansas			Missouri		Illinois		Indiana		Ohio		Kentucky	North Carolina		Virginia		Maryland	
	S	C	N	W	E	W	E	S	N	S	N		S	NE	W	E	W	E
Wheat Grade Data - from Individual Samples																		
Test Weight (Lab) (lb/bu)	59.1	60.9	59.8	60.7	60.4	61.0	61.9	60.9	60.8	58.8	60.3	60.1	58.2	59.3	60.9	61.2	59.5	60.8
Count	6	9	8	21	22	22	9	19	22	9	12	20	15	12	6	10	6	15
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	59.3	60.8	59.8	60.2	60.5	61.2	61.4	60.7	61.0	58.6	60.2	59.8	58.3	59.1	61.1	61.4	59.4	61.0
Test Weight (kg/hl)	78.0	80.0	78.7	79.2	79.6	80.5	80.7	79.8	80.2	77.1	79.2	78.7	76.7	77.8	80.4	80.7	78.2	80.2
Damage - Total (%)	2.0	1.3	0.0	1.3	0.7	0.0	0.0	0.7	0.0	0.7	1.3	2.0	0.0	0.7	0.0	0.7	1.3	1.3
Foreign Material (%)	0.0	0.3	0.3	0.0	0.3	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.3	0.0	0.3	0.0	0.3	0.0
Shrunken and Broken (%)	0.7	0.3	0.5	0.7	0.4	0.4	0.4	0.2	0.4	0.4	0.4	0.3	0.6	0.3	0.7	0.2	0.8	0.3
Total Defects (%)	2.7	1.9	0.8	2.0	1.4	0.4	0.7	1.2	0.4	1.1	2.0	2.3	0.9	1.0	1.0	0.9	2.4	1.6
Grade	2	1	2	1	1	1	1	1	1	2	1	2	2	2	1	1	2	1
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	14.2	12.7	12.9	13.0	12.8	12.5	12.8	13.9	12.8	12.8	12.5	13.8	14.1	14.1	13.0	13.2	13.9	13.0
Protein (%) 12% mb	10.9	10.4	10.1	10.0	10.1	9.8	9.9	9.9	9.2	8.4	8.7	10.9	11.3	10.3	10.0	10.1	9.8	9.5
Ash (%) 14% mb	1.47	1.48	1.42	1.57	1.51	1.57	1.48	1.48	1.48	1.38	1.47	1.48	1.44	1.47	1.57	1.41	1.51	1.45
1000 Kernel Weight (g)	32.5	32.0	29.9	32.8	34.0	33.8	34.4	38.2	34.4	32.6	33.0	37.2	34.1	36.0	36.3	37.9	37.1	36.7
Wheat Falling Number (sec)	333	348	338	335	327	334	339	328	312	321	347	325	289	317	341	313	328	327
DON (ppm)	0.1	0.1	0.0	0.4	0.4	0.5	0.6	0.3	0.2	0.4	0.1	0.2	0.1	0.3	0.7	0.4	0.3	0.6
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	2.8	0.8	1.0	1.1	0.9	0.4	0.7	0.6	0.5	0.7	0.5	0.4	2.0	0.8	0.5	1.5	0.7	0.6
Moisture (%)	14.3	12.4	12.4	12.9	12.5	12.9	13.1	14.0	12.5	13.2	12.8	12.9	14.2	13.5	13.4	13.3	13.5	12.6
Protein (%) 12% mb	11.6	10.3	9.7	10.2	10.5	10.2	10.0	9.7	10.1	8.1	8.5	10.5	11.6	9.9	10.2	9.9	10.5	9.6
Kernel Size Large (Over 7) (%)	84	83	78	81	88	85	86	90	87	86	85	89	81	86	88	89	87	86
Kernel Size Medium (Over 9) (%)	15	16	21	18	11	14	13	10	13	13	14	10	17	14	11	10	12	13
Kernel Size Small (Thru 9) (%)	1	0	1	1	1	1	1	0	1	1	1	1	2	1	1	1	1	1
Single Kernel Hardness	33.8	32.0	27.8	39.6	29.0	34.9	38.4	33.1	30.4	25.2	29.6	24.1	28.1	25.8	24.1	28.8	26.2	24.6
Single Kernel Weight (mg)	31.5	30.8	31.7	31.7	31.0	35.0	35.1	35.6	35.3	33.8	31.8	39.3	33.5	35.5	36.3	35.9	38.0	36.2
Single Kernel Diameter (mm)	2.63	2.58	2.59	2.64	2.59	2.66	2.70	2.71	2.70	2.67	2.57	2.80	2.64	2.71	2.70	2.72	2.80	2.74
Sedimentation (cc)	17	16	13	14	14	13	14	14	13	9	10	18	18	14	16	16	13	13
DON (ppm)	0.2	0.1	0.1	0.5	0.4	1.0	0.4	0.5	0.1	0.6	0.1	0.2	0.4	0.4	0.5	0.5	0.6	0.4
Flour Data																		
Lab Mill Extraction (%)	74.1	70.2	69.6	73.1	74.0	75.0	74.6	73.2	73.2	74.9	73.5	72.1	72.0	73.4	75.0	73.6	74.9	73.2
Flour Color - *L	93.1	93.6	93.9	92.9	93.3	92.7	93.4	93.3	93.2	93.1	93.1	93.4	92.7	93.2	92.9	92.9	92.8	93.4
Flour Color - *a	-3.3	-3.4	-3.4	-2.6	-2.7	-2.7	-2.8	-2.6	-3.0	-2.5	-2.9	-2.6	-2.7	-2.9	-2.9	-2.8	-2.9	-3.1
Flour Color - *b	8.3	8.4	8.7	8.8	8.1	8.5	8.2	7.8	7.9	8.2	8.3	7.4	8.9	8.5	7.9	8.4	7.7	8.0
Flour Protein (%) 14% mb	9.5	8.7	7.8	8.7	8.4	8.6	8.5	8.5	8.3	7.5	7.2	9.0	9.7	8.7	8.9	8.8	8.3	8.1
Flour Ash (%) 14% mb	0.47	0.47	0.39	0.50	0.52	0.49	0.45	0.43	0.54	0.41	0.47	0.48	0.46	0.50	0.48	0.46	0.58	0.46
Wet Gluten (%)	29.3	22.8	21.6	23.4	22.2	23.1	22.2	22.9	19.7	20.6	15.8	24.5	24.9	24.0	23.6	24.9	23.2	22.2
Gluten Index	98.4	82.6	73.2	90.9	66.3	45.9	68.5	82.8	80.2	62.2	69.8	76.5	58.6	80.6	85.0	67.5	82.4	82.8
Falling Number (sec)	342	338	338	339	342	357	344	324	360	338	348	329	254	309	368	335	319	351
Amylograph (65g) (BU)	610	710	690	560	700	650	580	480	600	590	630	590	270	410	570	490	520	630
Starch Damage (%)	4.9	4.2	3.8	4.9	3.8	4.9	4.9	4.9	5.8	4.9	5.7	5.7	4.6	4.2	4.6	5.8	5.7	4.9
Dough Properties																		
Farinograph Peak (min)	2.5	2.0	1.5	1.7	1.5	1.4	1.4	1.5	1.0	1.0	1.3	2.0	1.8	1.8	2.1	1.5	1.5	1.8
Farinograph Stability (min)	3.0	3.5	3.0	2.6	2.5	2.6	3.4	3.1	2.5	2.2	2.1	3.5	2.9	2.5	2.9	2.2	3.5	3.0
Farinograph Absorption (%)	55.7	52.3	52.7	54.0	52.6	53.5	53.0	53.8	54.1	51.7	52.0	54.3	54.1	52.9	53.3	54.2	53.4	53.3
Alveograph P (mm)	42	46	40	41	43	39	41	47	45	35	42	42	47	41	40	41	40	40
Alveograph L (mm)	121	100	113	91	80	87	95	69	87	61	52	97	112	97	103	96	97	99
Alveograph W (10-4 joules)	109	115	113	84	87	76	90	91	95	57	62	92	124	91	88	90	85	91
Alveograph P/L	0.35	0.46	0.35	0.45	0.54	0.45	0.43	0.68	0.52	0.57	0.81	0.43	0.42	0.42	0.39	0.43	0.41	0.40
Baking Evaluation																		
Crumb Grain	5	6	5	5	6	5	6	6	5	5	4	5	6	6	6	5	5	5
Crumb Texture	5	8	4	5	5	5	7	6	5	5	5	5	6	7	7	6	4	5
Loaf Volume (cc)	700	725	700	650	700	700	625	725	700	600	650	650	750	700	725	715	725	750
Cookie Spread Ratio	7.6	8.0	8.2	8.4	8.0	8.5	8.2	8.5	8.1	8.5	8.0	8.3	7.7	7.7	7.0	8.2	7.5	7.7

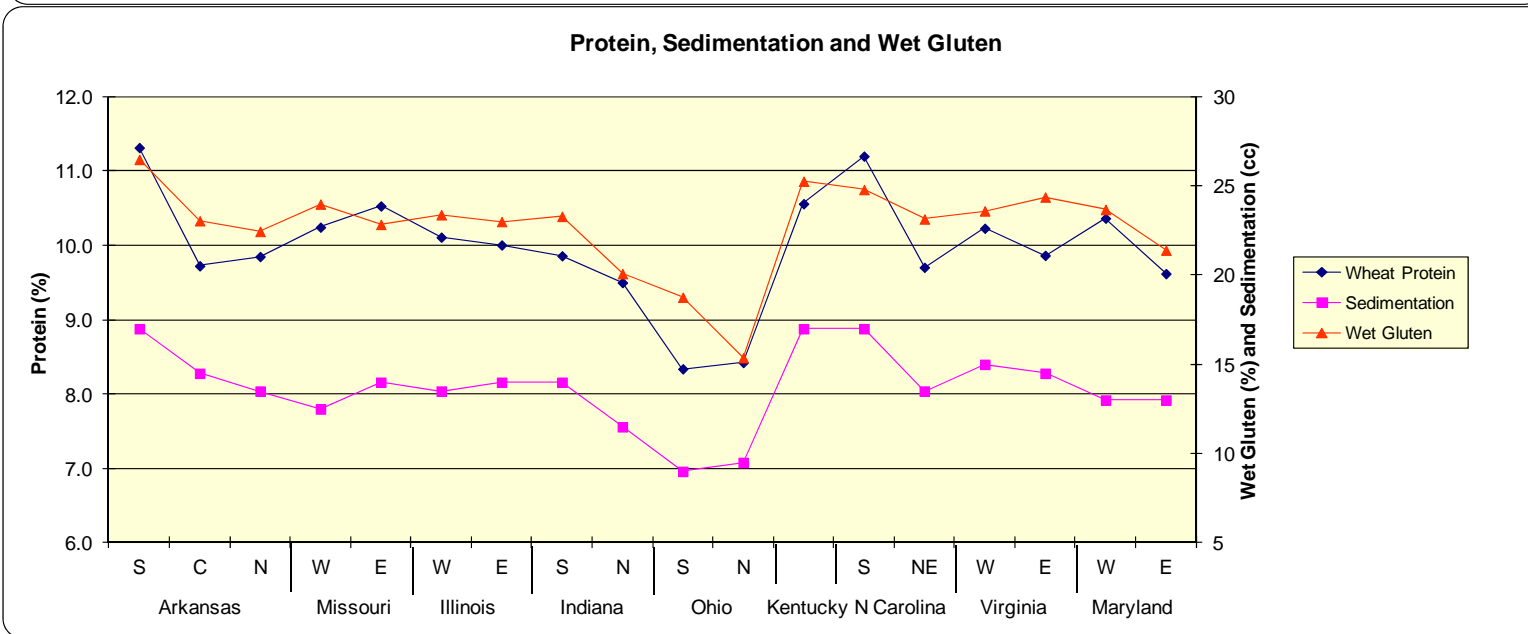
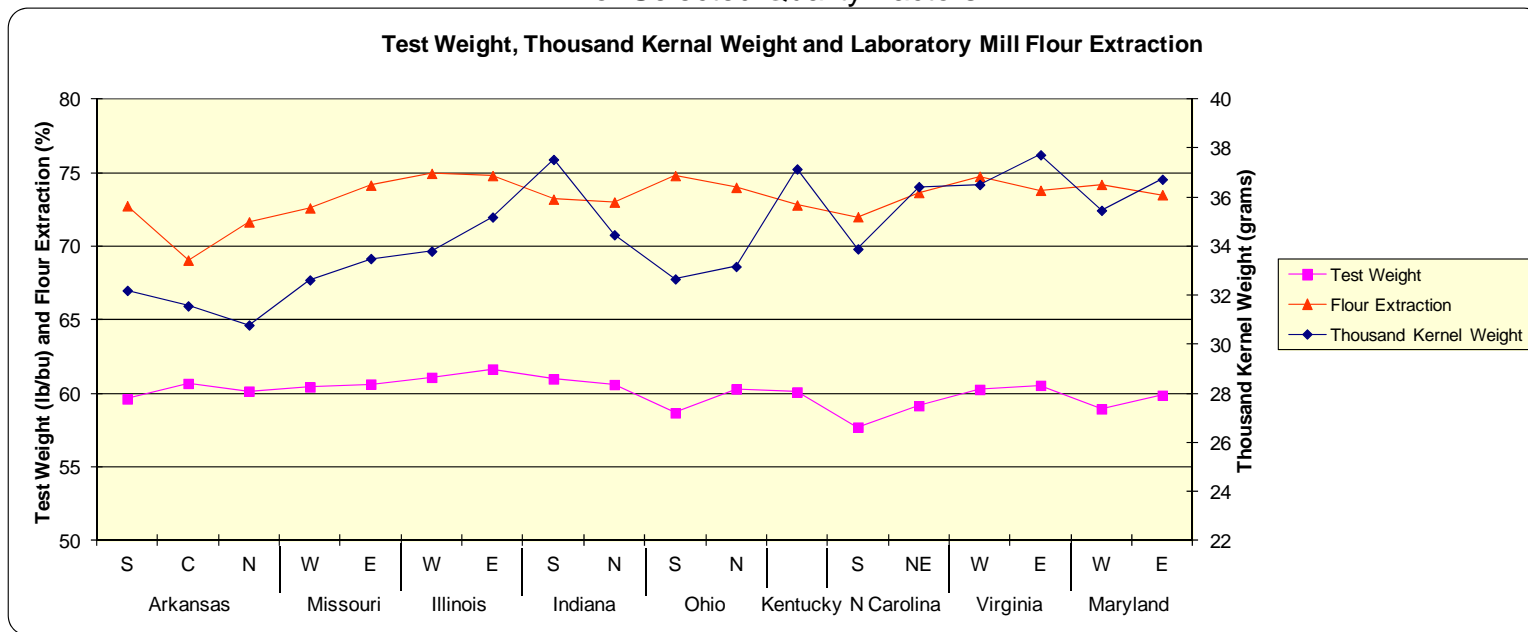
N-North, S-South, E-East, W-West, C-Central, NE-North East, NA-Not Available

Soft Red Winter 2012 Survey - Late Samples

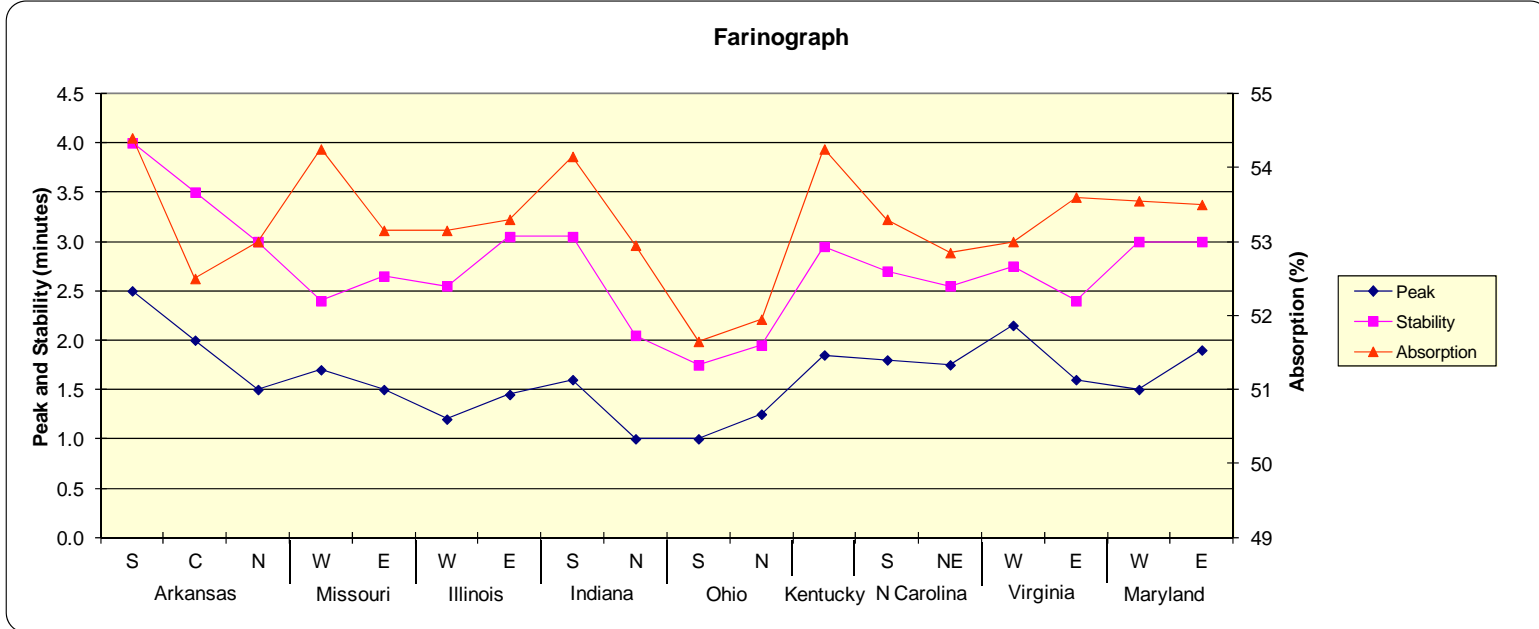
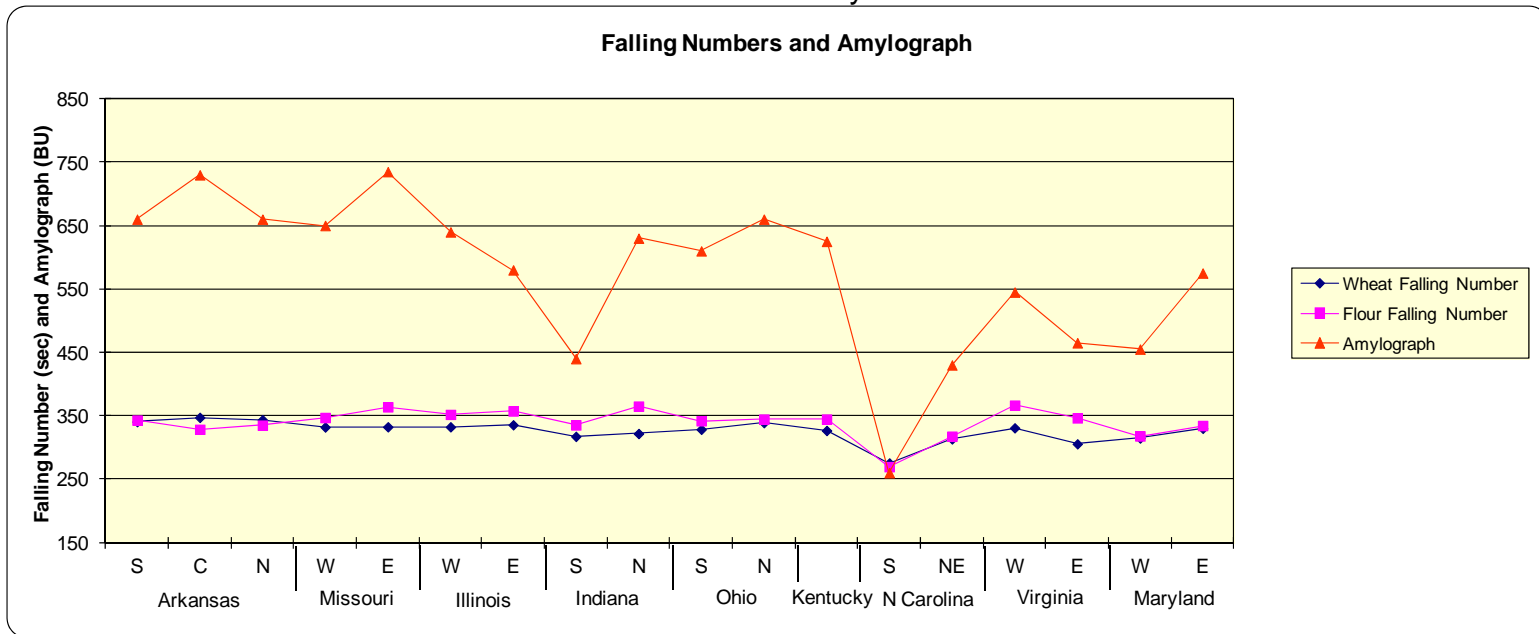
	Arkansas			Missouri		Illinois		Indiana		Ohio		Kentucky	North Carolina		Virginia		Maryland	
	S	C	N	W	E	W	E	S	N	S	N		S	NE	W	E	W	E
Wheat Grade Data - from Individual Samples																		
Test Weight (Lab) (lb/bu)	60.2	60.5	60.5	60.1	60.8	61.2	61.5	61.0	60.4	58.6	60.3	60.0	57.2	59.0	59.6	60.0	58.4	58.9
Count	6	9	8	17	19	17	12	17	22	14	29	15	15	11	6	11	6	15
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	60.4	59.8	60.0	60.0	60.0	61.2	62.1	61.4	60.4	58.7	60.2	60.5	57.1	58.8	59.8	59.8	59.0	58.8
Test Weight (kg/hl)	79.5	78.7	78.9	78.9	78.9	80.5	81.7	80.7	79.5	77.3	79.2	79.6	75.2	77.4	78.7	78.7	77.6	77.4
Damage - Total (%)	0.0	0.7	0.7	1.3	0.7	0.7	0.7	1.3	0.7	1.3	0.7	0.0	2.7	1.3	0.7	0.7	0.7	1.3
Foreign Material (%)	0.3	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.3	0.7	0.0	0.0	0.3	0.0
Shrunken and Broken (%)	0.5	0.4	0.6	0.4	0.6	0.7	0.4	0.4	0.5	0.8	0.5	0.4	0.7	0.6	0.8	0.2	0.6	0.4
Total Defects (%)	0.8	1.8	1.3	1.7	1.6	1.4	1.1	1.7	1.5	2.4	1.5	0.4	3.7	2.6	1.5	0.9	1.6	1.7
Grade	1	2	1	1	1	1	1	1	1	2	1	1	3	2	2	2	2	2
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	12.0	11.9	11.8	12.7	12.3	12.2	12.6	13.3	12.3	12.3	12.7	13.1	13.5	14.1	13.0	12.7	13.3	12.6
Protein (%) 12% mb	11.0	10.1	10.2	10.1	10.4	9.8	9.6	10.1	9.0	8.6	8.5	11.2	11.2	10.3	10.1	9.7	10.1	9.9
Ash (%) 14% mb	1.60	1.57	1.58	1.54	1.54	1.52	1.49	1.54	1.54	1.48	1.49	1.60	1.48	1.39	1.51	1.50	1.54	1.49
1000 Kernel Weight (g)	31.9	31.1	31.7	32.4	32.9	33.8	35.8	36.8	34.5	32.7	33.2	37.1	33.7	36.9	36.7	37.6	33.8	36.8
Wheat Falling Number (sec)	348	347	349	329	339	330	333	305	332	333	336	329	262	309	321	299	302	333
DON (ppm)	0.1	0.0	0.0	0.4	0.4	0.5	0.2	0.3	0.1	0.9	0.0	0.5	0.2	0.4	0.7	1.2	1.2	0.8
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	0.6	0.7	1.0	0.4	0.4	0.8	0.5	0.6	0.6	1.7	0.5	0.6	0.3	0.4	0.5	0.5	0.7	0.3
Moisture (%)	11.6	11.6	12.2	12.2	11.8	13.0	12.0	12.6	12.2	12.6	12.6	13.1	13.0	13.6	13.0	13.1	11.9	11.9
Protein (%) 12% mb	11.0	9.1	10.0	10.3	10.5	10.0	10.1	10.1	8.9	8.6	8.4	10.6	10.8	9.6	10.3	9.8	10.2	9.7
Kernel Size Large (Over 7) (%)	82	67	82	82	83	85	87	90	85	85	86	89	88	86	87	89	77	85
Kernel Size Medium (Over 9) (%)	17	31	17	17	16	14	12	10	15	14	13	11	12	14	12	10	22	14
Kernel Size Small (Thru 9) (%)	1	2	1	1	0	1	0	1	1	1	0	0	0	0	1	1	2	2
Single Kernel Hardness	26.8	26.1	29.9	33.5	29.0	30.0	32.9	35.2	28.2	24.4	27.3	30.5	22.6	21.3	17.3	15.6	25.4	16.7
Single Kernel Weight (mg)	32.0	28.9	32.1	32.7	32.6	34.0	35.9	38.8	34.6	32.0	34.1	36.4	33.0	34.8	33.8	35.5	32.3	35.4
Single Kernel Diameter (mm)	2.65	2.51	2.60	2.64	2.61	2.67	2.69	2.75	2.64	2.61	2.67	2.71	2.63	2.67	2.67	2.70	2.60	2.67
Sedimentation (cc)	17	13	14	11	14	14	14	14	10	9	9	16	16	13	14	13	13	13
DON (ppm)	0.2	0.1	0.1	0.4	0.4	0.7	0.4	0.4	0.1	0.7	0.1	0.3	0.2	0.5	1.4	1.2	1.1	0.8
Flour Data																		
Lab Mill Extraction (%)	71.4	67.9	73.7	72.1	74.3	74.9	75.0	73.2	72.8	74.7	74.5	73.5	72.0	73.9	74.5	74.0	73.5	73.8
Flour Color - *L	93.4	93.9	93.3	93.1	93.4	93.1	93.0	92.9	93.1	93.4	93.4	93.2	93.1	93.5	92.7	92.8	92.9	93.1
Flour Color - *a	-3.3	-3.4	-3.4	-2.6	-2.7	-2.6	-2.6	-2.6	-2.8	-2.7	-2.8	-2.5	-2.8	-2.7	-2.8	-2.8	-2.9	-3.0
Flour Color - *b	8.4	8.7	9.1	8.3	8.4	8.4	8.3	8.3	8.7	8.2	8.3	8.0	8.2	8.2	8.8	8.0	7.7	8.0
Flour Protein (%) 14% mb	9.4	8.5	8.9	8.7	8.9	8.5	8.6	8.5	7.8	7.2	7.0	9.3	9.0	8.6	9.1	8.6	8.8	8.4
Flour Ash (%) 14% mb	0.46	0.42	0.44	0.44	0.47	0.48	0.47	0.48	0.43	0.47	0.43	0.45	0.41	0.46	0.39	0.46	0.46	0.49
Wet Gluten (%)	23.7	23.3	23.3	24.6	23.5	23.7	23.8	23.7	20.4	17.0	14.9	26.1	24.7	22.3	23.7	23.9	24.1	20.6
Gluten Index	78.3	71.9	76.5	57.7	60.6	64.5	86.3	59.2	72.6	72.5	98.2	76.9	85.4	89.7	89.4	62.3	43.8	69.9
Falling Number (sec)	344	319	332	355	386	347	371	347	370	346	341	360	285	326	365	358	317	318
Amylograph (65g) (BU)	710	750	630	740	770	630	580	400	660	630	690	660	250	450	520	440	390	520
Starch Damage (%)	4.2	3.8	4.6	4.6	4.6	4.6	4.9	6.2	4.9	4.6	4.9	4.9	4.6	4.9	6.2	4.2	6.2	5.7
Dough Properties																		
Farinograph Peak (min)	2.5	2.0	1.5	1.7	1.5	1.0	1.5	1.7	1.0	1.0	1.2	1.7	1.8	1.7	2.2	1.7	1.5	2.0
Farinograph Stability (min)	5.0	3.5	3.0	2.2	2.8	2.5	2.7	3.0	1.6	1.3	1.8	2.4	2.5	2.6	2.6	2.6	2.5	3.0
Farinograph Absorption (%)	53.1	52.7	53.3	54.5	53.7	52.8	53.6	54.5	51.8	51.6	51.9	54.2	52.5	52.8	52.7	53.0	53.7	53.7
Alveograph P (mm)	42	42	38	48	37	44	41	50	36	36	36	46	37	36	34	37	33	36
Alveograph L (mm)	115	108	100	88	100	78	73	71	85	62	70	83	104	79	102	87	113	99
Alveograph W (10-4 joules)	114	108	93	107	83	82	77	95	75	63	64	96	87	70	77	76	72	82
Alveograph P/L	0.37	0.39	0.38	0.55	0.37	0.56	0.56	0.70	0.42	0.58	0.51	0.55	0.36	0.46	0.33	0.43	0.29	0.36
Baking Evaluation																		
Crumb Grain	6	5	5	5	6	6	6	6	5	5	4	5	5	5	5	5	5	5
Crumb Texture	6	6	5	5	6	6	6	6	6	5	5	5	6	5	5	6	4	4
Loaf Volume (cc)	700	700	700	650	625	715	625	625	735	600	650	715	635	625	625	725	715	725
Cookie Spread Ratio	8.3	8.6	8.6	7.4	7.7	7.6	7.3	7.2	8.0	8.1	7.8	7.6	7.6	7.5	8.3	7.3	7.2	7.9

N-North, S-South, E-East, W-West, C-Central, NE-North East, NA-Not Available

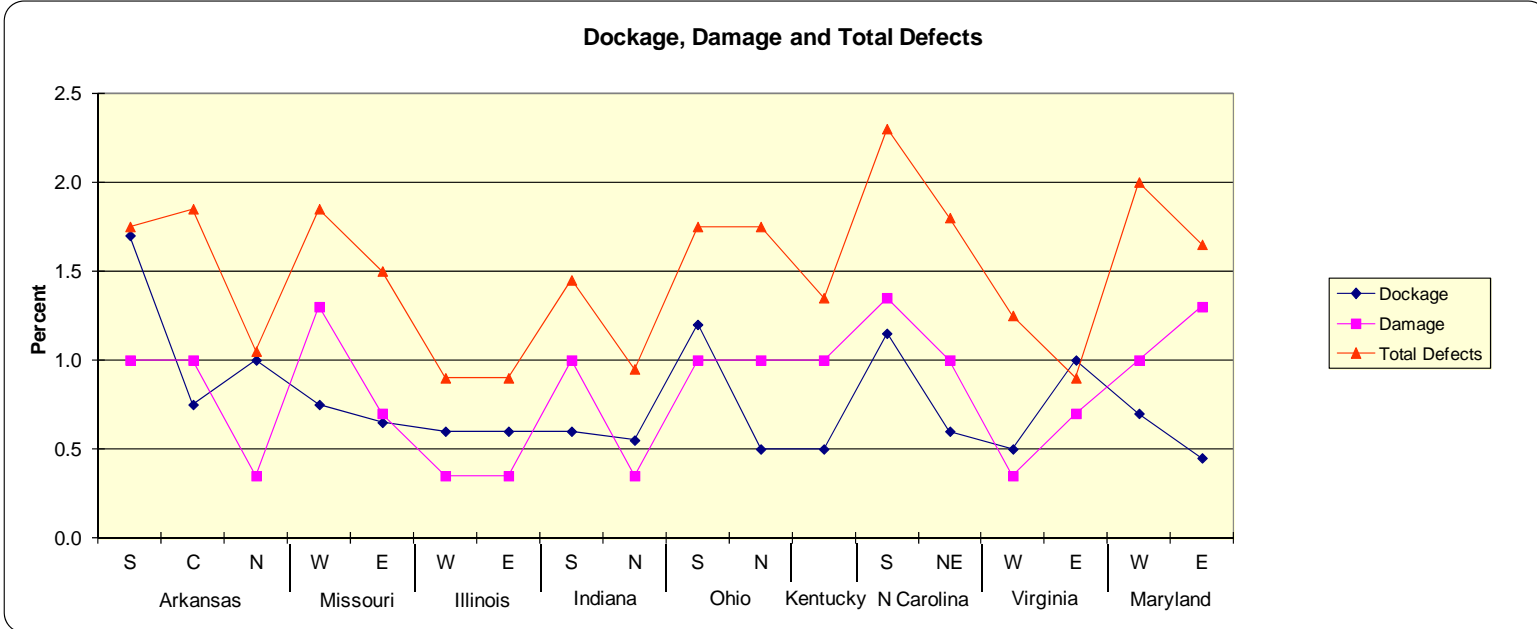
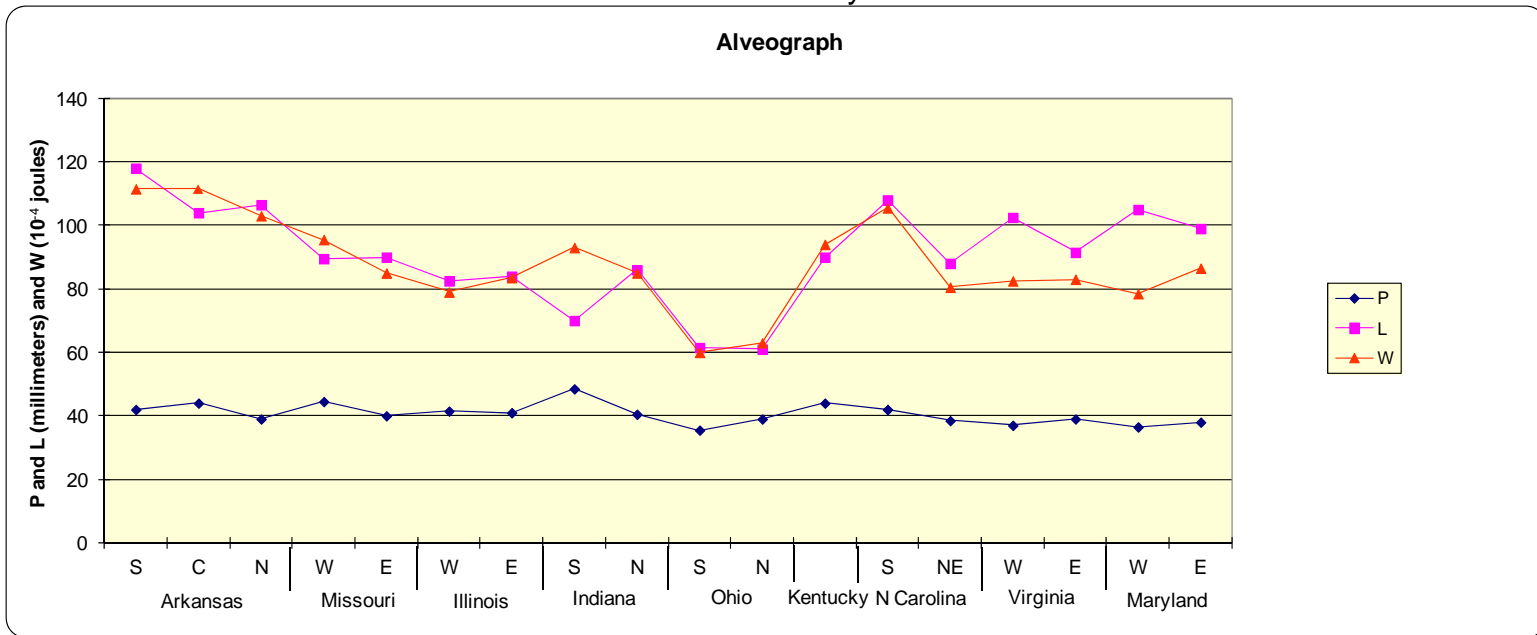
Comparisons of 2012 Results For Selected Quality Factors



Comparisons of 2012 Results For Selected Quality Factors

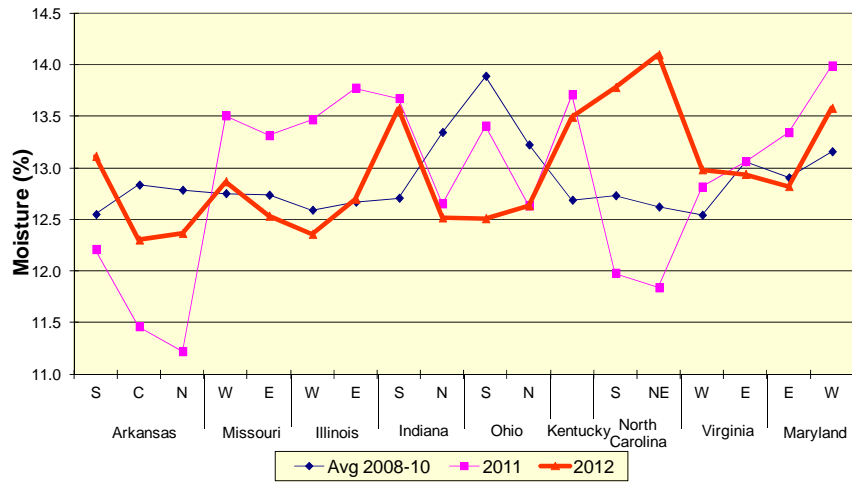


Comparisons of 2012 Results For Selected Quality Factors

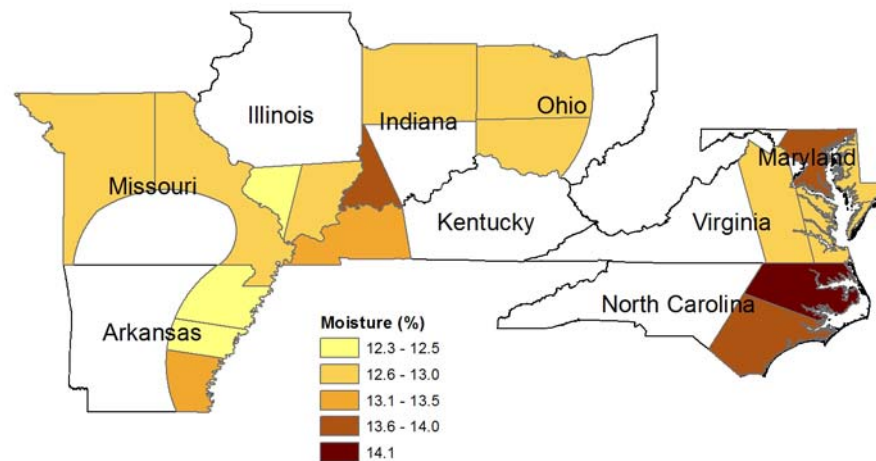
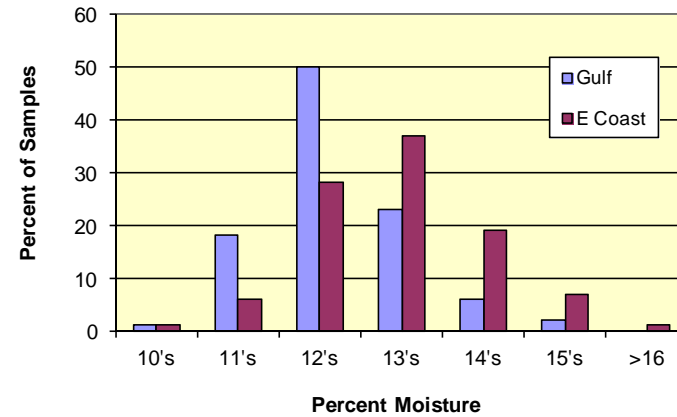


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

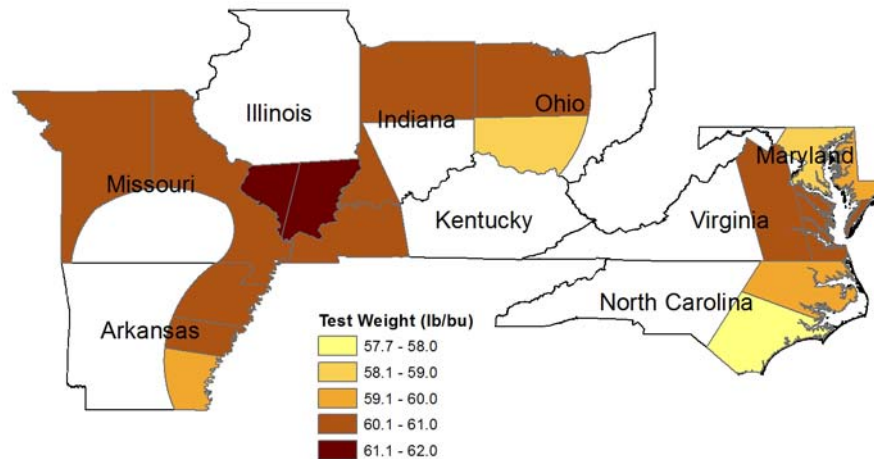
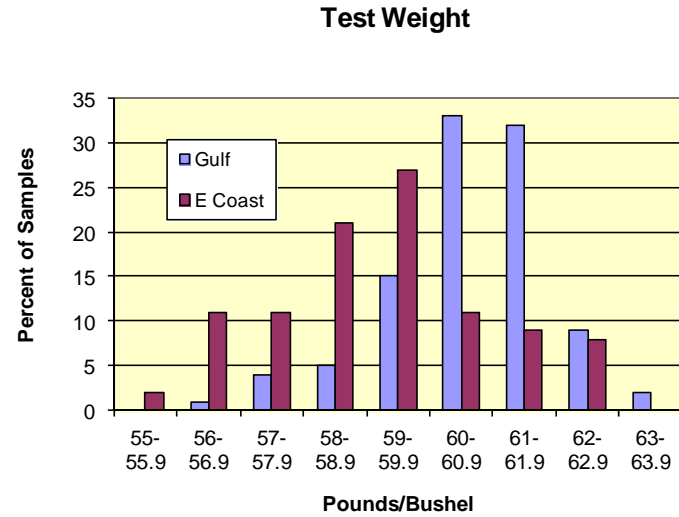
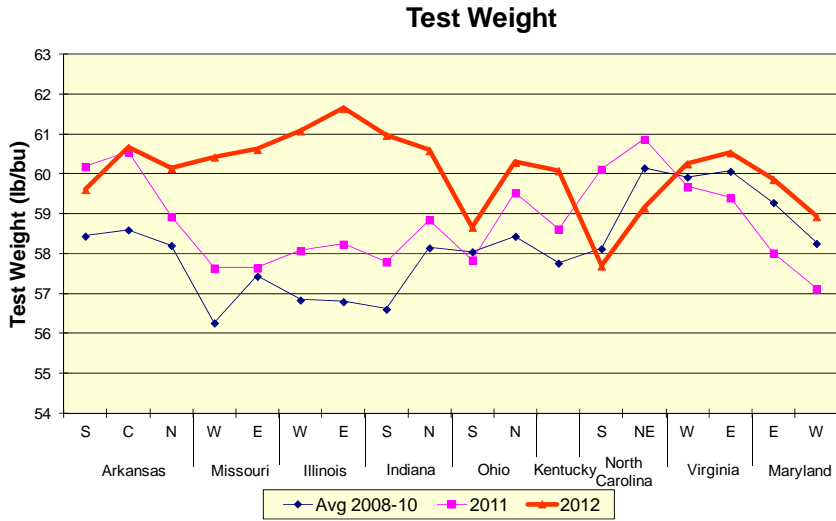
Moisture



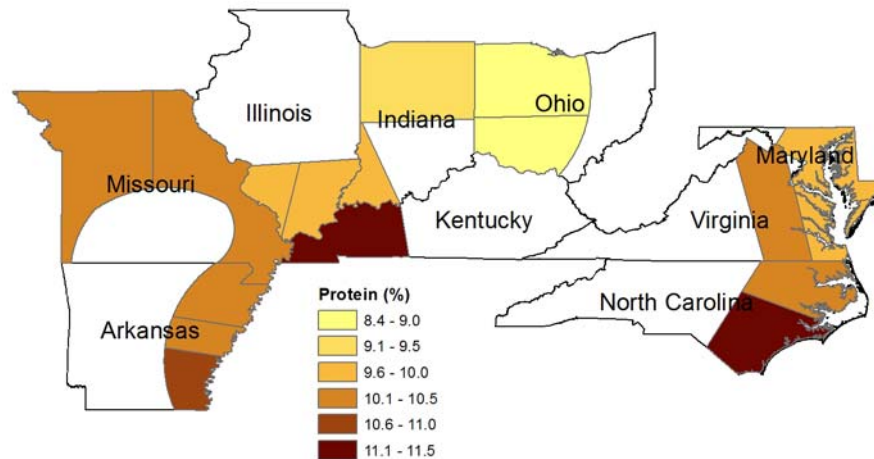
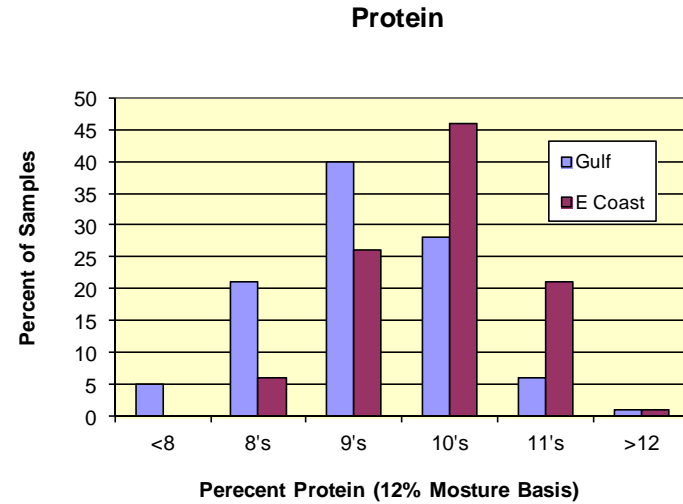
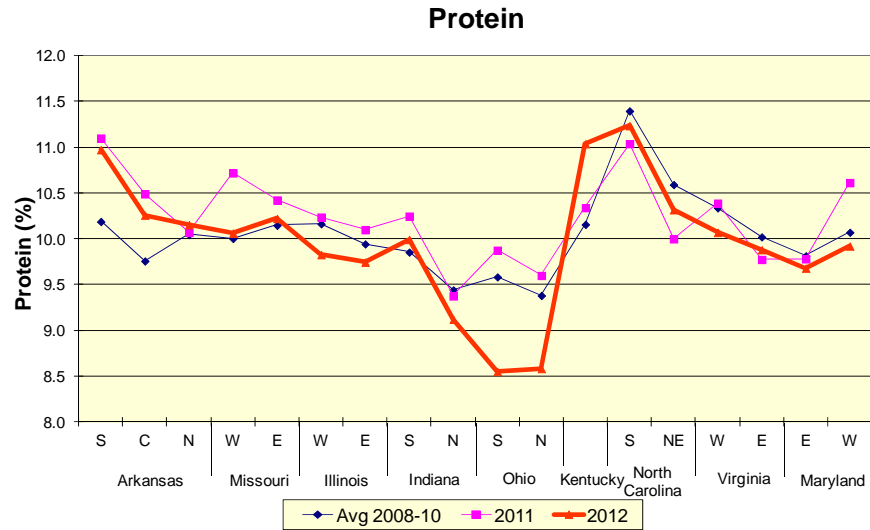
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Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

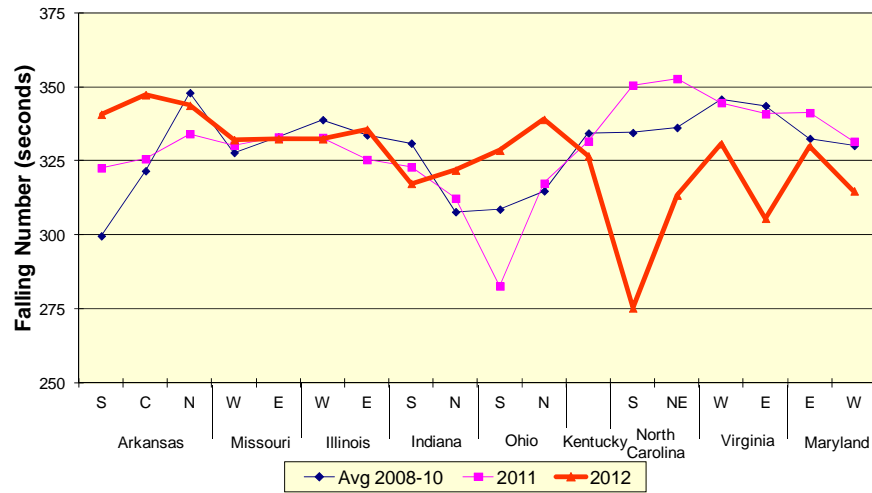


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

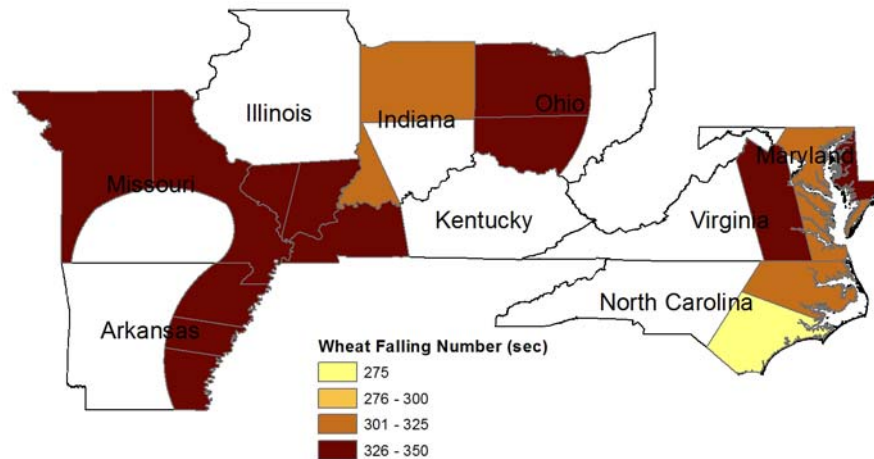
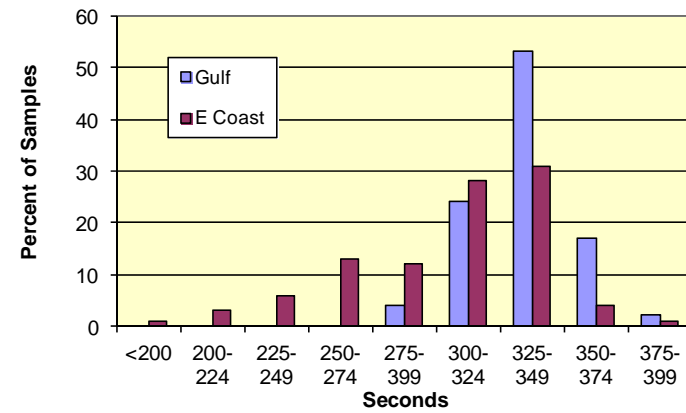


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

Falling Number

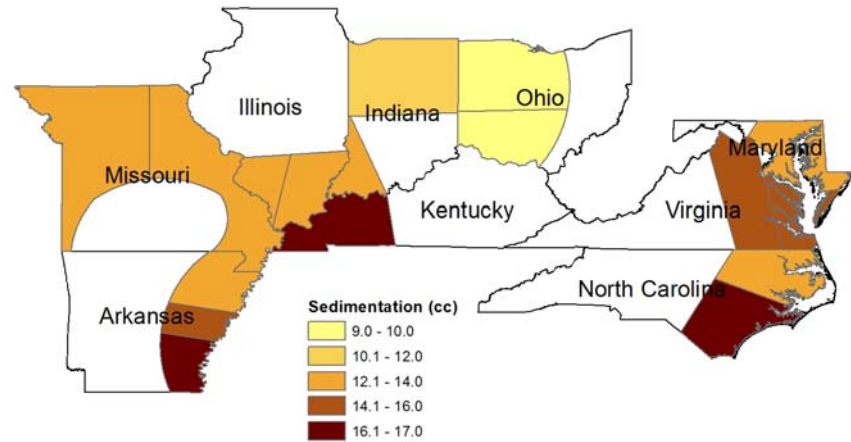
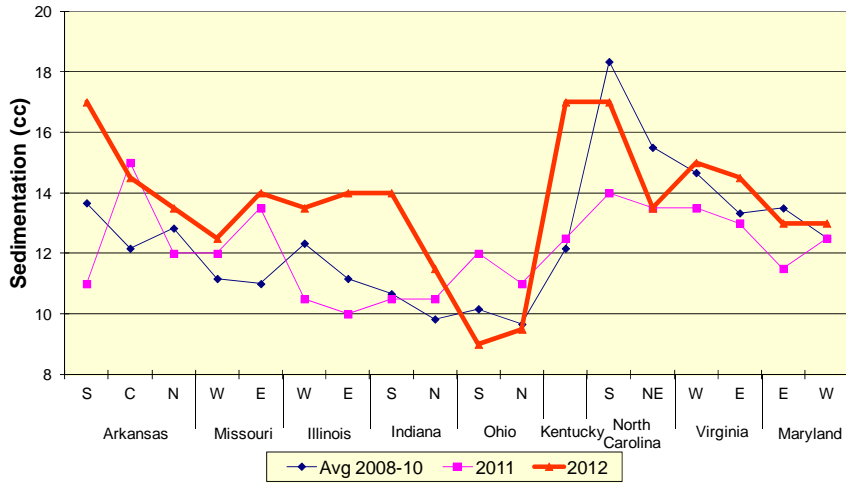


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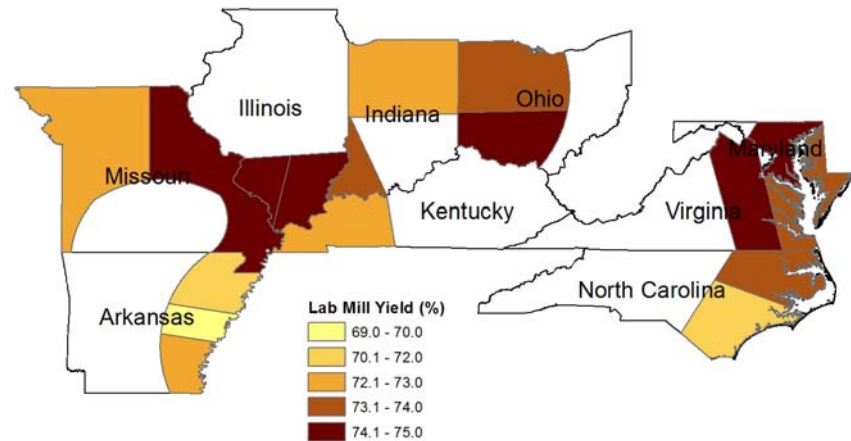
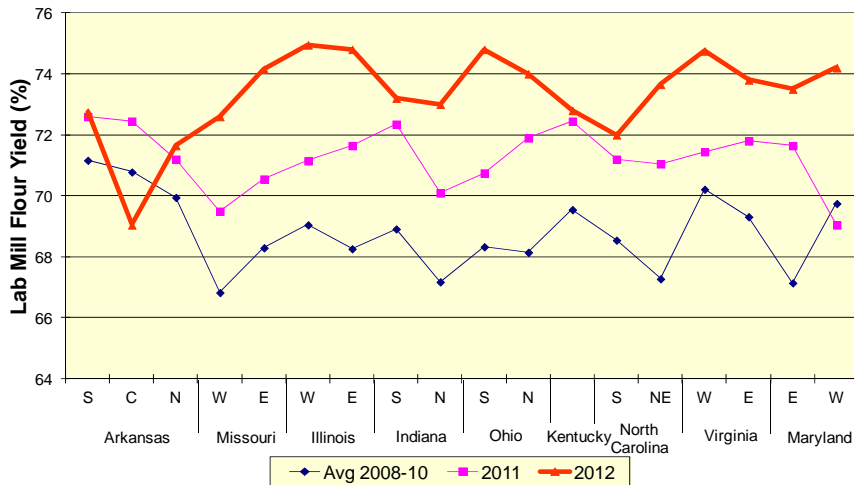


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

Sedimentation

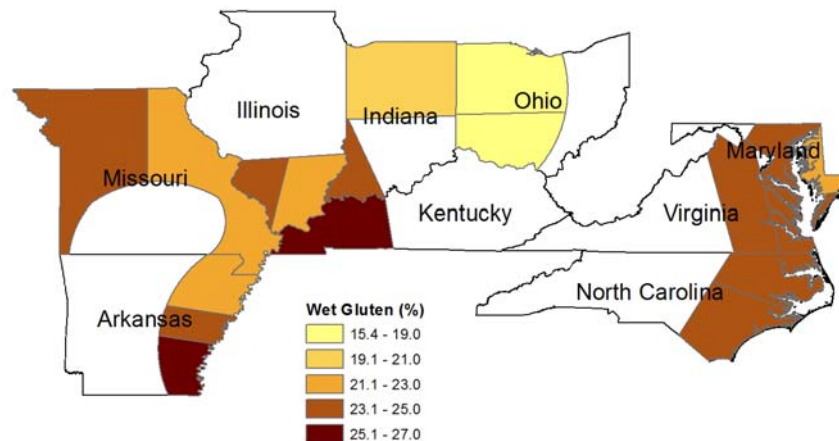
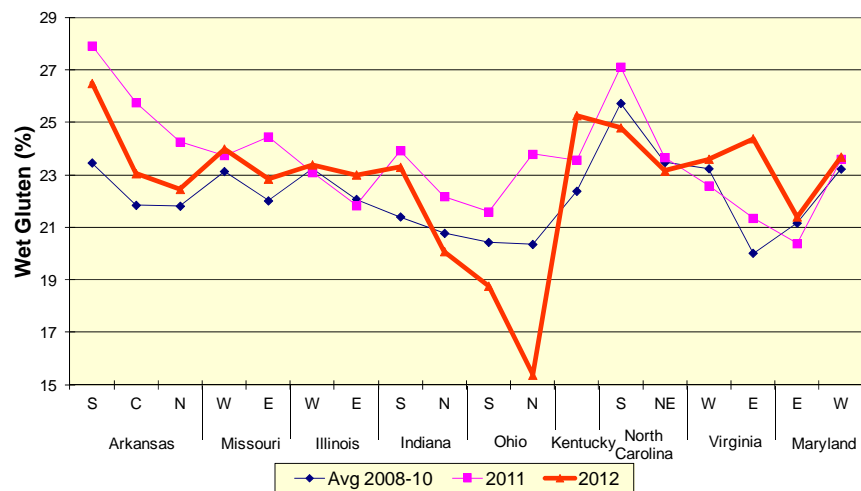


Laboratory Mill Flour Yield

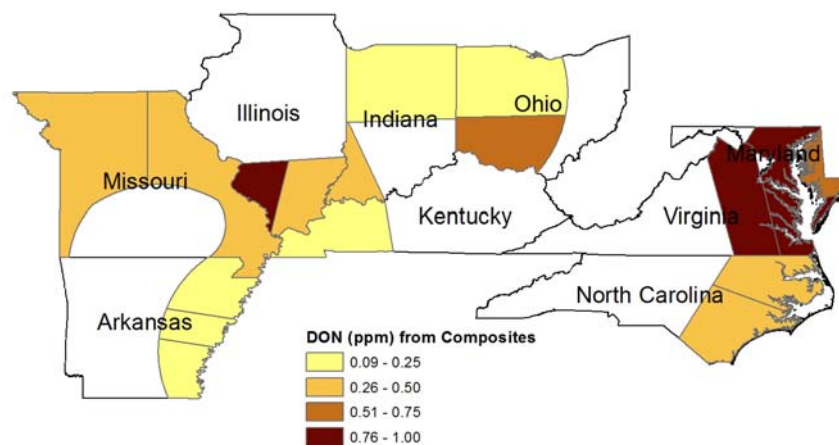
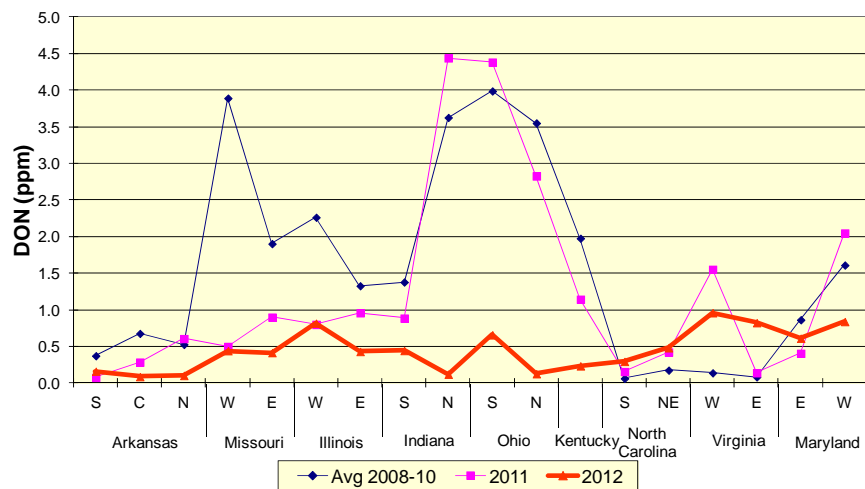


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

Wet Gluten

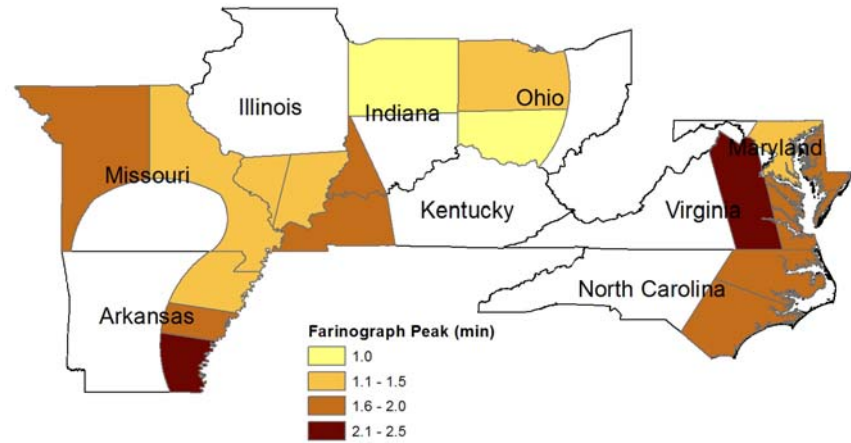
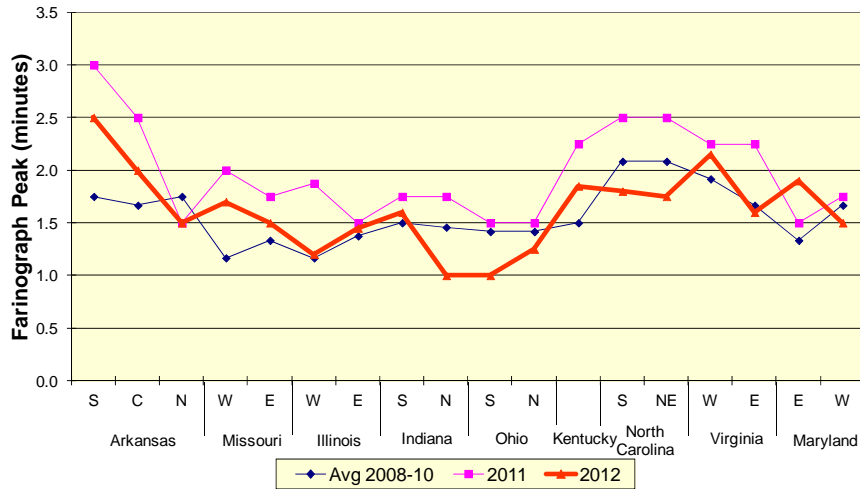


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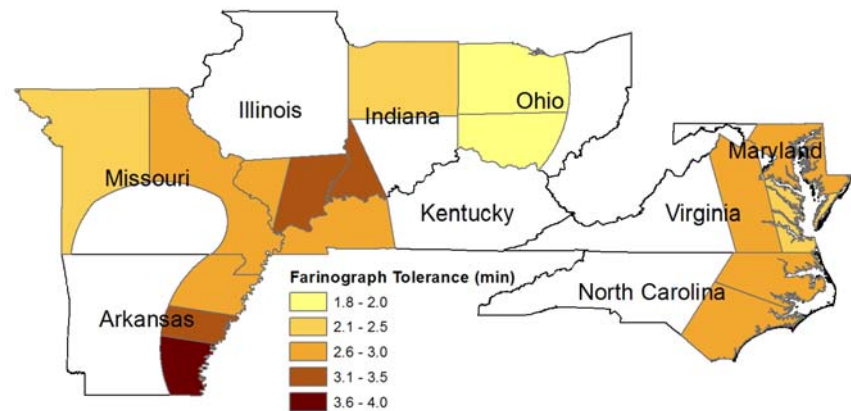
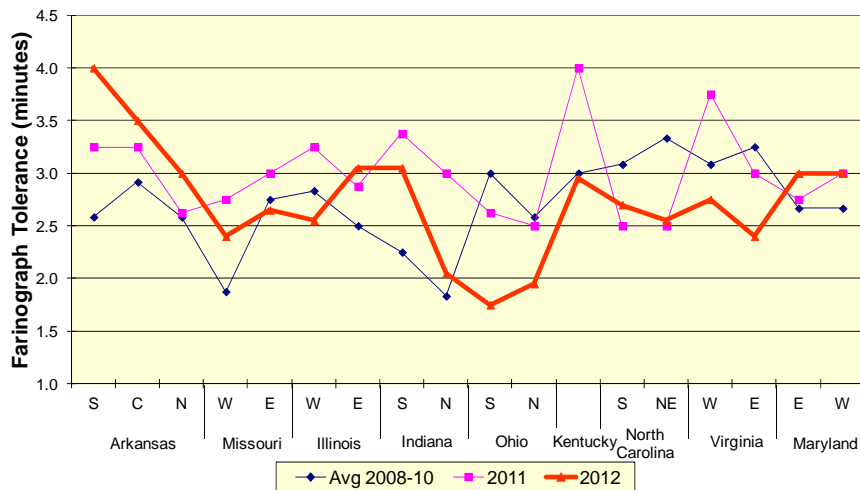


Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

Farinograph Peak

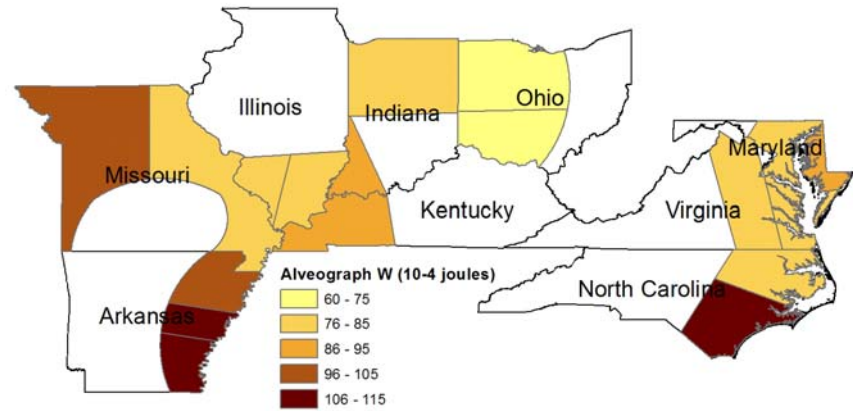
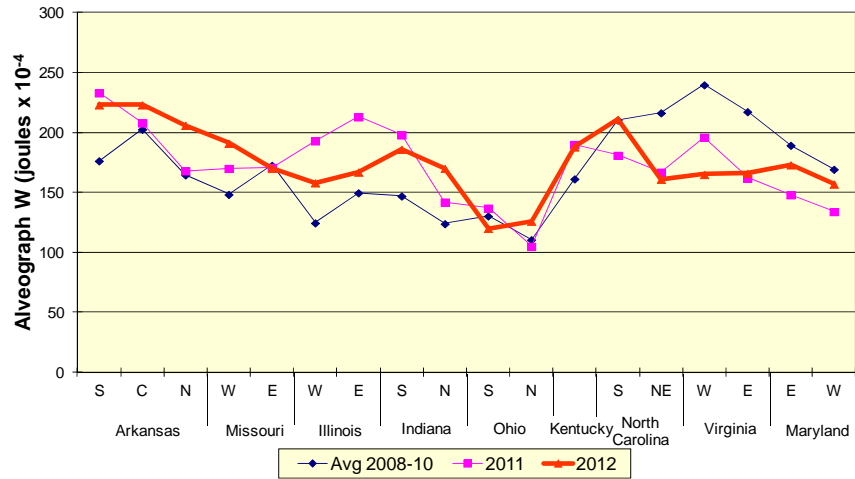


Farinograph Tolerance



Distribution of 2012 Results and Comparisons with Previous Years For Selected Quality Factors

Alveograph W Value



Alveograph P/L

