

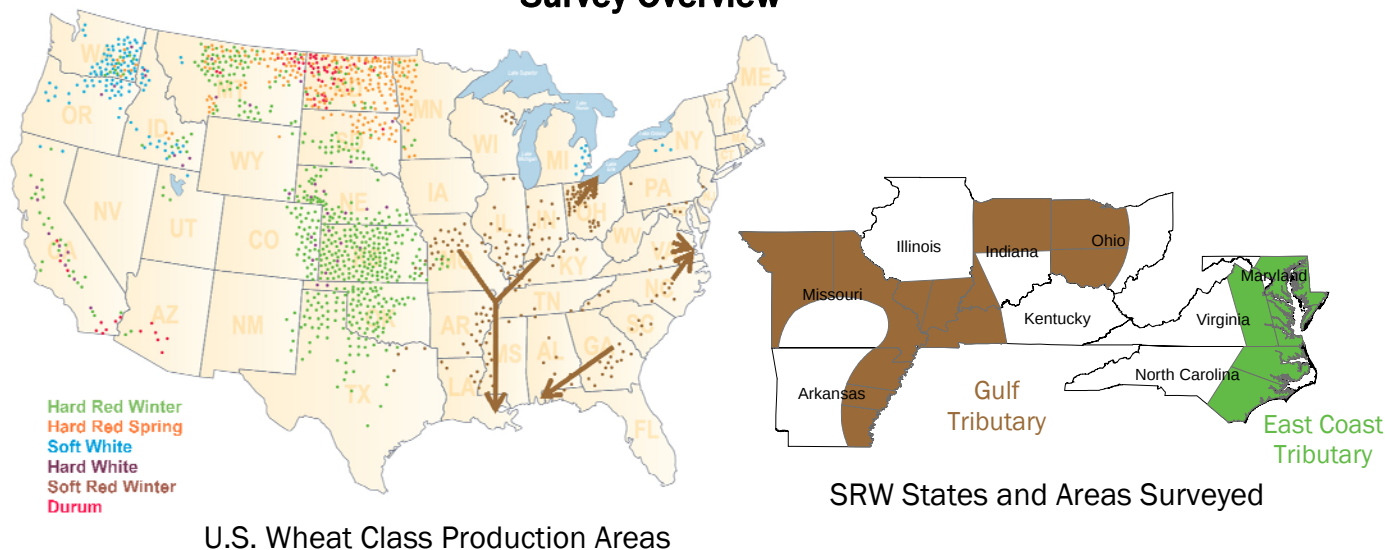


2011 Soft Red Winter Wheat Quality Survey

Final



Survey Overview



Weather and Harvest: Soft red winter wheat (SRW) is grown over a wide area of the eastern United States. Planting conditions in the fall of 2010 were favorable and SRW planted area for the 2011/12 crop was about 8.3 million acres, up sharply from the depressed planting for the 2010/11 crop. The entire SRW growing area had adequate to excessive moisture throughout the winter months. By mid-May growing conditions in all of the SRW growing area were rated fair to excellent with the exception of poor and very poor ratings in portions of Arkansas and Missouri where unusually widespread spring flooding reduced quality and yield potential. Abnormally wet conditions from Arkansas and southern Missouri up through northern Ohio persisted through late May and into June, delaying the start of harvest in Missouri and slowing harvest in Illinois and Indiana. Dry conditions in Maryland, Virginia, North Carolina and Kentucky allowed harvest to proceed more rapidly than normal throughout June, while delays caused by excessive moisture persisted in the other states. By the last week of June and into July, dry conditions finally prevailed and harvest proceeded very rapidly, finishing in most areas somewhat ahead of the average pace of the last five years.

Survey Methods: Sample collection and analysis were conducted by CII Laboratory Services, Kansas City, Missouri. For 2011, 377 samples were collected from elevators in 18 reporting areas in 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 82% of production in the states surveyed. East Coast-tributary states include Maryland, North Carolina and Virginia and represent the remaining 18% of production in the states surveyed. The states surveyed typically account for 60%-70% of total SRW production. The Analysis Methods section of this booklet identifies the test methods used.

Wheat and Grade Data: Despite late season dry conditions in the East Coast states and excessive moisture in many other areas, wheat and grade are much improved over the 2010 crop and similar to five-year averages. The overall average test weight of 58.8 lb/bu (77.4 kg/hl) is 0.9 lb/bu (0.8 kg/hl) above 2009 and similar to the five-year average. Average test weight in the East Coast states is higher than the Gulf value. Both Gulf and East Coast areas have damage lower than the five-year averages. The average of total defects for the Gulf-

tributary areas is just 1.2% compared with 2.7% last year and the five-year average of 1.9%. Protein content of 10.2% (12% moisture basis) is similar to last year and the five-year average. Despite some higher DON values in parts of Ohio and Indiana, the composite average DON value of 1.1 ppm is equal to the five-year average, and the Gulf DON value of 1.2 ppm is just half the value reported for 2010. The composite average falling number of 328 is equal to the five-year average, although the East Coast value is somewhat above and the Gulf value somewhat below the five-year averages.

Flour and Baking Data: Buhler laboratory mill flour extraction is well above the 2010 value and 2.5 percentage points higher than the five-year average. Given the variability of the tests, farinograph peak and stability times and alveograph W values are all essentially equivalent to last year and the five-year averages, indicating good processing qualities. Composite average loaf volume is higher than last year and the five-year average.

Summary: Much of the 2011 SRW production area experienced excessive moisture, with some fields abandoned because of flooding. However, the overall quality of the crop is similar to the five-year averages and much improved in many factors over the 2010 crop. Test weight, protein, milling and farinograph quality are all similar to the five-year averages, and DON is much less a concern that it was in the 2010 crop. Buyers will need 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.

This survey was funded by U.S. Wheat Associates and USDA's Foreign Agricultural Service.

About U.S. Wheat Associates: U.S. Wheat Associates (USW) is the industry's market development organization working in more than 100 countries. Its mission is to "develop, maintain, and expand international markets to enhance the profitability of U.S. wheat producers." USW activities are funded by producer checkoff dollars managed by 19 state wheat commissions and through cost-share USDA Foreign Agricultural Service market development programs. For more information, visit www.uswheat.org or contact your state wheat commission.

Nondiscrimination and Alternate Means of Communications: USW prohibits discrimination in all its programs and activities on the basis of race, color, religion, national origin, gender, marital or family status, age, disability, political beliefs or sexual orientation. Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USW at 202-463-0999 (TDD/TTY - 800-877-8339, or from outside the U.S., 605-331-4923). To file a complaint of discrimination, write to Vice President of Finance, USW, 3103 10th Street, North, Arlington, VA 22201, or call 202-463-0999. USW is an equal opportunity provider and employer.

Soft Red Winter 2011 Survey - All Samples

	Composite Average			East Coast*			Gulf Ports*		
	2011	2010	5-Year	2011	2010	5-Year	2011	2010	5-Year
Wheat Grade Data									
Test Weight (lb/bu)	58.8	57.9	58.9	59.6	59.7	59.7	58.7	57.5	58.7
Test Weight (kg/hl)	77.4	76.2	77.5	78.4	78.5	78.5	77.2	75.7	77.3
Damage - Total (%)	0.7	1.7	1.2	1.1	1.5	1.3	0.6	1.7	1.2
Foreign Material (%)	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.5	0.1
Shrunken and Broken (%)	0.4	0.6	0.6	0.4	0.6	0.5	0.5	0.6	0.6
Total Defects (%)	1.3	2.6	1.9	1.6	2.2	1.9	1.2	2.7	1.9
Grade	2	3	2	2	2	2	2	3	2
Wheat Non-Grade Data									
Dockage (%)	0.6	0.9	0.9	0.8	1.2	0.9	0.6	0.8	0.9
Moisture (%)	12.9	12.9	12.9	12.7	12.8	12.9	12.9	13.0	12.9
Protein (%) 12%/0% mb	10.2/11.6	10.3/11.7	10.1/11.4	10.3/11.7	11.0/12.5	10.3/11.7	10.2/11.6	10.1/11.5	10.0/11.4
Wheat Ash (%) 14%/0% mb	1.53/1.78	1.55/1.80	1.53/1.78	1.46/1.70	1.53/1.78	1.47/1.71	1.54/1.79	1.56/1.81	1.55/1.80
1000 Kernel Weight (g)	31.9	31.8	33.0	33.4	32.1	34.3	31.6	31.7	32.7
Wheat Falling Number (sec)	328	333	329	346	334	322	324	333	331
Kernel Size (%) lg/med/sm	82/17/01	80/19/01	82/17/01	83/16/01	77/22/01	84/15/01	82/17/01	81/18/01	82/17/01
Single Kernel Hardness	28.9	20.6	19.2	28.2	24.7	19.8	29.0	19.6	19.2
Single Kernel Weight (mg)	32.3	30.6	31.8	33.2	30.9	33.3	32.2	30.5	31.5
Single Kernel Diameter (mm)	2.64	2.25	2.27	2.64	2.23	2.32	2.64	2.25	2.25
Sedimentation (cc)	11.9	11.9	12.9	13.1	16.2	14.9	11.6	11.0	12.5
DON (ppm)	1.1	2.0	1.1	0.5	0.4	0.6	1.2	2.4	1.2
Flour Data									
Lab Mill Extraction (%)	71.4	70.0	68.9	71.2	68.2	68.5	71.4	70.3	69.1
Flour Color - *L	93.4	93.1	93.4	93.5	93.0	93.4	93.4	93.1	93.4
Flour Color - *a	-3.1	-3.2	-3.1	-3.2	-3.1	-3.0	-3.1	-3.2	-3.1
Flour Color - *b	8.1	8.1	8.2	8.4	8.1	8.1	8.1	8.1	8.3
Flour Protein (%) 14%/0% mb	8.6/10.0	8.6/10.0	8.4/9.8	8.6/9.9	9.3/10.8	8.6/10.0	8.7/10.1	8.5/9.9	8.4/9.7
Flour Ash (%) 14%/0% mb	0.44/0.51	0.43/0.50	0.43/0.50	0.43/0.49	0.43/0.50	0.43/0.50	0.44/0.52	0.44/0.51	0.44/0.51
Wet Gluten (%)	23.6	23.3	22.2	23.5	25.3	21.5	23.7	22.8	22.5
Gluten Index	79.6	85.1	77.7	79.5	89.0	83.6	79.7	84.2	76.4
Falling Number (sec)	339	333	329	346	334	322	337	333	331
Amylograph (65g) (BU)	614	717	607	687	673	527	598	727	626
Starch Damage (%)	4.3	4.4	4.3	4.3	4.7	4.4	4.3	4.3	4.3
Solvent Retention Capacity									
Water/50% Sucrose	54/103	56/107	55/109	54/105	56/109	56/112	54/100	55/104	54/106
5% Lactic Acid/5% Na ₂ CO ₃	113/78	116/81	111/80	113/80	119/81	114/81	110/78	113/80	109/79
Dough Properties									
Farinograph Peak (min)	1.9	1.6	1.6	2.2	2.0	1.8	1.8	1.6	1.6
Farinograph Stability (min)	3.0	2.9	2.9	2.7	3.3	3.0	3.0	2.9	2.9
Farinograph Absorption (%)	52.7	51.8	52.0	53.5	52.3	52.4	52.6	51.7	51.9
Alveograph P (mm)	36	35	39	37	38	44	36	34	38
Alveograph L (mm)	92	88	88	95	106	88	92	83	89
Alveograph W (10-4 joules)	85	83	91	83	103	103	86	79	88
Alveograph P/L	0.39	0.40	0.44	0.38	0.36	0.51	0.39	0.41	0.43
Baking Evaluation									
Crumb Grain	5.2	5.2	5.3	5.2	5.9	5.6	5.2	5.1	5.2
Crumb Texture	5.1	5.3	5.4	5.2	5.9	5.6	5.1	5.1	5.3
Loaf Volume (cc)	740	733	721	734	744	718	741	730	723
Cookie Spread Ratio	9.4	9.8	9.0	9.3	8.9	8.5	9.4	9.9	9.1
% Area Production	100.0%			17.5%			82.5%		

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

2011 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)	60.0	57.6	58.1	58.3	59.1	58.6	60.3	59.5	57.7
Count	45	42	61	40	49	23	45	34	38
Wheat Grade Data - from Area Composite Samples									
Test Weight (lb/bu)	60.2	57.5	58.2	58.7	59.3	58.4	60.9	59.5	57.6
Test Weight (kg/hl)	79.2	75.7	76.6	77.2	78.0	76.8	80.0	78.3	75.8
Damage - Total (%)	0.7	0.9	0.7	0.4	0.4	0.4	0.8	1.0	1.6
Foreign Material (%)	0.1	0.1	0.1	0.3	0.0	0.5	0.2	0.1	0.2
Shrunken and Broken (%)	0.6	0.5	0.4	0.6	0.4	0.5	0.5	0.3	0.4
Total Defects (%)	1.4	1.4	1.1	1.2	0.9	1.4	1.4	1.4	2.1
Grade	1	3	2	2	2	2	1	2	3
Wheat Non-Grade Data - from Individual Samples									
Moisture (%)	11.6	13.4	13.6	13.2	12.8	13.7	11.9	13.0	13.5
Protein (%) 12%/0% mb	10.6/12.0	10.5/12.0	10.2/11.6	9.8/11.2	9.7/11.0	10.3/11.8	10.8/12.3	9.9/11.3	10.0/11.4
Ash (%) 14%/0% mb	1.59/1.85	1.58/1.84	1.52/1.76	1.54/1.79	1.54/1.79	1.45/1.69	1.49/1.74	1.40/1.63	1.47/1.71
1000 Kernel Weight (g)	31.7	30.9	32.5	32.5	29.9	33.5	33.3	34.2	32.8
Wheat Falling Number (sec)	327	332	330	318	310	332	351	342	338
DON (ppm)	0.3	0.8	0.7	2.3	2.4	1.2	0.2	0.2	1.4
Wheat Non-Grade Data - from Area Composite Samples									
Dockage (%)	0.9	0.8	0.4	0.5	0.5	0.8	1.0	0.6	0.6
Moisture (Lab) (%)	12.7	13.0	13.0	13.0	12.6	13.2	12.7	12.5	12.9
Protein (Lab) (%)	10.6	10.7	10.1	9.9	9.6	10.3	10.7	10.0	10.2
Kernel Size (%) lg/med/sm	81/18/01	79/21/00	85/15/00	84/15/01	81/18/01	83/16/01	82/17/01	86/13/01	82/17/01
Single Kernel Hardness	31.6	31.0	26.3	24.5	29.4	31.2	30.6	26.2	24.1
Single Kernel Weight (mg)	32.3	31.0	32.3	33.0	32.0	33.3	33.5	33.3	32.9
Single Kernel Diameter (mm)	2.66	2.60	2.66	2.68	2.64	2.65	2.66	2.63	2.60
Sedimentation (cc)	13.0	12.9	10.3	10.5	11.2	12.5	13.9	13.1	11.8
DON (ppm)	0.3	0.7	0.9	2.6	3.2	1.1	0.2	0.5	0.9
Flour Data									
Lab Mill Extraction (%)	72.1	70.1	71.4	71.2	71.6	72.5	71.2	71.7	70.8
Flour Color - *L	93.4	93.0	93.7	93.4	93.3	93.5	93.7	93.5	93.3
Flour Color - *a	-3.0	-3.2	-3.2	-3.2	-3.0	-3.3	-3.2	-3.0	-3.1
Flour Color - *b	8.3	8.4	7.9	7.8	7.6	8.7	8.5	8.3	8.1
Flour Protein (%) 14%/0% mb	9.3/10.9	8.8/10.2	8.5/9.8	8.4/9.8	8.3/9.6	9.0/10.5	9.0/10.5	8.3/9.7	8.4/9.8
Flour Ash (%) 14%/0% mb	0.46/0.54	0.46/0.54	0.44/0.51	0.41/0.47	0.44/0.51	0.45/0.52	0.44/0.51	0.44/0.51	0.41/0.47
Wet Gluten (%)	26.0	24.2	22.6	23.1	23.3	23.6	26.4	21.7	21.4
Gluten Index	78.4	86.1	80.7	76.7	76.6	76.5	72.2	87.7	81.7
Falling Number (sec)	321	344	365	321	321	330	361	350	331
Amylograph (65g) (BU)	398	702	680	595	549	610	650	682	768
Starch Damage (%)	4.7	4.6	4.2	4.0	4.0	4.8	4.7	4.0	4.1
Dough Properties									
Farinograph Peak (min)	2.4	1.9	1.7	1.8	1.5	2.3	2.5	2.3	1.6
Farinograph Stability (min)	3.1	2.9	3.1	3.2	2.5	4.0	2.5	3.2	2.8
Farinograph Absorption (%)	54.8	52.1	52.4	52.3	51.1	54.2	54.3	54.0	51.9
Alveograph P (mm)	42	36	40	35	27	42	39	39	32
Alveograph L (mm)	98	97	88	93	89	85	102	80	97
Alveograph W (10-4 joules)	102	85	101	85	56	95	87	86	72
Alveograph P/L	0.43	0.37	0.45	0.38	0.30	0.49	0.38	0.49	0.33
Baking Evaluation									
Crumb Grain	5.5	5.2	5.3	5.5	4.9	5.0	5.1	5.0	5.2
Crumb Texture	5.6	4.7	4.9	5.0	5.3	5.5	5.2	5.1	4.7
Loaf Volume (cc)	699	716	757	750	757	763	728	741	733
Cookie Spread Ratio	7.9	9.6	10.0	9.9	9.6	9.3	8.7	9.6	10.3

Soft Red Winter 2011 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)	60.2	60.5	58.9	57.6	57.6	58.1	58.2	57.8	58.9	57.8	59.5	58.6	60.1	60.9	59.7	59.4	57.1	58.0
Count	10	18	17	27	15	36	25	19	21	16	33	23	22	23	10	24	9	29
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	60.6	60.4	59.5	57.8	57.4	58.2	58.3	58.2	59.2	58.0	59.7	58.4	61.0	60.5	59.7	59.5	56.7	58.0
Test Weight (kg/hl)	79.7	79.4	78.3	76.0	75.5	76.6	76.7	76.6	77.9	76.4	78.5	76.8	80.2	79.6	78.5	78.2	74.7	76.3
Damage - Total (%)	0.5	1.0	0.4	0.7	1.0	0.7	0.7	0.4	0.4	0.7	0.4	0.4	0.7	1.0	1.0	1.0	1.4	1.7
Foreign Material (%)	0.0	0.3	0.0	0.2	0.0	0.0	0.2	0.2	0.5	0.2	0.0	0.5	0.2	0.2	0.0	0.2	0.2	0.2
Shrunken and Broken (%)	0.7	0.5	0.6	0.6	0.4	0.4	0.5	0.8	0.4	0.5	0.4	0.5	0.5	0.5	0.2	0.3	0.3	0.5
Total Defects (%)	1.1	1.8	1.0	1.4	1.4	1.0	1.3	1.3	1.2	1.3	0.8	1.4	1.3	1.6	1.1	1.5	1.8	2.3
Grade	1	1	2	3	3	2	2	2	2	2	2	2	1	1	2	2	3	2
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	12.2	11.5	11.2	13.5	13.3	13.5	13.8	13.7	12.7	13.4	12.6	13.7	12.0	11.8	12.8	13.1	14.0	13.3
Protein (%) 12% mb	11.1	10.5	10.1	10.7	10.4	10.2	10.1	10.2	9.4	9.9	9.6	10.3	11.0	10.0	10.4	9.8	10.6	9.8
Ash (%) 14% mb	1.60	1.60	1.57	1.59	1.58	1.52	1.51	1.53	1.55	1.55	1.53	1.45	1.50	1.47	1.43	1.39	1.54	1.43
1000 Kernel Weight (g)	33.1	32.0	29.6	30.3	31.3	32.1	33.1	33.5	31.4	30.4	29.8	33.5	33.1	33.7	34.5	34.2	31.4	33.4
Wheat Falling Number (sec)	323	326	334	330	333	333	325	323	312	283	317	332	351	353	345	341	332	341
DON (ppm)	0.0	0.4	0.4	0.6	0.9	0.7	0.6	1.1	3.6	3.0	2.2	1.2	0.2	0.3	0.2	0.1	2.0	1.1
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	0.6	1.1	1.2	0.6	1.0	0.4	0.4	0.3	0.7	0.5	0.5	0.8	1.1	0.8	0.5	0.6	1.0	0.5
Moisture (%)	13.0	12.7	12.3	13.0	13.0	13.0	13.0	13.1	13.0	13.0	12.5	13.2	12.6	12.8	12.8	12.4	12.9	13.0
Protein (%) 12% mb	11.0	10.7	10.0	10.8	10.7	10.3	9.8	10.2	9.5	9.6	9.6	10.3	10.9	10.0	10.0	10.0	10.4	10.0
Kernel Size Large (Over 7) (%)	85	81	79	78	79	84	86	87	81	84	80	83	83	82	87	86	80	83
Kernel Size Medium (Over 9) (%)	14	19	22	22	21	16	13	12	18	15	19	16	17	18	12	14	18	16
Kernel Size Small (Thru 9) (%)	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	2	1
Single Kernel Hardness	28.2	34.7	30.5	35.1	28.2	26.4	26.0	23.9	25.1	27.4	30.0	31.2	29.8	33.5	26.6	26.0	29.1	21.7
Single Kernel Weight (mg)	34.9	31.8	30.3	30.4	31.5	32.0	32.8	33.9	32.1	31.2	32.2	33.3	33.6	33.0	33.1	33.4	32.0	33.3
Single Kernel Diameter (mm)	2.75	2.66	2.59	2.59	2.61	2.65	2.67	2.72	2.64	2.67	2.64	2.65	2.66	2.65	2.64	2.63	2.63	2.59
Sedimentation (cc)	11	15	12	12	14	11	10	11	11	12	11	13	14	14	14	13	13	12
DON (ppm)	0.1	0.3	0.6	0.5	0.9	0.8	1.0	0.9	4.4	4.4	2.8	1.1	0.2	0.4	1.6	0.1	2.0	0.4
Flour Data																		
Lab Mill Extraction (%)	72.6	72.5	71.2	69.5	70.6	71.2	71.7	72.4	70.1	70.8	71.9	72.5	71.2	71.1	71.5	71.8	69.1	71.7
Flour Color - *L	93.1	93.4	93.7	93.1	93.0	93.7	93.7	93.6	93.3	93.5	93.3	93.5	93.7	93.9	93.5	93.5	93.2	93.4
Flour Color - *a	-3.0	-3.0	-3.0	-3.1	-3.2	-3.2	-3.1	-3.2	-3.2	-2.9	-3.1	-3.3	-3.2	-3.4	-2.9	-3.1	-3.2	-3.1
Flour Color - *b	7.9	8.5	8.6	8.4	8.5	7.9	7.9	7.9	7.6	8.0	7.5	8.7	8.4	8.8	8.6	8.2	7.4	8.4
Flour Protein (%) 14% mb	9.8	9.6	8.5	8.7	8.8	8.5	8.4	8.7	8.1	8.1	8.4	9.0	9.2	8.2	8.6	8.3	8.5	8.4
Flour Ash (%) 14% mb	0.49	0.47	0.43	0.46	0.46	0.44	0.43	0.42	0.39	0.42	0.44	0.45	0.44	0.42	0.46	0.43	0.42	0.40
Wet Gluten (%)	27.9	25.8	24.3	23.7	24.4	23.1	21.8	23.9	22.2	21.6	23.8	23.6	27.1	23.7	22.6	21.3	23.6	20.4
Gluten Index	88.8	74.2	73.7	82.4	88.7	82.4	78.3	83.0	70.2	86.3	73.7	76.5	70.1	80.2	92.8	85.9	78.5	83.3
Falling Number (sec)	316	320	329	350	340	372	355	314	328	295	329	330	368	336	361	346	306	343
Amylograph (65g) (BU)	325	385	495	770	655	700	650	595	595	410	590	610	655	630	645	695	720	790
Starch Damage (%)	4.6	4.8	4.8	4.6	4.6	4.4	4.0	4.2	3.8	3.6	4.2	4.8	4.8	4.4	4.0	4.0	3.8	4.2
Dough Properties																		
Farinograph Peak (min)	3.0	2.5	1.5	2.0	1.8	1.9	1.5	1.8	1.8	1.5	1.5	2.3	2.5	2.5	2.3	2.3	1.8	1.5
Farinograph Stability (min)	3.3	3.3	2.6	2.8	3.0	3.3	2.9	3.4	3.0	2.6	2.5	4.0	2.5	2.5	3.8	3.0	3.0	2.8
Farinograph Absorption (%)	55.5	55.0	53.7	51.7	52.4	52.4	52.5	53.4	51.3	51.1	51.1	54.2	54.6	53.6	52.5	54.6	52.3	51.8
Alveograph P (mm)	45	43	39	37	35	40	40	41	30	31	26	42	41	37	42	38	31	32
Alveograph L (mm)	100	98	97	92	101	83	96	87	100	93	88	85	102	102	81	79	88	101
Alveograph W (10-4 joules)	117	104	84	85	86	97	107	99	71	69	53	95	91	84	98	81	67	74
Alveograph P/L	0.45	0.44	0.40	0.40	0.35	0.48	0.41	0.47	0.30	0.34	0.29	0.49	0.40	0.36	0.51	0.47	0.35	0.32
Baking Evaluation																		
Crumb Grain	6.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5	5.5	4.5	5.0	5.0	5.0	5.5	5.0	5.0	5.5	5.0
Crumb Texture	5.5	6.0	5.0	5.0	4.5	4.5	5.5	5.5	4.5	4.5	5.5	5.5	5.0	6.0	5.5	5.0	5.0	4.5
Loaf Volume (cc)	763	663	688	720	713	763	750	763	738	738	763	763	725	738	750	738	750	725
Cookie Spread Ratio	8.2	7.5	8.2	10.0	9.3	10.5	9.5	9.9	10.0	9.8	9.5	9.3	8.7	8.7	9.5	9.6	10.5	10.2

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

Soft Red Winter 2011 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)	60.1	60.4	59.5	57.8	58.0	58.7	59.0	58.4	59.0	58.1	59.3	59.0	60.2	61.4	60.3	60.4	57.3	58.4
Count	5	9	9	11	8	17	12	9	11	8	16	12	9	12	5	11	5	14
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	60.4	60.2	60.0	57.4	57.6	59.0	58.8	58.4	59.4	58.3	59.3	58.4	61.5	61.0	60.7	60.1	56.7	58.3
Test Weight (kg/hl)	79.5	79.2	78.9	75.6	75.8	77.6	77.4	76.9	78.2	76.7	78.0	76.9	80.9	80.2	79.8	79.1	74.7	76.7
Damage - Total (%)	0.6	0.7	0.0	0.7	1.3	0.0	0.7	0.7	0.7	0.0	0.0	0.0	0.7	1.3	0.0	1.3	2.0	1.3
Foreign Material (%)	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.3	0.3	0.3	0.0	0.3	0.3	0.3
Shrunken and Broken (%)	0.8	0.6	0.4	0.4	0.5	0.3	0.5	1.2	0.4	0.4	0.4	0.4	0.4	0.6	0.2	0.5	0.3	0.7
Total Defects (%)	1.4	1.6	0.4	1.1	1.8	0.3	1.2	1.9	1.8	0.7	0.4	0.7	1.4	2.2	0.2	2.1	2.6	2.3
Grade	1	1	1	3	3	2	2	2	2	2	2	2	1	1	1	1	3	2
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	12.1	11.8	11.1	14.1	13.2	13.5	14.0	13.8	12.6	13.7	12.6	14.0	11.8	11.4	12.5	12.9	15.1	13.8
Protein (%) 12% mb	11.0	10.6	10.1	11.1	10.5	10.2	10.0	10.3	9.3	10.1	9.6	10.2	11.0	9.8	9.5	9.9	11.0	9.9
Ash (%) 14% mb	1.62	1.60	1.59	1.62	1.59	1.51	1.52	1.54	1.55	1.55	1.52	1.47	1.52	1.46	1.46	1.44	1.52	1.41
1000 Kernel Weight (g)	32.2	32.0	30.3	30.1	30.4	32.8	33.6	34.2	31.9	32.3	29.7	33.5	32.6	33.6	34.7	34.4	32.3	33.7
Wheat Falling Number (sec)	304	329	332	328	340	334	328	328	311	277	322	336	347	359	350	346	333	340
DON (ppm)	0.0	0.4	0.4	0.6	1.0	0.6	0.6	1.5	3.9	3.2	2.0	0.8	0.1	0.2	0.2	0.1	2.7	0.5
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	0.6	1.3	1.0	0.5	1.4	0.4	0.4	0.3	1.0	0.5	0.5	0.8	0.8	0.8	0.5	0.7	1.1	0.6
Moisture (%)	13.2	13.0	12.3	13.0	13.0	13.0	13.0	12.8	13.3	13.0	12.5	13.4	12.4	12.2	13.0	12.3	13.1	12.9
Protein (%) 12% mb	10.8	10.7	10.1	10.9	10.9	10.2	9.4	10.2	9.3	10.0	9.7	10.0	11.1	10.2	9.7	9.9	10.5	10.1
Kernel Size Large (Over 7) (%)	87	81	78	75	79	84	87	87	81	84	80	84	82	81	87	84	80	86
Kernel Size Medium (Over 9) (%)	13	18	24	24	20	16	13	13	19	16	19	16	18	19	12	16	19	14
Kernel Size Small (Thru 9) (%)	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1
Single Kernel Hardness	28.9	35.9	32.0	39.3	29.6	27.7	26.5	26.8	23.1	31.0	29.7	35.5	30.3	38.1	33.4	31.2	37.5	23.5
Single Kernel Weight (mg)	35.2	31.9	30.5	30.3	32.2	33.2	34.2	34.0	33.2	30.7	31.9	33.9	33.7	32.7	32.7	32.6	32.1	33.6
Single Kernel Diameter (mm)	2.78	2.65	2.60	2.60	2.63	2.66	2.71	2.72	2.65	2.68	2.65	2.67	2.65	2.64	2.63	2.60	2.62	2.58
Sedimentation (cc)	11	15	12	12	12	10	10	10	11	13	11	14	13	13	12	13	14	9
DON (ppm)	0.1	0.3	0.6	0.3	0.7	0.8	1.2	1.1	2.2	4.3	3.4	1.1	0.1	0.2	0.6	0.1	2.6	0.7
Flour Data																		
Lab Mill Extraction (%)	73.0	71.6	71.1	68.9	70.5	71.4	71.9	71.3	70.6	71.3	72.3	72.5	70.8	71.3	71.4	71.5	69.5	71.9
Flour Color - *L	93.0	93.3	93.6	93.1	93.0	93.7	93.7	93.9	93.4	93.4	93.4	93.4	93.8	93.9	93.4	93.5	93.2	93.6
Flour Color - *a	-2.9	-3.0	-2.9	-3.2	-3.2	-3.2	-3.1	-3.2	-3.2	-3.1	-3.0	-3.6	-3.0	-3.0	-2.9	-3.3	-3.1	-3.1
Flour Color - *b	7.8	8.6	8.5	8.7	8.5	7.8	7.9	8.2	7.7	7.9	7.5	9.0	8.6	8.7	9.1	8.8	7.5	8.5
Flour Protein (%) 14% mb	10.0	9.5	8.8	8.7	8.9	8.6	8.6	8.5	8.0	8.2	8.4	9.2	9.0	8.3	8.7	8.4	8.9	8.4
Flour Ash (%) 14% mb	0.51	0.48	0.46	0.52	0.46	0.45	0.42	0.40	0.34	0.45	0.43	0.46	0.44	0.44	0.47	0.44	0.43	0.41
Wet Gluten (%)	27.4	25.4	25.3	24.5	24.6	22.8	22.3	22.4	22.1	23.0	23.5	24.6	26.3	24.7	24.9	22.9	23.2	19.5
Gluten Index	88.7	66.9	63.3	91.4	84.4	77.5	65.0	78.1	76.6	93.8	76.2	77.8	60.4	73.8	89.3	95.0	71.5	74.1
Falling Number (sec)	324	312	339	357	344	358	363	289	319	293	330	336	366	355	381	360	312	338
Amylograph (65g) (BU)	330	400	440	780	640	680	610	630	600	410	610	650	670	590	680	700	750	790
Starch Damage (%)	4.9	4.6	4.9	4.6	4.9	4.6	4.2	3.8	3.4	3.8	4.2	4.2	4.9	4.6	3.8	4.2	3.8	4.6
Dough Properties																		
Farinograph Peak (min)	3.0	2.5	1.0	2.0	1.5	1.8	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5
Farinograph Stability (min)	3.5	3.5	2.5	2.5	3.0	3.5	3.5	3.3	3.0	3.0	2.5	4.5	2.0	2.5	4.0	3.0	3.5	2.5
Farinograph Absorption (%)	55.5	55.6	53.4	51.1	52.5	52.5	52.6	52.6	51.8	51.0	51.0	53.3	54.3	53.7	52.7	57.5	52.2	52.2
Alveograph P (mm)	47	49	41	32	36	39	43	38	31	35	28	37	41	36	42	37	32	32
Alveograph L (mm)	98	90	87	92	104	81	109	86	84	85	94	90	106	107	73	83	102	103
Alveograph W (10-4 joules)	127	115	84	74	93	93	121	92	66	74	62	88	90	83	92	79	75	74
Alveograph P/L	0.48	0.54	0.47	0.35	0.35	0.48	0.39	0.44	0.37	0.41	0.30	0.41	0.39	0.34	0.58	0.45	0.31	0.31
Baking Evaluation																		
Crumb Grain	6	6	5	6	5	6	5	5	6	5	5	5	4	5	5	5	5	5
Crumb Texture	6	6	5	5	4	5	5	4	4	5	5	5	5	6	6	5	4	5
Loaf Volume (cc)	775	625	725	715	725	750	750	775	750	725	750	775	675	700	750	750	750	700
Cookie Spread Ratio	8.0	7.2	8.0	9.9	8.7	10.6	9.6	10.2	9.2	9.8	9.3	8.4	8.5	8.1	8.3	8.9	10.6	10.1

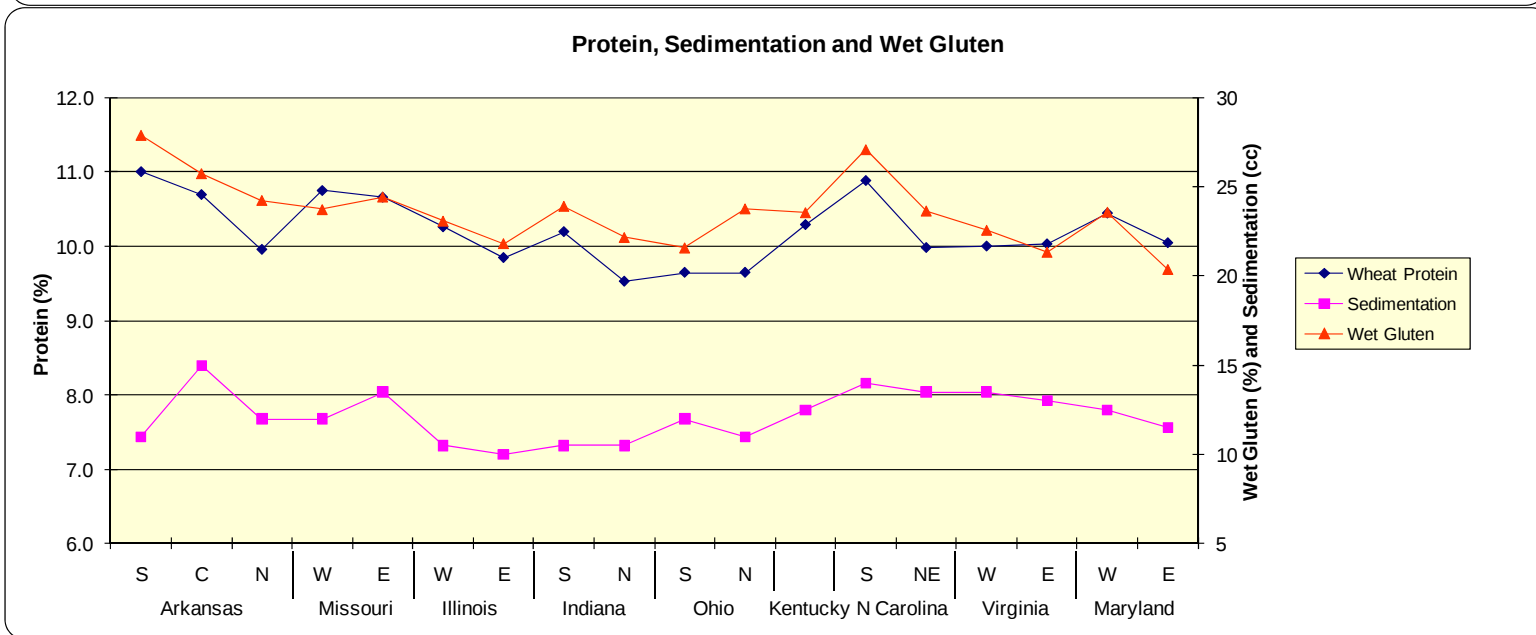
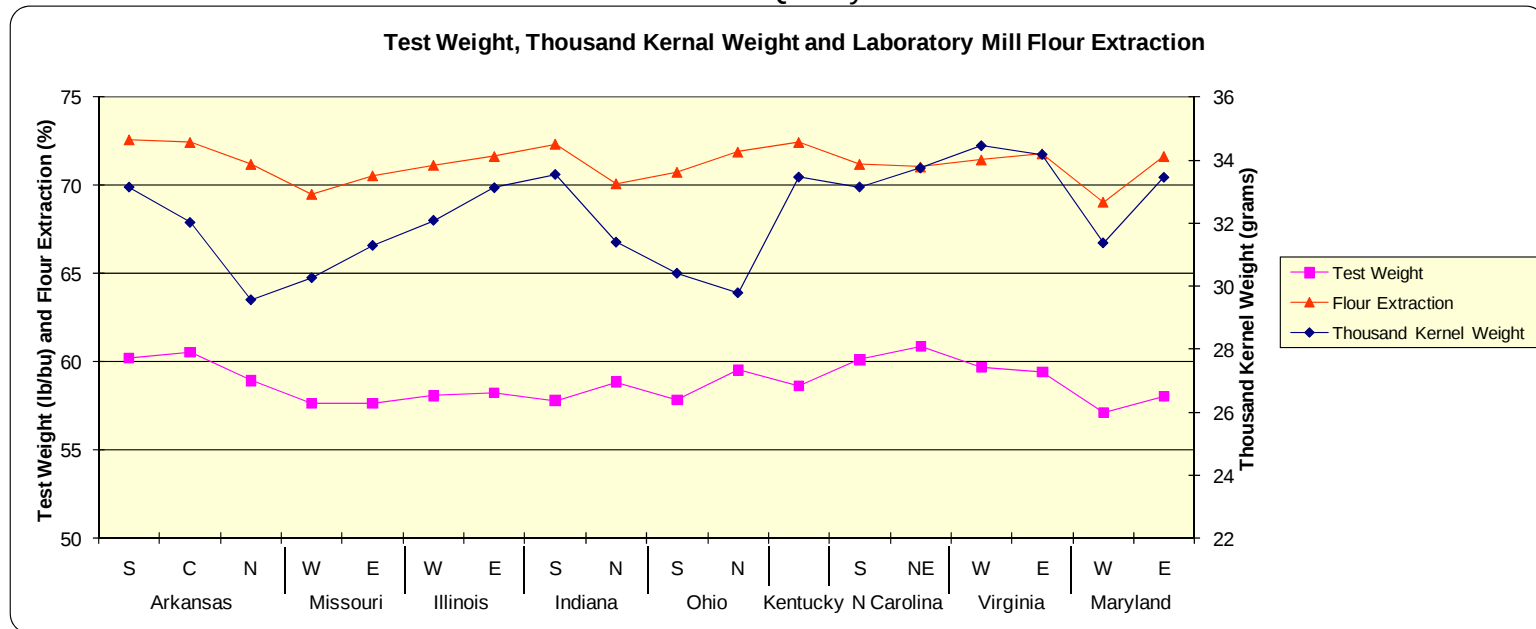
N-North, S-South, E-East, W-West, C-Central, NE-North East, NA-Not Available

Soft Red Winter 2011 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	60.7	58.3	57.5	57.3	57.5	57.6	57.2	58.7	57.6	59.7	58.2	60.1	60.3	59.1	58.6	56.9	57.7
Count	5	9	8	16	7	19	13	10	10	8	17	11	13	11	5	13	4	15
Wheat Grade Data - from Area Composite Samples																		
Test Weight (lb/bu)	60.8	60.5	59.0	58.1	57.1	57.4	57.7	58.0	59.0	57.7	60.0	58.3	60.4	60.0	58.6	58.8	56.7	57.6
Test Weight (kg/hl)	80.0	79.6	77.6	76.5	75.2	75.6	76.0	76.4	77.6	76.0	78.9	76.7	79.5	78.9	77.1	77.4	74.7	75.8
Damage - Total (%)	0.3	1.3	0.7	0.7	0.7	1.3	0.7	0.0	0.0	1.3	0.7	0.7	0.7	0.7	2.0	0.7	0.7	2.0
Foreign Material (%)	0.0	0.3	0.0	0.3	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Shrunken and Broken (%)	0.5	0.4	0.8	0.7	0.3	0.4	0.4	0.3	0.3	0.5	0.4	0.6	0.5	0.3	0.2	0.1	0.3	0.2
Total Defects (%)	0.8	2.0	1.5	1.7	1.0	1.7	1.4	0.6	0.6	1.8	1.1	2.0	1.2	1.0	2.0	0.8	1.0	2.2
Grade	1	1	2	2	3	3	3	2	2	3	1	2	1	1	2	2	3	3
Wheat Non-Grade Data - from Individual Samples																		
Moisture (%)	12.3	11.2	11.4	13.1	13.4	13.4	13.6	13.6	12.7	13.1	12.7	13.4	12.1	12.4	13.1	13.2	12.6	12.9
Protein (%) 12% mb	11.2	10.4	10.0	10.5	10.4	10.2	10.2	10.2	9.4	9.7	9.6	10.5	11.1	10.2	11.3	9.7	10.2	9.7
Ash (%) 14% mb	1.57	1.59	1.55	1.58	1.56	1.52	1.49	1.53	1.56	1.54	1.55	1.44	1.49	1.47	1.39	1.35	1.56	1.46
1000 Kernel Weight (g)	34.1	32.0	28.7	30.4	32.3	31.5	32.7	33.0	30.9	28.5	29.9	33.4	33.5	34.0	34.2	34.0	30.2	33.2
Wheat Falling Number (sec)	341	322	337	332	325	331	323	319	314	289	313	327	353	346	339	336	330	342
DON (ppm)	0.0	0.4	0.4	0.7	0.9	0.8	0.5	0.7	3.2	2.9	2.4	1.5	0.2	0.3	0.3	0.1	1.1	1.7
Wheat Non-Grade Data - from Area Composite Samples																		
Dockage (%)	0.6	0.8	1.3	0.6	0.6	0.3	0.4	0.3	0.4	0.5	0.4	0.7	1.3	0.8	0.5	0.5	0.8	0.3
Moisture (%)	12.9	12.5	12.4	13.1	12.9	13.1	13.0	13.3	12.7	13.0	12.6	13.1	12.9	13.3	12.6	12.5	12.7	13.1
Protein (%) 12% mb	11.2	10.7	9.8	10.6	10.4	10.3	10.3	10.2	9.7	9.3	9.6	10.6	10.7	9.8	10.3	10.2	10.4	10.0
Kernel Size Large (Over 7) (%)	84	80	80	80	79	83	85	88	82	85	80	83	83	83	88	87	80	81
Kernel Size Medium (Over 9) (%)	16	19	19	19	21	16	14	12	17	15	20	17	16	16	12	12	18	18
Kernel Size Small (Thru 9) (%)	1	1	1	0	0	1	1	0	1	0	1	1	1	1	0	1	2	1
Single Kernel Hardness	27.4	33.6	29.0	31.0	26.9	25.2	25.6	21.1	27.1	23.8	30.3	26.8	29.4	28.9	19.8	20.9	20.8	20.0
Single Kernel Weight (mg)	34.5	31.8	30.1	30.5	30.7	30.9	31.3	33.7	31.1	31.8	32.5	32.6	33.5	33.3	33.5	34.3	31.8	33.1
Single Kernel Diameter (mm)	2.72	2.66	2.58	2.58	2.58	2.63	2.63	2.71	2.63	2.65	2.62	2.63	2.67	2.66	2.65	2.66	2.63	2.60
Sedimentation (cc)	11	15	12	12	15	11	10	11	10	11	11	11	15	14	15	13	11	14
DON (ppm)	0.1	0.2	0.6	0.7	1.1	0.8	0.7	0.7	6.7	4.5	2.3	1.2	0.2	0.6	2.5	0.2	1.5	0.1
Flour Data																		
Lab Mill Extraction (%)	72.2	73.3	71.3	70.1	70.6	70.9	71.4	73.4	69.6	70.2	71.5	72.4	71.6	70.8	71.5	72.1	68.6	71.4
Flour Color - *L	93.1	93.5	93.8	93.1	93.0	93.7	93.7	93.2	93.2	93.5	93.2	93.6	93.5	93.8	93.5	93.4	93.1	93.1
Flour Color - *a	-3.0	-3.0	-3.0	-3.0	-3.2	-3.2	-3.1	-3.2	-3.1	-2.7	-3.1	-3.0	-3.4	-3.7	-2.9	-2.9	-3.2	-3.1
Flour Color - *b	7.9	8.4	8.7	8.0	8.5	8.0	7.8	7.6	7.5	8.0	7.5	8.3	8.2	8.8	8.0	7.6	7.3	8.3
Flour Protein (%) 14% mb	9.6	9.6	8.2	8.7	8.8	8.3	8.3	9.0	8.1	7.9	8.3	8.9	9.4	8.1	8.4	8.2	8.1	8.3
Flour Ash (%) 14% mb	0.47	0.45	0.39	0.41	0.46	0.43	0.45	0.45	0.44	0.40	0.46	0.44	0.45	0.40	0.45	0.42	0.41	0.40
Wet Gluten (%)	28.5	26.2	23.2	23.0	24.3	23.4	21.4	25.4	22.3	20.2	24.1	22.5	27.9	22.6	20.3	19.8	24.0	21.2
Gluten Index	88.9	81.5	84.0	73.3	93.0	87.3	91.6	87.8	63.8	78.8	71.2	75.1	79.7	86.5	96.2	76.7	85.4	92.4
Falling Number (sec)	308	328	318	342	335	386	347	338	337	297	328	324	369	316	341	332	300	347
Amylograph (65g) (BU)	320	370	550	760	670	720	690	560	590	410	570	570	640	670	610	690	690	790
Starch Damage (%)	4.2	4.9	4.6	4.6	4.2	4.2	3.8	4.6	4.2	3.4	4.2	5.3	4.6	4.2	4.2	3.8	3.8	3.8
Dough Properties																		
Farinograph Peak (min)	3.0	2.5	2.0	2.0	2.0	2.0	1.5	2.0	2.0	1.5	1.5	2.0	2.5	2.5	2.0	2.0	2.0	1.5
Farinograph Stability (min)	3.0	3.0	2.8	3.0	3.0	3.0	2.3	3.5	3.0	2.3	2.5	3.5	3.0	2.5	3.5	3.0	2.5	3.0
Farinograph Absorption (%)	55.4	54.4	53.9	52.3	52.3	52.3	52.4	54.1	50.8	51.1	51.2	55.1	54.8	53.5	52.3	51.6	52.4	51.3
Alveograph P (mm)	42	37	37	41	34	40	36	43	29	27	23	46	40	37	41	38	29	32
Alveograph L (mm)	102	105	106	92	97	85	83	88	116	100	81	80	98	96	89	75	74	99
Alveograph W (10-4 joules)	106	93	84	96	78	100	92	106	76	63	43	102	91	84	104	83	59	74
Alveograph P/L	0.41	0.35	0.35	0.45	0.35	0.47	0.43	0.49	0.25	0.27	0.28	0.58	0.41	0.39	0.46	0.51	0.39	0.32
Baking Evaluation																		
Crumb Grain	6	5	5	5	5	5	5	6	5	4	5	5	6	6	5	5	6	5
Crumb Texture	5	6	5	5	5	4	6	7	5	4	6	6	5	6	5	5	6	4
Loaf Volume (cc)	750	700	650	725	700	775	750	750	725	750	775	750	775	775	750	725	750	750
Cookie Spread Ratio	8.3	7.8	8.3	10.1	9.8	10.3	9.3	9.5	10.7	9.7	9.7	10.2	8.8	9.2	10.7	10.3	10.3	10.3

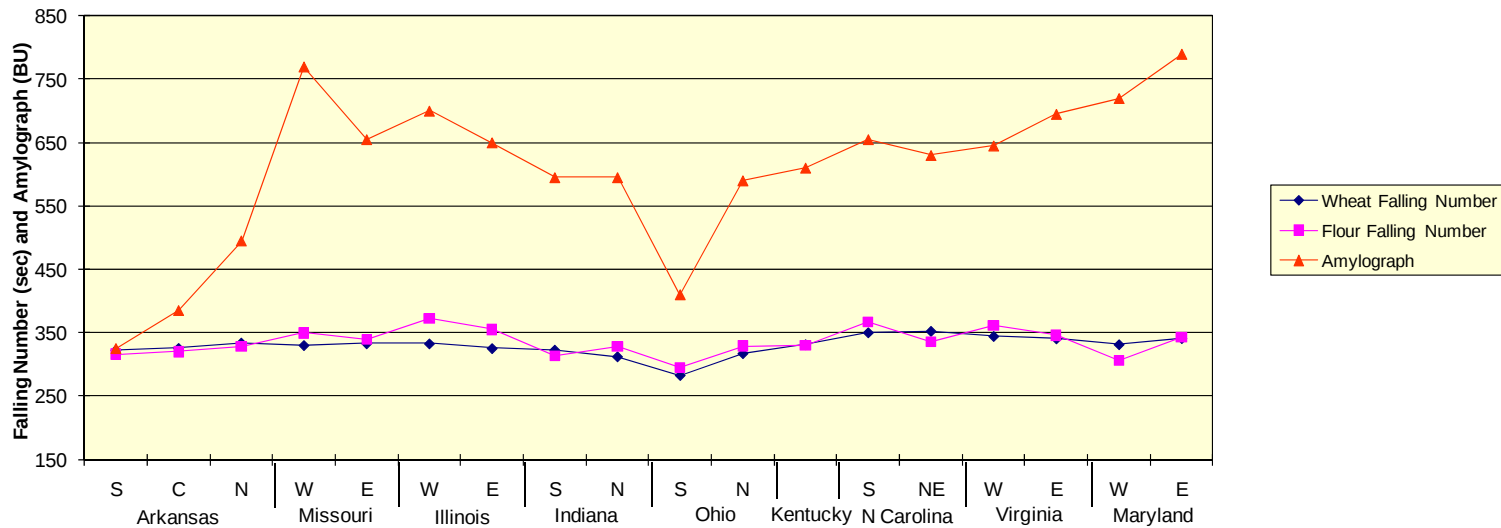
N-North, S-South, E-East, W-West, C-Central, NE-North East, NA-Not Available

Comparisons of 2011 Results For Selected Quality Factors

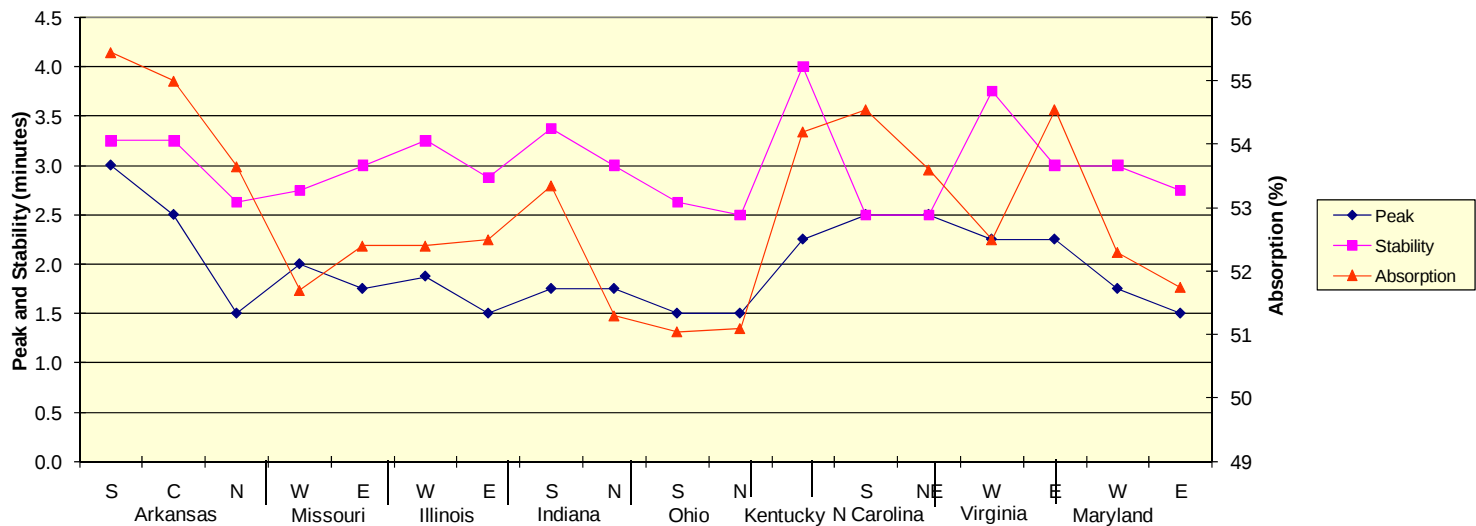


Comparisons of 2011 Results For Selected Quality Factors

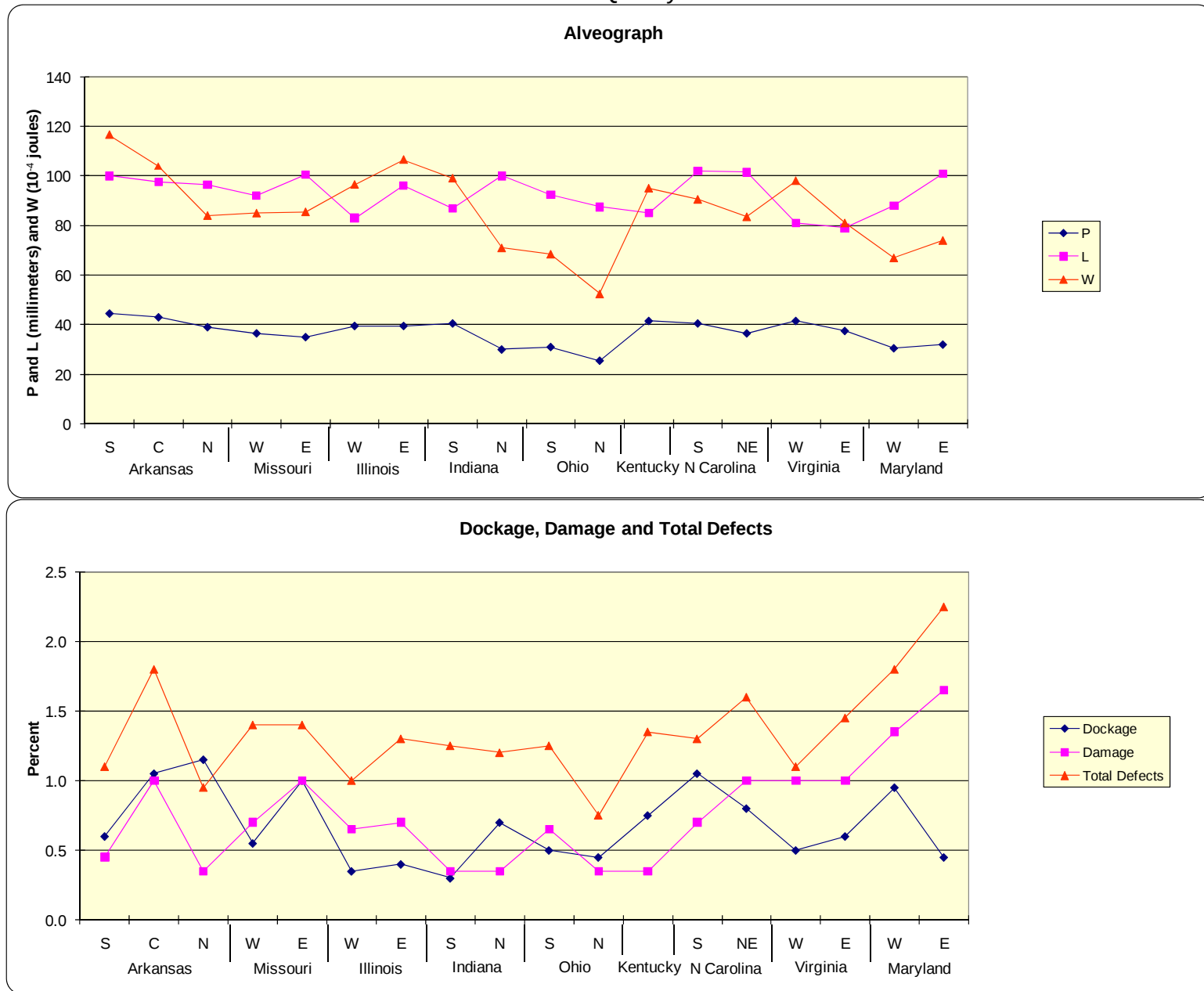
Falling Numbers and Amylograph



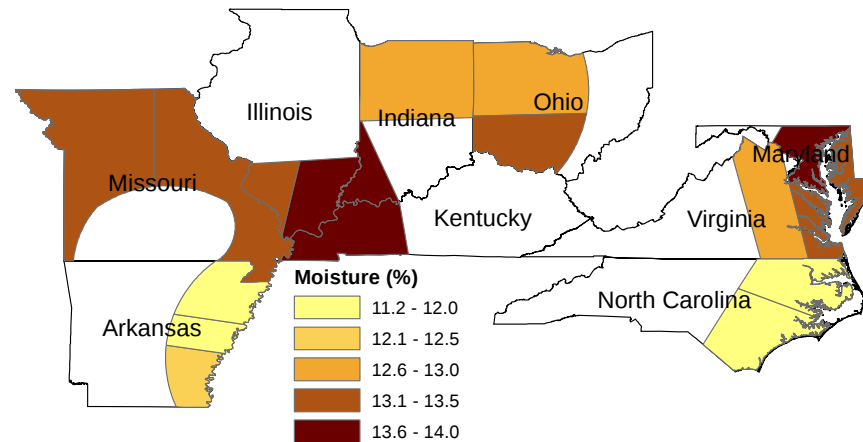
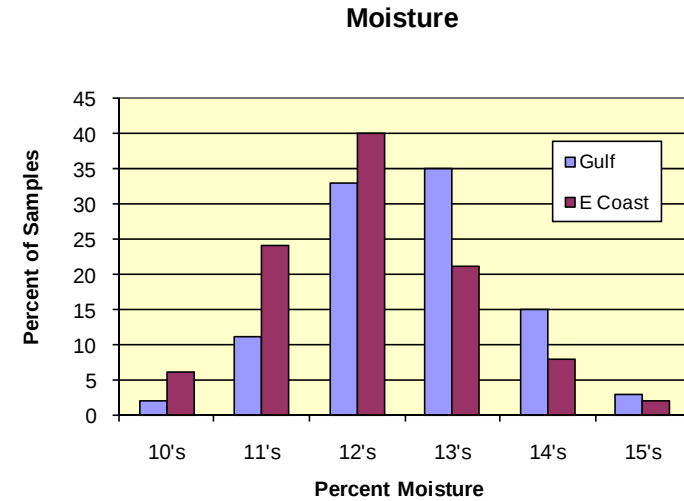
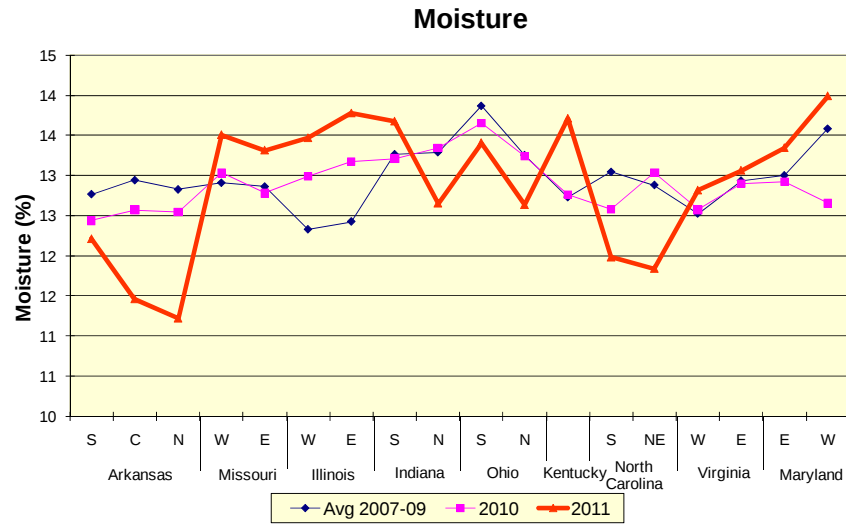
Farinograph



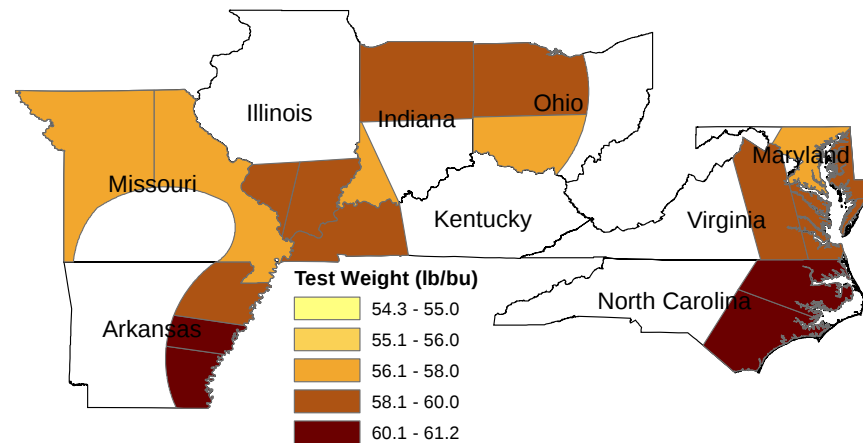
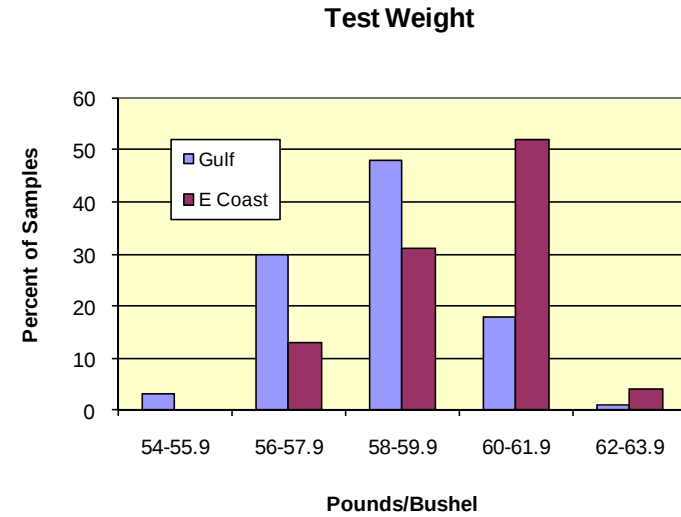
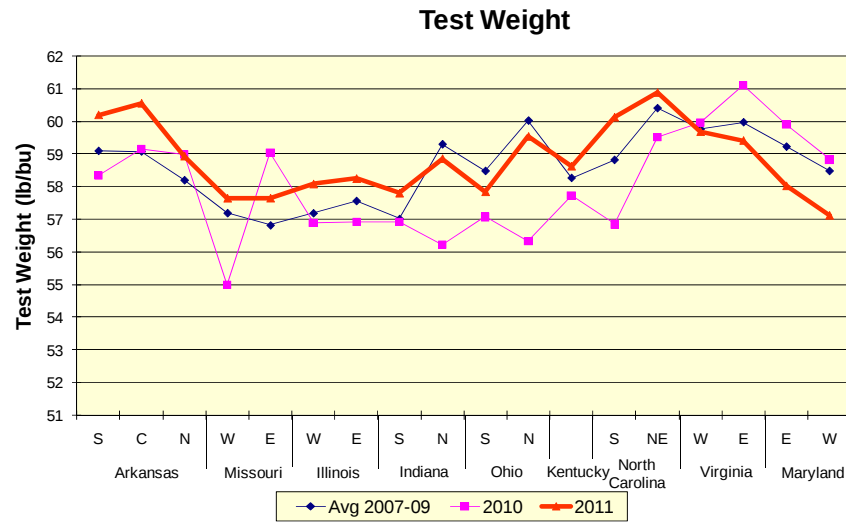
Comparisons of 2011 Results For Selected Quality Factors



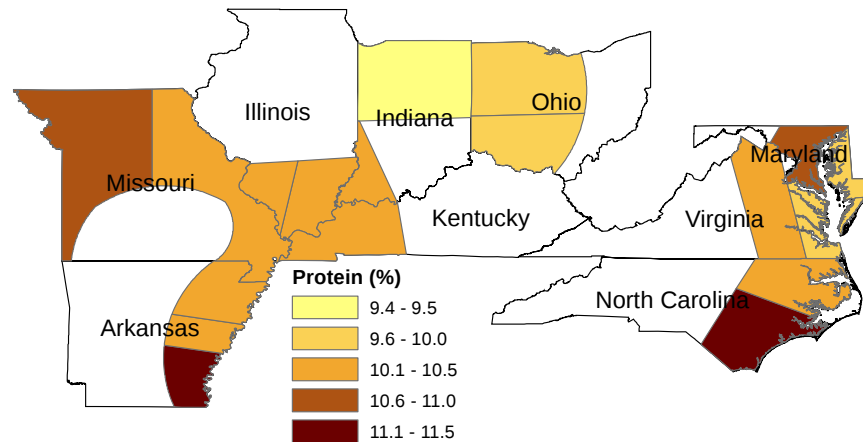
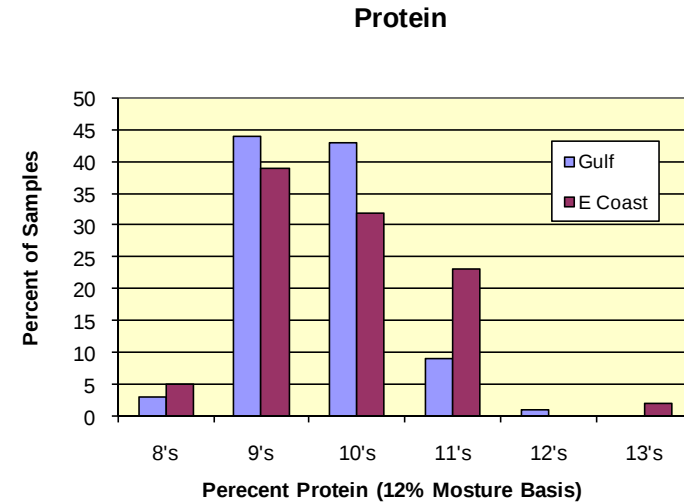
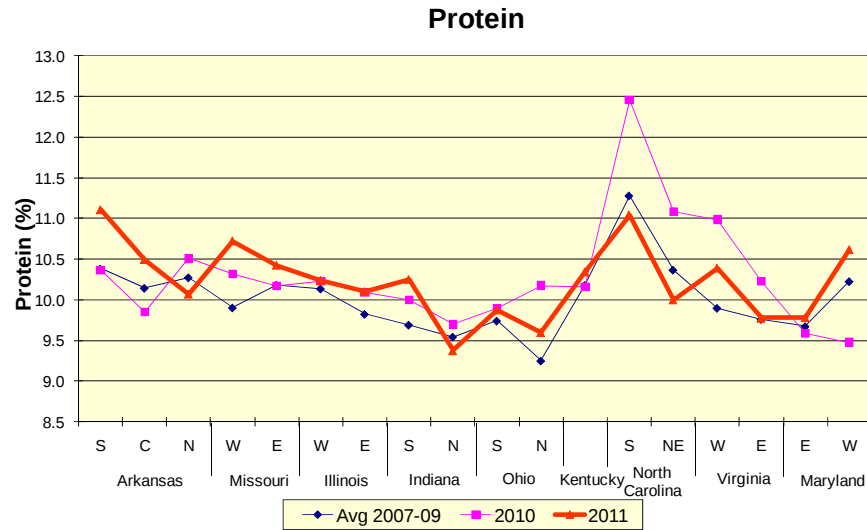
Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors



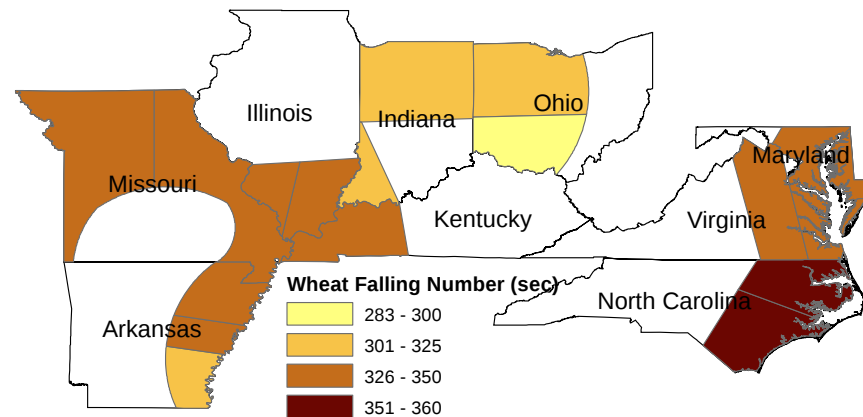
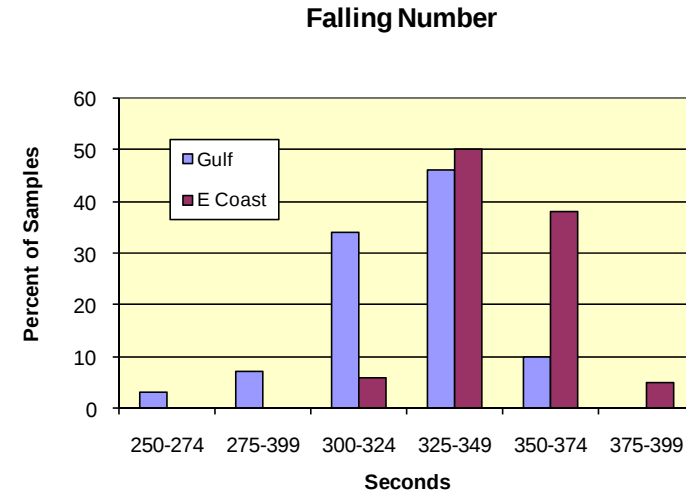
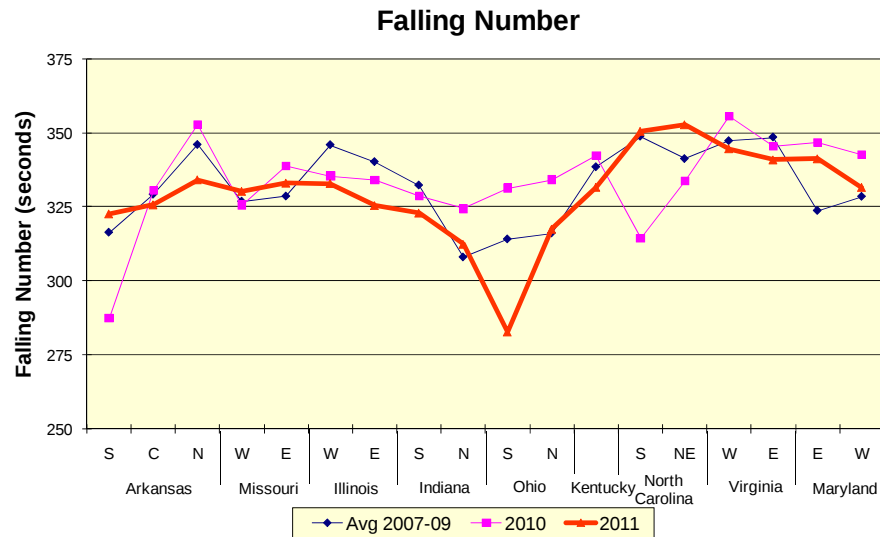
Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors



Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

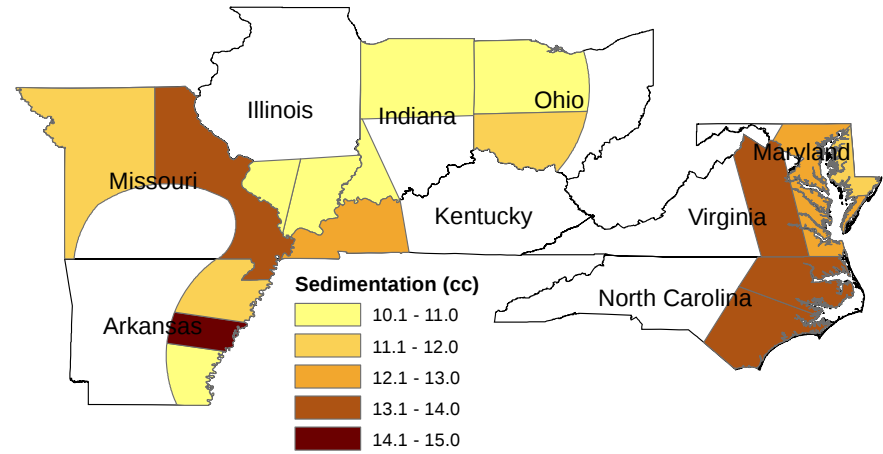
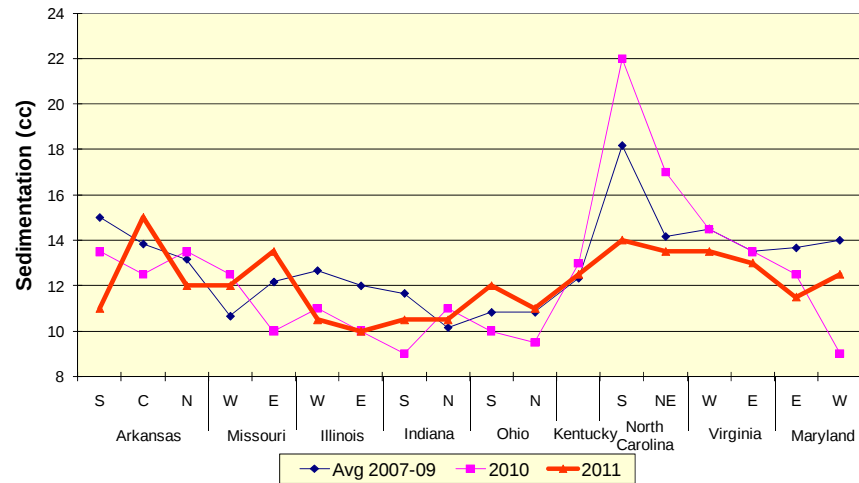


Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

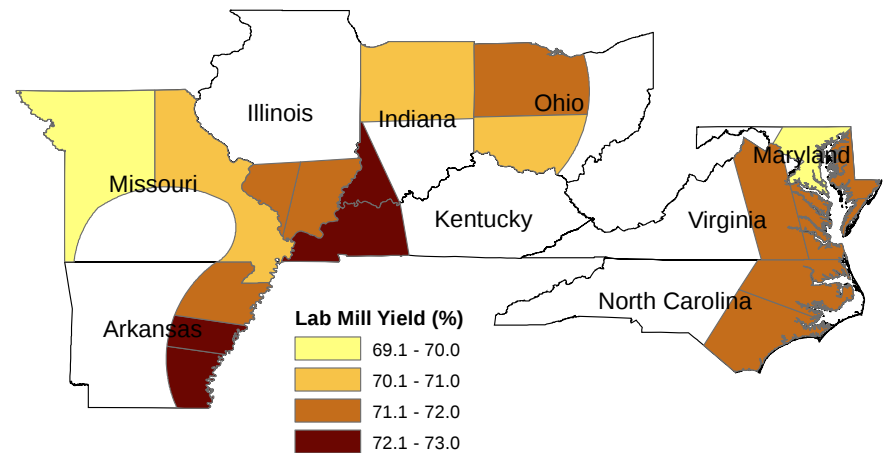
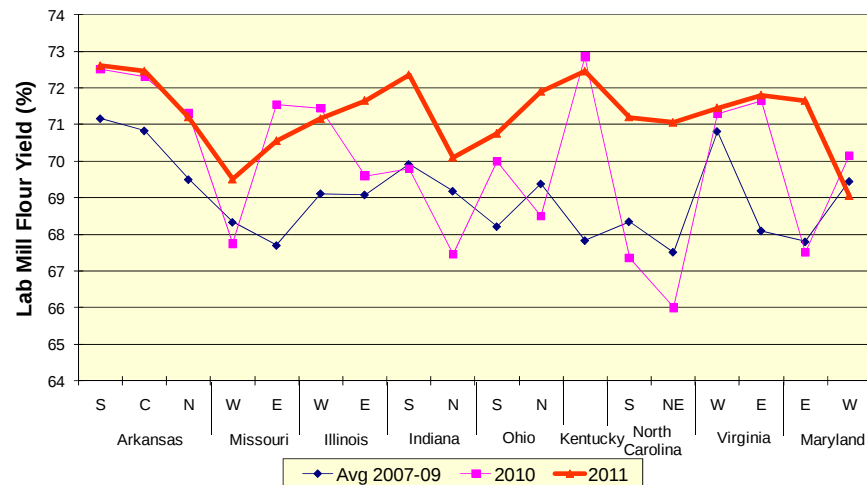


Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

Sedimentation

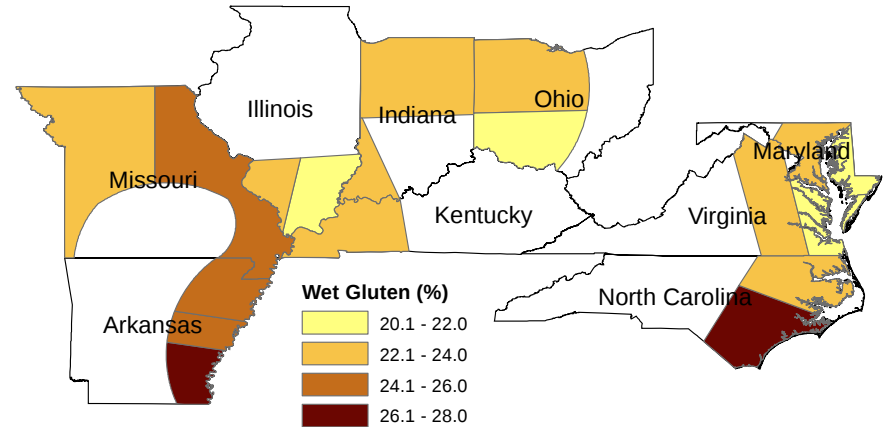
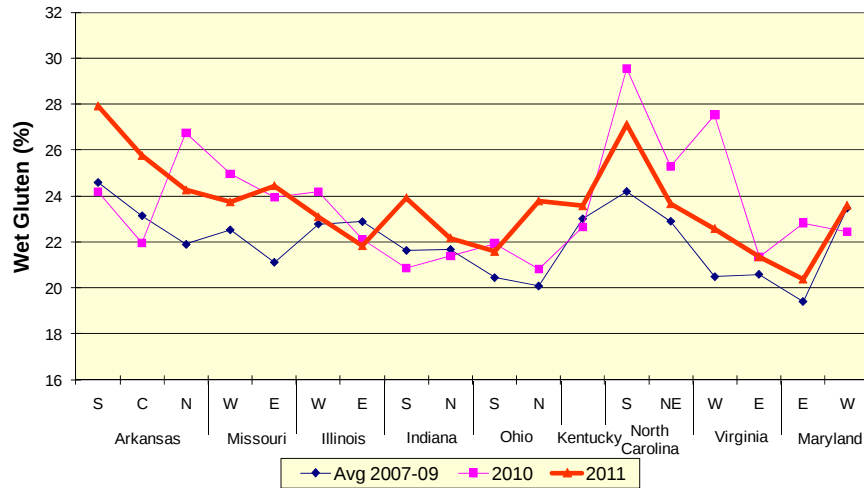


Laboratory Mill Flour Yield

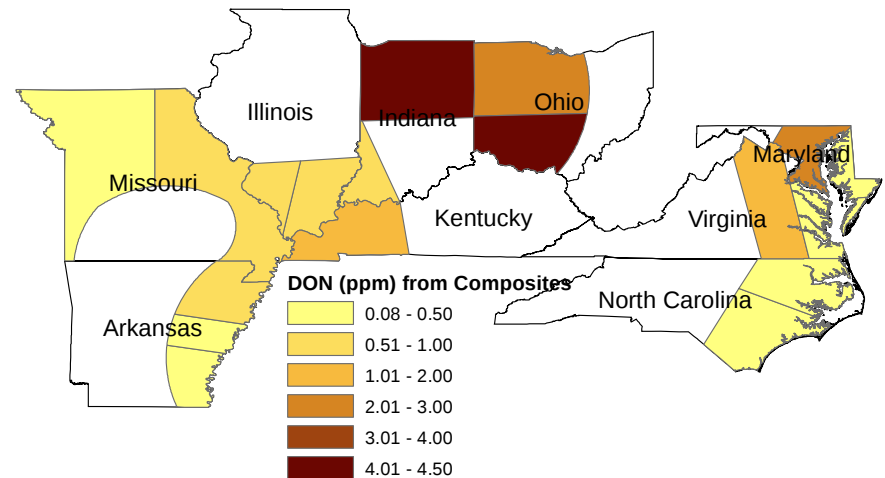
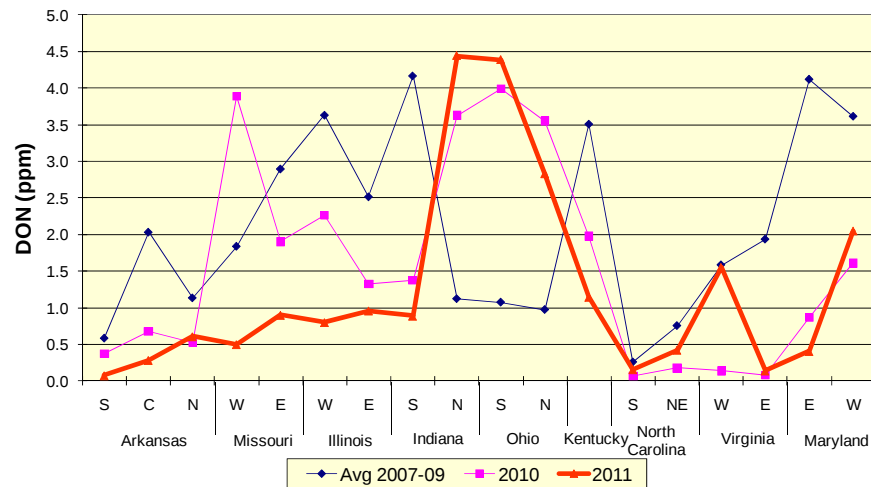


Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

Wet Gluten

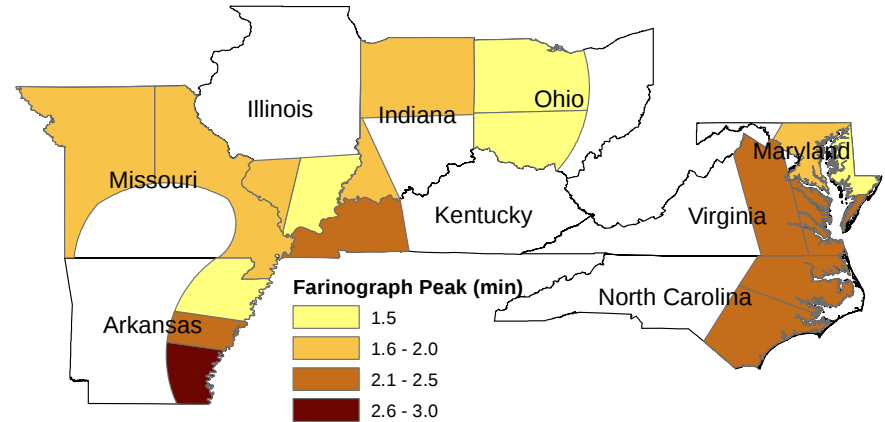
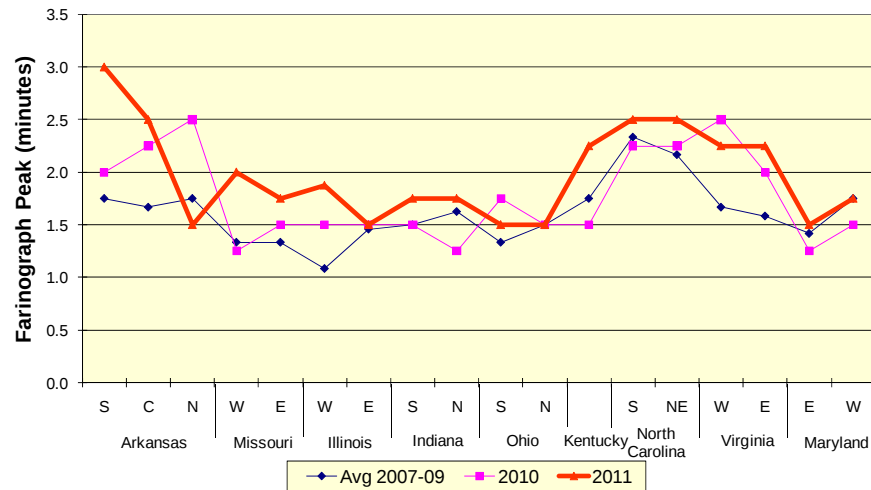


DON

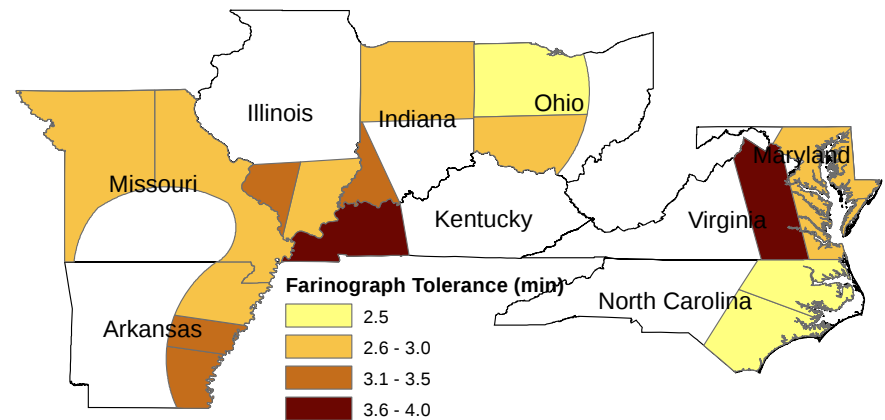
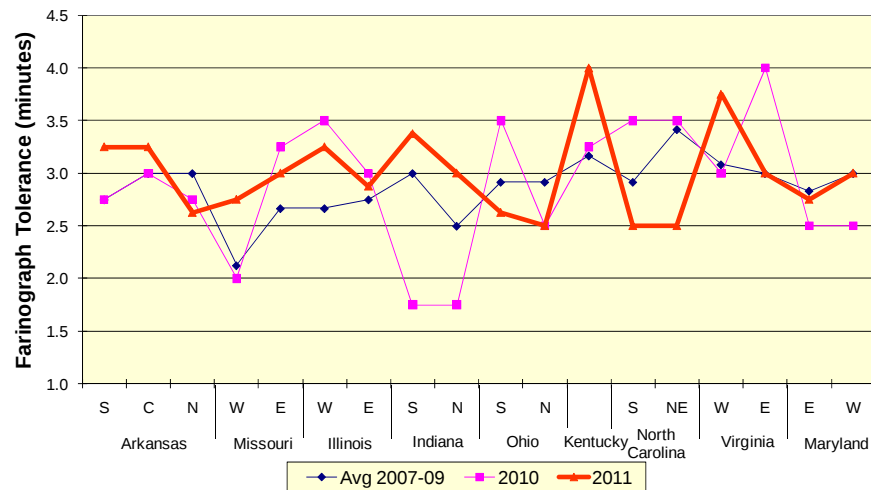


Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

Farinograph Peak

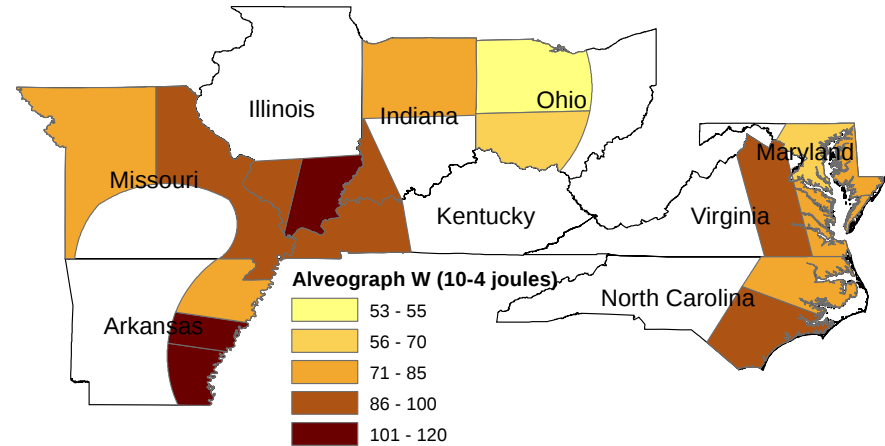
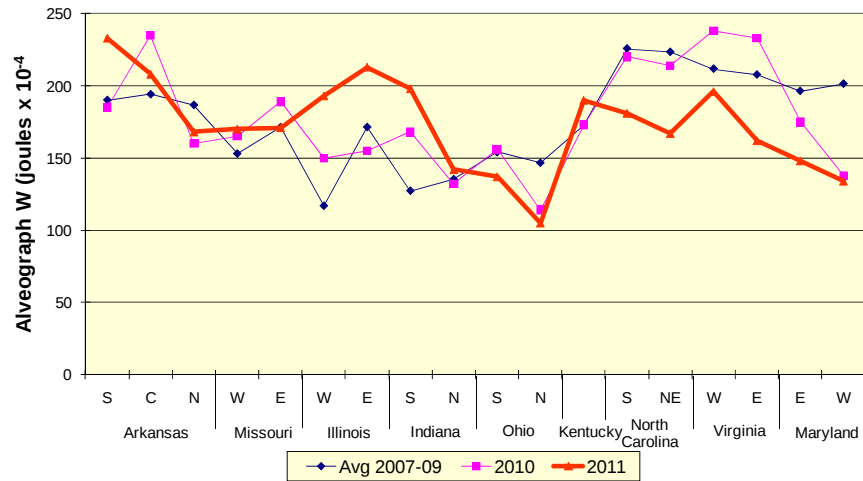


Farinograph Tolerance



Distribution of 2011 Results and Comparisons with Previous Years For Selected Quality Factors

Alveograph W Value



Alveograph P/L

