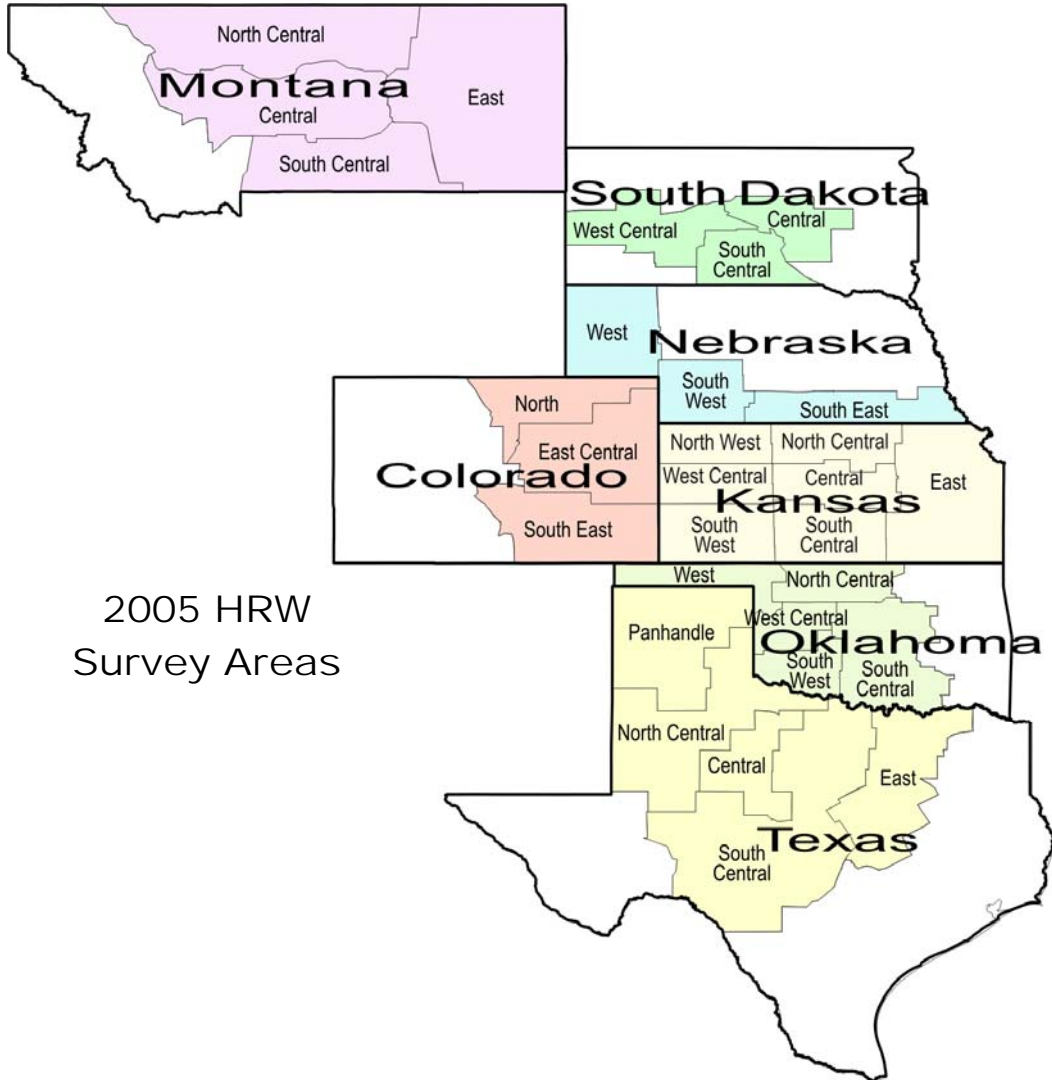




Hard Red Winter Wheat Quality Survey

2005

Survey Overview



2005 HRW
Survey Areas

Samples were collected by USDA's National Agricultural Statistics Service in seven states. CII Laboratory Services, Kansas City, Missouri, performed the quality evaluation except grade, single kernel and extensigraph analysis. Kansas Grain Inspection Service graded the samples. Kansas State University's International Grains Program performed single kernel analysis. Extensigraph analysis was performed on selected composites by the Department of Plant Sciences, North Dakota State University. U.S. Wheat Associates summarized the data.

The 30 areas shown above are used for reporting the results from 1030 HRW samples. The tests done on individual wheat samples include: test weight, moisture, protein, thousand kernel weight, ash, falling number and grade. Four composites were then made for each area for the remaining analyses: an overall composite including all samples and three composites by protein range, Low (less than 11.5% protein), Medium (11.5% to 12.5%) and High (greater than 12.5%). The tables on the following pages summarize these individual sample and composite results in different ways. No composite was made if less than five samples were available in the area/protein range.

This survey was supported by the Kansas Wheat Commission, Oklahoma Wheat Commission, Texas Wheat Producers Board, Nebraska Wheat Board, South Dakota Wheat Commission, Montana Wheat and Barley Committee, the Colorado Wheat Administrative Committee, U.S. Wheat Associates and USDA's Foreign Agricultural Service

Hard Red Winter 2005 Survey

	Composite Average						Gulf Exportable Average						PNW Exportable Average					
	Low	Medium	High	Overall	2004 Overall	5-Year Avg	Low	Medium	High	Overall	2004 Overall	5-Year Avg	Low	Medium	High	Overall	2004 Overall	5-Year Avg
Wheat Grade Data																		
Test Weight (lb/bu)	60.6	59.9	59.3	59.9	58.8	59.6	60.5	60.0	59.4	60.0	58.7	59.4	60.9	59.4	58.9	59.6	59.5	59.8
Test Weight (kg/hl)	79.7	78.9	78.0	78.8	77.4	78.3	79.6	79.0	78.1	78.9	77.3	78.2	80.2	78.2	77.5	78.4	78.3	78.6
Damaged Kernels (%)	0.1	0.2	0.3	0.2	1.0	0.4	0.1	0.2	0.3	0.2	1.0	0.4	0.1	0.1	0.2	0.1	0.6	0.4
Foreign Material (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Shrunken and Broken (%)	1.1	1.2	1.2	1.2	1.2	1.3	1.1	1.1	1.2	1.1	1.2	1.3	1.3	1.7	1.3	1.4	1.3	1.4
Total Defects (%)	1.3	1.4	1.6	1.4	2.2	1.8	1.3	1.4	1.6	1.4	2.3	1.7	1.5	2.0	1.6	1.6	2.0	1.8
Grade	1	2	2	2	2	2	1	1	2	1	2	2	1	2	2	2	2	2
Wheat Non-Grade Data																		
Dockage (%)	0.7	0.8	0.7	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.9	0.9	0.8	0.9	0.9	0.8
Moisture (%)	11.5	11.0	10.9	11.1	11.6	11.5	11.6	11.1	11.0	11.2	11.6	11.7	10.4	10.1	10.3	10.3	11.1	11.0
Protein (%)	10.4/11.8	12.0/13.6	14.0/15.9	12.2/13.8	12.7/14.4	12.4/14.1	10.4/11.8	12.0/13.6	13.9/15.8	12.1/13.8	12.7/14.4	12.3/14.0	10.5/11.9	12.1/13.7	14.2/16.2	12.6/14.3	12.8/14.5	12.8/14.5
Ash (%)	1.50/1.74	1.54/1.79	1.62/1.88	1.55/1.81	1.56/1.81	1.55/1.81	1.49/1.74	1.54/1.79	1.61/1.87	1.55/1.80	1.57/1.83	1.56/1.82	1.55/1.80	1.57/1.83	1.65/1.92	1.60/1.86	1.52/1.77	1.53/1.77
1000 Kernel Weight (g)	30.0	28.6	27.5	28.7	27.8	28.3	30.1	29.0	27.7	28.9	27.8	28.2	28.5	25.9	26.2	26.8	28.3	28.2
Kernel Size (%) Ig/md/sm	69/30/01	57/41/02	50/48/02	55/43/02	57/42/01	52/46/02	70/29/01	59/39/02	52/46/02	56/42/02	57/42/01	53/45/02	59/39/02	46/52/02	38/59/03	46/52/02	55/44/01	48/50/02
Single Kernel: Hardness	65.5	67.5	68.2	67.2	64.5	73.6	65.2	67.0	68.1	66.9	63.9	73.8	68.9	72.1	69.5	70.4	70.2	73.4
Weight (mg)	31.6	30.0	29.6	30.0	29.0	29.0	31.8	30.3	29.9	30.1	29.0	28.9	29.8	27.6	27.1	29.0	29.1	29.0
Diameter (mm)	2.38	2.29	2.27	2.30	2.24	2.25	2.40	2.31	2.28	2.30	2.25	2.24	2.27	2.15	2.13	2.23	2.19	2.20
Sedimentation (cc)	28.2	35.6	53.4	40.5	46.2	42.2	28.1	35.6	54.0	40.2	45.6	41.8	29.5	36.3	50.3	42.2	50.5	44.2
Falling Number (sec)	391	408	406	401	382	403	390	408	407	401	383	401	400	413	400	403	368	409
Flour Data																		
Extraction Rate (%)	69.5	68.9	68.8	69.1	69.1	69.6	69.4	68.9	68.9	69.0	69.1	69.5	70.4	69.3	68.6	69.8	69.1	70.0
Color - *L	92.3	92.3	92.0	92.2	92.4	92.3	92.2	92.3	91.9	92.1	92.4	92.1	92.7	92.7	92.6	92.6	92.5	92.5
Color - *a	-3.2	-3.2	-3.2	-3.2	-3.2	-3.3	-3.2	-3.1	-3.1	-3.1	-3.2	-3.3	-3.3	-3.3	-3.4	-3.3	-3.2	-3.3
Color - *b	9.1	9.2	9.4	9.3	8.7	9.3	9.1	9.1	9.3	9.2	8.7	9.3	9.3	9.6	10.0	9.8	8.9	9.3
Protein (%)	9.4/10.9	10.5/12.3	12.0/13.9	10.9/12.7	11.4/13.3	11.1/12.9	9.4/10.9	10.5/12.2	11.9/13.9	10.8/12.6	11.4/13.3	11.0/12.8	9.6/11.1	10.6/12.4	12.3/14.3	11.5/13.4	11.5/13.4	11.4/13.2
Ash (%)	0.47/0.55	0.48/0.56	0.49/0.56	0.47/0.55	0.48/0.56	0.49/0.57	0.47/0.55	0.48/0.55	0.48/0.56	0.47/0.55	0.48/0.56	0.49/0.57	0.47/0.55	0.49/0.57	0.49/0.57	0.49/0.57	0.45/0.52	0.47/0.55
Wet Gluten (%)	24.6	28.6	33.8	29.9	31.2	29.5	24.5	28.4	33.6	29.5	31.0	29.3	24.9	29.8	34.6	32.7	32.5	30.4
Gluten Index	98.3	96.2	95.7	96.5	91.6	0.0	98.3	96.8	96.1	96.8	92.0	0.0	97.7	91.5	93.2	94.7	88.6	0.0
Falling Number (sec)	398	409	438	412	379	419	396	406	433	410	377	414	415	431	464	428	392	439
Amylograph (65g) (BU)	645	690	694	667	473	623	645	695	694	664	478	624	646	657	689	686	430	621
Starch Damage (%)	7.2	7.9	7.6	7.7	7.4	8.4	7.2	7.9	7.6	7.7	7.4	8.5	7.7	7.7	7.6	7.4	7.8	8.1
Dough Properties																		
Farinograph Peak (min)	4.6	5.6	6.5	6.0	6.6	6.1	4.5	5.6	6.5	6.0	6.6	6.1	5.5	5.7	6.7	6.3	6.5	6.3
Farinograph Stability (min)	8.5	10.2	11.8	10.5	12.4	11.2	8.4	10.4	11.7	10.5	12.3	11.2	8.7	9.3	12.5	11.0	12.9	11.6
Farinograph Absorption (%)	56.7	57.9	60.0	58.5	59.2	59.4	56.7	57.9	60.0	58.3	58.9	59.3	57.1	58.0	60.0	59.3	60.7	59.8
Alveograph P (mm)	76	83	86	84	87	95	75	83	87	84	86	96	81	87	81	83	96	95
Alveograph L (mm)	93	100	114	102	112	95	94	100	113	102	113	94	88	96	117	105	106	96
Alveograph W (10-4 joules)	236	281	321	287	320	304	236	282	324	288	318	304	241	276	303	281	330	305
Extensigraph Resistance	510/600	545/635	505/575	500/630	575/625	559/590	510/600	545/635	505/575	500/630	575/625	559/590	515/625	540/640	490/555	475/560	590/690	561/597
Extensigraph Extension	15.7/17.5	17.7/14.9	19.3/19.9	16.8/18.0	16.9/16.0	18.1/16.5	15.7/17.5	17.7/14.9	19.3/19.9	16.8/18.0	16.9/16.0	18.1/16.5	16.8/15.3	18.0/16.4	20.5/20.1	18.9/18.2	17.7/16.5	17.9/15.8
Extensigraph Area	120/127	128/119	128/148	111/151	125/125	129/127	120/127	128/119	128/148	111/151	125/125	129/127	112/129	128/136	129/141	117/132	133/150	127/125
Baking Evaluation																		
Crumb Grain	6.0	6.1	6.6	6.5	7.0	6.9	6.0	6.0	6.5	6.5	7.0	6.9	6.0	6.5	7.2	6.7	6.9	7.0
Crumb Texture	6.2	6.5	7.1	6.8	7.4	7.4	6.2	6.5	7.0	6.8	7.4	7.4	6.5	6.5	7.5	7.0	7.2	7.2
Loaf Volume (cc)	785	846	902	840	844	846	786	846	907	840	849	845	777	845	877	842	810	841
% of Area Production	36%	26%	38%	100%			32%	23%	32%	88%			3%	3%	6%	12%		

Hard Red Winter 2005 Survey - All Samples

	Texas	Oklahoma	Kansas	Colorado	Nebraska	South Dakota	Montana
Wheat Grade Data - from Individual Samples							
Test Weight (lb/bu)	60.4	59.4	60.2	58.1	59.3	60.3	61.5
Test Weight (kg/hl)	79.5	78.2	79.2	76.4	78.1	79.3	80.9
Damage - Total (%)	0.2	0.3	0.2	0.2	0.1	0.5	0.0
Foreign Material (%)	0.1	0.2	0.1	0.1	0.1	0.1	0.0
Shrunken and Broken (%)	1.2	1.1	1.1	1.6	1.1	1.3	1.3
Total Defects (%)	1.4	1.6	1.3	1.9	1.3	1.9	1.4
Wheat of Other Classes (%)	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Constrasting Classes (%)	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Grade	1	2	1	2	2	1	1
Count	181	164	300	113	101	74	90
Wheat Grade Data - from Area Composite Samples							
Test Weight (lb/bu)	60.2	59.2	60.0	58.1	58.9	60.5	61.2
Test Weight (kg/hl)	79.2	77.9	78.9	76.5	77.6	79.6	80.5
Damage - Total (%)	0.2	0.3	0.3	0.3	0.2	0.3	0.1
Foreign Material (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Shrunken and Broken (%)	1.1	1.2	1.1	1.8	1.0	1.3	1.7
Total Defects (%)	1.4	1.6	1.5	2.2	1.3	1.7	1.8
Wheat of Other Classes (%)	0.0	0.1	0.2	0.0	0.0	0.0	0.0
Constrasting Classes (%)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Grade	1	2	1	2	2	1	1
Wheat Non-Grade Data - from Individual Samples							
Dockage (%)	0.9	0.9	0.6	1.1	0.8	0.7	0.6
Moisture (%)	11.3	11.7	11.2	10.5	10.9	11.0	9.8
Protein (%) 12%/0% mb	11.6/13.2	11.7/13.3	12.3/14.0	13.2/15.0	12.1/13.8	11.9/13.5	12.4/14.1
Ash (%) 14%/0% mb	1.48/1.72	1.43/1.66	1.56/1.82	1.66/1.93	1.66/1.93	1.87/2.18	1.48/1.72
1000 Kernel Weight (g)	29.0	27.6	30.0	25.3	26.9	28.1	28.2
Wheat Falling Number (sec)	392	400	406	377	398	416	425
Wheat Non-Grade Data - from Area Composite Samples							
Dockage (%)	1.3	0.9	0.7	1.5	1.0	0.7	0.8
Moisture (%)	11.3	11.9	11.4	10.0	10.9	10.9	9.9
Protein (%) 12%/0% mb	11.5/13.1	12.0/13.6	12.1/13.8	13.0/14.8	12.4/14.1	11.5/13.1	12.7/14.4
Kernel Size Large (Over 7) (%)	62	53	58	36	50	59	56
Kernel Size Medium (Over 9) (%)	36	45	40	61	52	40	42
Kernel Size Small (Thru 9) (%)	2	2	2	2	2	2	2
Single Kernel Hardness	70.4	59.4	66.1	71.6	40.6	64.4	72.4
Single Kernel Weight (mg)	29.5	24.9	30.6	27.4	17.3	30.4	28.7
Single Kernel Diameter (mm)	2.26	1.95	2.32	2.14	1.33	2.29	2.23
Sedimentation (cc)	32.2	35.5	44.1	46.2	37.6	35.4	40.9
Flour Data							
Flour Extraction Rate (%)	69.3	68.6	69.2	67.3	68.9	70.3	71.6
Flour Color - *L	91.9	92.2	92.0	92.4	92.6	92.8	92.7
Flour Color - *a	-3.4	-3.2	-3.0	-3.4	-3.2	-3.2	-3.1
Flour Color - *b	9.6	9.3	8.9	10.2	9.5	9.2	9.6
Flour Protein (%)	10.3	10.6	10.9	11.8	11.2	10.4	11.7
Flour Ash (%)	0.49	0.47	0.46	0.51	0.48	0.45	0.47
Wet Gluten (%)	28.1	28.4	29.7	34.7	30.2	29.2	32.3
Gluten Index	93.3	97.2	97.6	92.0	99.1	97.8	94.9
Falling Number (sec)	399	438	404	403	412	408	452
Amylograph (65g) (BU)	559	651	698	603	645	836	710
Starch Damage (%)	7.8	7.6	7.9	7.2	7.0	6.7	7.8
Dough Properties							
Farinograph Peak (min)	5.0	6.3	6.0	6.6	6.3	5.8	6.0
Farinograph Stability (min)	9.4	11.0	10.3	12.2	10.6	11.2	10.0
Farinograph Absorption (%)	58.4	58.0	58.5	60.2	58.1	55.5	60.2
Alveograph P (mm)	91	80	85	83	74	63	93
Alveograph L (mm)	89	106	102	109	113	106	93
Alveograph W (10-4 joules)	269	291	297	276	275	228	304
Baking Evaluation							
Crumb Grain	5.9	6.2	6.6	7.2	6.7	6.7	6.3
Crumb Texture	5.5	6.3	7.2	7.7	6.7	7.0	6.2
Loaf Volume (cc)	800	850	835	904	885	861	747

Hard Red Winter 2005 Survey - All Samples

	Texas					Oklahoma					Kansas					Colorado			Nebraska			South Dakota			Montana					
	E	SC	C	NC	P	SC	SW	WC	NC	W	E	SC	SW	C	WC	NC	NW	SE	EC	N	SE	SW	W	SC	C	WC	E	SC	C	NC
Wheat Grade Data - from Individual Samples																														
Test Weight (lb/bu)	61.8	60.5	59.8	61.1	59.8	59.8	60.1	58.7	59.6	58.5	60.1	59.8	60.6	60.5	60.2	60.7	59.8	59.4	58.0	57.4	61.3	58.6	58.7	60.0	60.3	60.6	61.6	61.0	60.5	62.1
Test Weight (kg/hl)	81.3	79.6	78.7	80.4	78.6	78.6	79.1	77.2	78.4	77.0	79.1	78.7	79.7	79.5	79.2	79.9	78.7	78.2	76.4	75.5	80.6	77.1	77.3	78.9	79.3	79.7	81.0	80.2	79.5	81.7
Damage - Total (%)	0.1	0.6	0.3	0.1	0.2	0.1	0.2	0.5	0.2	0.3	0.2	0.2	0.3	0.1	0.1	0.0	0.4	0.1	0.2	0.2	0.1	0.2	0.1	0.5	1.0	0.1	0.0	0.0	0.0	0.0
Foreign Material (%)	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.5	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Shrunken and Broken (%)	0.9	1.1	0.9	1.0	1.4	1.1	1.0	1.2	1.0	1.4	1.3	1.0	0.9	1.1	1.0	1.4	1.0	1.4	1.6	1.7	1.1	1.0	1.3	1.2	1.2	1.4	1.3	1.6	1.6	1.2
Total Defects (%)	1.0	1.9	1.2	1.1	1.7	1.4	1.3	2.2	1.3	1.8	1.6	1.3	1.1	1.2	1.1	1.5	1.5	1.6	1.9	2.0	1.2	1.2	1.6	1.8	2.3	1.5	1.4	1.6	1.6	1.3
Wheat of Other Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Constrasting Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Grade	1	1	2	1	2	2	1	2	2	2	1	2	1	1	1	1	2	2	2	3	1	2	2	1	1	1	1	1	1	1
Count	8	21	33	28	91	20	41	24	55	24	22	79	42	47	37	36	37	14	86	13	23	33	45	21	26	27	10	12	13	55
Wheat Grade Data - from Area Composite Samples																														
Test Weight (lb/bu)	60.9	60.7	59.4	61.2	59.7	59.6	60.2	59.2	58.8	58.1	60.2	59.4	60.5	60.5	58.0	60.3	59.4	58.0	57.4	60.3	58.1	58.8	60.1	60.7	60.6	62.0	59.1	60.1	62.1	
Test Weight (kg/hl)	80.1	79.8	78.2	80.5	78.6	78.4	79.2	77.9	77.4	76.5	79.2	78.2	79.6	79.6	76.4	79.8	79.3	78.2	76.4	75.6	79.3	76.5	77.4	79.1	79.8	79.7	81.5	77.8	79.1	81.7
Damage - Total (%)	0.8	0.3	0.5	0.0	0.0	0.6	0.0	0.0	0.4	0.3	0.7	0.4	0.3	0.4	0.0	0.0	0.2	0.8	0.2	0.2	0.0	0.6	0.1	0.5	0.5	0.0	0.0	0.2	0.0	0.2
Foreign Material (%)	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0
Shrunken and Broken (%)	0.8	0.3	1.1	1.2	1.4	1.4	0.8	1.2	1.4	1.3	1.0	1.1	1.0	1.2	1.0	1.3	1.2	1.5	1.7	2.2	0.7	0.9	1.2	1.1	1.2	1.6	1.6	2.6	2.3	1.1
Total Defects (%)	1.6	0.7	1.7	1.2	1.5	2.1	0.9	1.3	2.0	1.7	1.8	1.6	1.3	1.7	1.0	1.4	1.5	2.5	2.0	2.5	0.7	1.6	1.5	1.7	1.7	1.7	1.7	2.9	2.3	1.3
Wheat of Other Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Constrasting Classes (%)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Grade	1	1	2	1	2	2	1	2	2	2	1	2	1	1	2	1	1	2	2	3	1	2	2	1	1	1	1	2	1	1
Wheat Non-Grade Data - from Individual Samples																														
Dockage (%)	0.5	1.5	1.0	0.8	1.0	1.2	1.0	1.0	0.8	0.7	0.7	0.5	0.5	0.6	0.7	0.5	0.5	0.9	1.2	1.2	0.7	0.8	0.8	1.0	0.6	0.7	1.0	0.9	0.6	0.5
Moisture (%)	12.5	11.6	12.0	11.4	10.6	12.0	12.0	12.0	11.7	10.5	11.9	11.7	10.7	11.5	10.5	10.8	10.7	10.4	10.5	10.5	11.3	11.5	10.3	11.0	11.3	10.6	10.4	9.5	9.3	10.0
Protein (%) 12% mb	10.3	11.0	11.2	11.7	12.3	11.3	12.1	11.6	11.5	12.8	11.7	11.3	12.4	12.4	13.0	12.8	13.4	11.8	13.5	13.4	11.7	12.9	11.7	11.9	12.2	11.4	11.1	11.8	12.6	12.8
Ash (%) 14% mb	1.49	1.31	1.37	1.43	1.55	1.51	1.41	1.39	1.41	1.46	1.60	1.46	1.53	1.52	1.59	1.70	1.65	1.56	1.68	1.65	1.64	1.70	1.65	1.64	2.25	1.59	1.56	1.47	1.52	1.45
1000 Kernel Weight (g)	30.4	28.9	29.5	30.4	27.9	27.1	28.1	27.2	27.8	27.1	30.9	31.0	29.5	32.1	28.5	28.4	28.1	25.6	25.5	24.6	28.5	26.8	26.1	28.0	28.4	27.8	28.1	28.7	26.9	28.7
Wheat Falling Number (sec)	380	396	388	395	397	407	419	378	400	390	401	389	412	408	403	430	403	330	375	411	393	408	392	407	420	418	420	416	439	421
Wheat Non-Grade Data - from Area Composite Samples																														
Dockage (%)	0.8	1.5	1.1	1.3	1.6	0.8	0.9	0.6	1.1	1.0	0.6	0.9	0.5	0.6	1.1	0.7	0.6	0.9	1.6	1.7	1.0	1.1	0.9	0.9	0.5	0.8	0.9	1.1	0.7	0.7
Moisture (%)	13.0	11.7	11.6	11.2	10.5	12.4	12.5	12.2	11.6	10.6	12.3	12.0	11.2	11.5	10.3	10.9	10.7	10.5	9.7	10.4	11.2	11.4	10.4	11.0	11.1	10.5	10.3	9.4	9.4	10.2
Protein (%) 12% mb	9.9	10.5	11.6	11.5	12.3	11.3	12.7	11.6	11.5	13.5	11.6	10.3	12.3	12.7	12.8	12.6	14.0	11.6	13.3	12.9	12.3	13.0	11.9	11.5	11.9	11.1	11.0	11.6	12.6	13.4
Kernel Size Large (Over 7) (%)	74	60	64	65	56	57	55	45	53	52	65	54	56	73	53	56	50	41	38	27	69	45	42	59	58	60	62	59	50	56
Kernel Size Medium (Over 9) (%)	25	39	35	33	42	41	43	52	45	46	33	45	44	25	45	40	49	57	59	72	44	53	55	40	41	39	36	39	48	42
Kernel Size Small (Thru 9) (%)	1	2	2	2	2	2	2	3	2	2	1	2	1	1	2	4	1	2	3	1	1	2	3	1	2	2	1	2	2	2
Single Kernel Hardness	66.3	67.3	70.0	78.4	70.6	NA	68.3	68.9	70.1	66.5	65.6	62.3	67.1	63.9	68.5	70.9	68.1	73.8	72.0	69.0	70.7	65.3	NA	62.0	65.0	65.4	69.3	67.2	66.3	77.6
Single Kernel Weight (mg)	31.8	29.7	29.2	28.9	28.8	NA	29.6	28.2	28.8	28.6	30.8	31.0	30.9	32.4	28.8	30.3	28.1	27.2	27.5	27.3	29.1	28.5	NA	29.9	30.3	31.0	31.0	29.0	28.1	28.5
Single Kernel Diameter (mm)	2.41	2.29	2.25	2.23	2.20	NA	2.31	2.27	2.25	2.18	2.34	2.35	2.32	2.41	2.25	2.29	2.24	2.14	2.13	2.14	2.22	2.20	NA	2.26	2.28	2.33	2.34	2.26	2.21	2.20
Sedimentation (cc)	26.0	28.0	34.0	32.0	35.0	27.0	38.0	43.0	32.0	42.0	33.0	32.0	47.0	49.0	54.0	53.0	47.0	34.0	43.0	63.0	40.0	41.0	33.0	32.0	37.0	36.0	32.0	34.0	42.0	44.0
Flour Data																														
Flour Extraction Rate (%)	71.5	66.6	70.4	67.0	69.1	67.4	69.8	69.9	68.1	67.9	69.1	69.8	67.7	68.4	70.9	67.4	72.7	65.9	65.2	74.3	69.4	67.0	70.1	67.4	72.4	70.0	72.0	70.1	68.2	73.7
Flour Color - *L	90.8	92.8	92.5	92.2	92.0	92.8	92.5	92.0	91.9	92.2	92.4	92.4	92.4	92.1	92.0	91.8	90.1	92.6	92.4	92.1	92.4	92.6	92.7	93.3	92.6	92.7	92.8	93.1	93.0	92.4
Flour Color - *a	-3.1	-3.4	-3.1	-3.4	-3.5	-3.2	-3.2	-3.2	-3.3	-3.1	-3.1	-3.0	-3.0	-3.1	-3.1	-2.9	-2.9	-3.4	-3.5	-3.3	-3.0	-3.3	-3.3	-3.3	-3.1	-3.3	-3.4	-3.2	-3.3	-3.0
Flour Color - *b	9.4	9.5	9.2	9.7	9.7	8.9	9.4	9.1	9.6	9.1	9.1	8.6	8.3	8.7	9.1	9.5	9.7	9.5	10.4	10.0	9.4	9.8	9.2	8.7	9.1	9.6	9.1	8.9	10.1	9.7
Flour Protein (%)	8.9	9.4	10.6	10.2	11.1	9.8	11.0	10.5	10.5	11.5	10.5	9.3	11.3	11.1	11.4	11.1	12.8	10.5	12.3	11.4	11.1	11.7	10.8	10.0	11.0	9.9	10.0	10.7	11.7	12.4
Flour Ash (%)	0.52	0.42	0.45	0.46	0.50	0.44	0.48	0.45	0.48	0.45	0.52	0.47	0.42	0.44	0.47	0.45	0.53	0.46	0.51	0.56	0.47	0.49	0.49	0.42	0.46	0.44	0.44	0.47	0.46	0.48
Wet Gluten (%)	22.4	23.4	28.4	27.2	31.4	25.2	30.6	28.8	26.7	33.6	27.8	24.1	31.5	31.1	31.2	30.4	36.7	28.4	34.5	39.2	29.7	32.4	28.8	27.9	31.6	27.3	26.7	31.1	31.1	34.5
Gluten Index	96.8	99.3	99.0	96.2	88.5	99.0	95.9	96.0	98.5	95.1	97.8	99.6	95.7	97.7	97.1	99.1	93.5	99.5	90.0	93.2	99.4	99.2	98.9	98.0	97.4	98.1	99.1	94.5	98.2	92.5
Falling Number (sec)	404	306	428	401	405	421	488	340	455	456	402	382	419	392	422	410														

Hard Red Winter 2005 Survey - Low Protein Samples (<11.5%)

	Texas					Oklahoma					Kansas							Colorado			Nebraska			South Dakota			Montana			
	E	SC	C	NC	P	SC	SW	WC	NC	W	E	SC	SW	C	WC	NC	NW	SE	EC	N	SE	SW	W	SC	C	WC	E	SC	C	NC
Wheat Grade Data - from Individual Samples																														
Test Weight (lb/bu)	62.1	60.9	59.9	61.5	60.1	60.3	60.5	59.4	60.3	59.2	61.0	60.0	59.6	61.1	60.3	62.7	60.7	59.9	59.6	NA	61.8	60.7	59.5	60.0	59.8	60.8	62.1	61.6	60.8	63.4
Test Weight (kg/hl)	81.7	80.1	78.8	80.9	79.1	79.4	79.6	78.2	79.3	77.9	80.3	78.9	78.5	80.3	79.3	82.5	79.9	78.8	78.4	NA	81.3	79.8	78.3	79.0	78.6	79.9	81.6	81.0	79.9	83.3
Damage - Total (%)	0.0	0.9	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.1	NA	0.0	0.0	0.1	0.1	0.3	0.0	0.0	0.1	0.1	0.0
Foreign Material (%)	0.1	0.4	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	NA	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0
Shrunken and Broken (%)	1.0	1.2	0.7	0.6	1.6	0.8	0.7	0.9	1.0	1.5	1.6	1.1	1.0	1.2	1.0	1.1	0.9	0.9	2.4	NA	0.8	0.5	1.2	0.8	1.3	1.5	1.4	1.1	1.4	1.2
Total Defects (%)	1.1	2.5	1.1	0.7	1.7	1.0	1.1	1.0	1.4	1.8	1.8	1.3	1.2	1.4	1.1	1.1	1.1	1.1	2.5	NA	0.9	0.6	1.4	0.9	1.8	1.5	1.4	1.2	1.6	1.3
Wheat of Other Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Constrasting Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Grade	1	1	2	1	1	1	1	2	1	2	1	1	2	1	1	1	1	2	2	NA	1	1	2	1	2	1	1	1	1	1
Count	7	12	18	13	22	11	17	9	27	6	11	48	8	13	6	6	9	6	10	NA	11	9	24	9	5	14	7	4	4	15
Wheat Grade Data - from Area Composite Samples																														
Test Weight (lb/bu)	60.7	61.0	60.0	61.8	60.3	60.7	60.7	59.8	60.1	58.9	61.5	59.7	60.4	61.3	60.9	62.6	60.1	59.9	59.6	INS	61.9	60.3	59.8	60.5	60.0	61.0	62.9	62.1	61.4	63.4
Test Weight (kg/hl)	79.8	80.2	78.9	81.3	79.3	79.8	79.8	78.7	79.1	77.5	80.9	78.6	79.5	80.6	80.1	82.3	79.1	78.8	78.4	INS	81.4	79.3	78.7	79.6	78.9	80.2	82.7	81.7	80.7	83.3
Damage - Total (%)	0.5	0.4	0.0	0.4	0.3	0.2	0.0	0.0	0.0	0.5	0.2	0.0	0.5	0.0	0.0	0.0	0.4	0.2	0.4	INS	0.0	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Foreign Material (%)	0.1	0.6	0.0	0.1	0.1	0.0	0.0	0.0	0.5	0.1	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.2	INS	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.0
Shrunken and Broken (%)	0.7	1.1	1.3	0.9	1.2	0.9	0.6	0.7	1.0	1.2	0.1	1.3	1.0	0.9	0.8	0.7	0.6	1.1	1.2	INS	0.8	0.6	1.1	0.6	1.2	1.4	1.3	1.1	1.8	1.0
Total Defects (%)	1.3	2.1	1.3	1.4	1.6	1.1	0.6	0.7	1.5	1.8	0.4	1.5	1.5	1.0	0.8	0.8	1.0	1.4	1.8	INS	0.8	0.8	1.5	1.0	1.3	1.6	1.3	1.2	1.9	1.0
Wheat of Other Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Constrasting Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grade	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	1	1	2	2	INS	1	1	2	1	1	1	1	1	1	1
Wheat Non-Grade Data - from Individual Samples																														
Dockage (%)	0.5	1.6	1.5	0.7	1.3	0.7	0.6	0.4	0.7	0.6	0.5	0.6	0.4	0.3	0.8	0.6	0.4	1.3	2.1	NA	0.6	0.8	0.8	1.4	0.5	0.8	1.2	0.8	0.8	0.6
Moisture (%)	12.6	11.9	12.2	11.4	10.8	12.4	11.9	12.0	11.8	11.5	11.9	11.8	11.1	11.3	10.0	11.5	11.6	11.1	10.0	NA	11.1	12.0	10.4	11.3	10.6	10.6	10.6	9.6	9.6	10.2
Protein (%) 12% mb	10.0	10.0	10.4	10.5	10.3	10.6	10.4	10.3	10.3	10.2	10.6	10.2	11.0	10.5	10.7	10.6	10.7	10.8	10.4	NA	10.9	10.8	10.4	10.9	11.3	10.5	10.4	10.1	10.3	10.7
Ash (%) 14% mb	1.50	1.25	1.36	1.39	1.51	1.48	1.33	1.34	1.37	1.46	1.53	1.48	1.50	1.52	1.67	1.59	1.68	1.58	1.64	NA	1.64	1.63	1.64	1.69	1.70	1.56	1.54	1.49	1.46	1.41
1000 Kernel Weight (g)	30.6	29.2	30.1	32.4	29.5	28.8	30.6	28.8	28.3	27.6	31.4	31.4	29.8	33.9	26.9	30.4	29.6	27.0	26.6	NA	28.9	30.5	26.9	30.0	27.9	28.6	28.9	30.5	28.4	30.3
Wheat Falling Number (sec)	376	400	363	395	384	391	398	378	406	385	409	380	385	402	390	402	397	324	415	NA	393	392	383	390	414	404	417	396	415	416
Wheat Non-Grade Data - from Area Composite Samples																														
Dockage (%)	0.7	1.9	0.4	0.5	1.8	0.4	0.4	0.2	0.5	0.4	0.5	0.4	0.4	0.2	0.9	0.6	0.3	1.1	2.8	INS	0.7	0.7	0.7	1.3	0.6	0.7	0.7	0.6	0.6	0.4
Moisture (%)	13.1	12.1	11.9	11.5	10.7	12.8	12.7	12.2	11.8	11.3	12.5	12.3	11.2	11.3	10.2	11.5	11.1	11.0	10.4	INS	11.1	11.7	10.5	11.3	10.9	10.5	10.4	9.9	10.1	10.3
Protein (%) 12% mb	9.6	10.0	10.3	10.6	10.7	10.4	10.2	10.4	10.5	9.8	10.8	10.0	11.2	10.7	10.9	10.7	10.2	10.8	10.4	INS	11.1	11.5	10.5	10.5	11.0	10.4	10.5	10.1	10.4	10.8
Kernel Size Large (Over 7) (%)	75	66	67	77	65	65	72	62	58	63	72	78	62	88	54	66	67	50	54	INS	59	72	49	74	62	69	67	70	56	63
Kernel Size Medium (Over 9) (%)	24	32	32	23	34	34	27	36	40	36	27	21	37	12	45	32	32	48	44	INS	40	28	50	25	37	29	32	28	43	35
Kernel Size Small (Thru 9) (%)	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	2	3	INS	1	0	2	1	1	1	1	2	2	1
Single Kernel Hardness	60.4	74.4	65.7	67.8	67.9	72.1	68.1	63.2	69.6	NA	64.7	61.7	61.8	57.5	74.0	74.1	62.2	75.0	75.9	INS	71.0	60.5	62.5	63.0	NA	63.4	69.0	67.9	NA	78.0
Single Kernel Weight (mg)	36.7	29.7	30.4	33.3	29.9	29.4	33.1	30.1	29.9	NA	31.6	32.9	31.6	36.1	30.7	30.7	29.2	27.0	29.4	INS	29.2	31.0	29.2	31.1	NA	29.5	30.8	31.6	NA	30.0
Single Kernel Diameter (mm)	2.62	2.29	2.31	2.47	2.26	2.29	2.50	2.37	2.31	NA	2.37	2.46	2.40	2.62	2.35	2.31	2.28	2.16	2.22	INS	2.29	2.38	2.20	2.35	NA	2.28	2.32	2.33	NA	2.31
Sedimentation (cc)	26.0	27.0	28.0	28.0	32.0	27.0	22.0	24.0	26.0	27.0	31.0	28.0	33.0	32.0	31.0	25.0	28.0	31.0	27.0	INS	28.0	30.0	28.0	29.0	30.0	26.0	31.0	30.0	31.0	32.0
Flour Data																														
Flour Extraction Rate (%)	71.9	65.7	68.7	69.9	69.8	68.2	70.4	69.9	66.0	70.5	71.0	70.6	68.9	70.0	69.8	66.7	68.9	66.0	72.4	INS	68.8	67.8	70.3	69.8	72.2	67.3	71.9	70.6	69.3	72.3
Flour Color - *L	91.8	92.7	92.5	92.3	92.1	93.0	92.0	92.4	91.9	92.6	91.9	92.1	92.4	92.4	92.3	91.9	91.9	92.3	92.1	INS	92.7	93.0	92.6	93.0	92.6	92.7	92.9	93.1	93.0	92.9
Flour Color - *a	-3.1	-3.5	-3.3	-3.5	-3.3	-3.1	-3.1	-3.2	-3.1	-3.3	-3.1	-3.1	-3.2	-3.4	-3.3	-3.0	-3.1	-3.4	-3.4	INS	-3.2	-3.3	-3.3	-3.2	-3.0	-3.3	-3.3	-3.4	-3.3	-3.1
Flour Color - *b	9.7	9.4	9.2	9.8	9.6	9.2	9.2	8.7	9.2	9.2	9.0	8.5	8.9	8.4	10.2	9.0	9.6	9.6	8.8	INS	9.5	9.4	9.3	8.6	8.7	9.4	8.8	10.1	10.0	9.0
Flour Protein (%)	8.9	9.0	9.6	9.4	9.4	9.6	9.1	9.3	9.7	8.6	9.4	9.0	9.7	10.0	9.6	9.5	9.0	10.0	9.5	INS	10.1	10.1	9.3	9.5	10.3	9.5	9.8	9.1	9.6	9.7
Flour Ash (%)	0.53	0.44	0.43	0.45	0.47	0.43	0.43	0.45	0.50	0.47	0.51	0.50	0.45	0.43	0.45	0.43	0.46	0.49	0.54	INS	0.45	0.43	0.49	0.42	0.47	0.45	0.41	0.47	0.47	0.46
Wet Gluten (%)	23.7	23.3	23.9	24.6	25.0	24.5	24.0	24.0	27.8	23.7	22.0	22.3	24.1	27.4	24.7	26.5	24.9	27.1	25.9	INS	26.8	26.6	23.3	25.7	26.3	26.4	26.3	25.0	22.7	25.3
Gluten Index	99.1	98.8	98.9	95.3	97.8	99.6	98.4	97.8	99.2	94.4	99.5	98.9	98.4	98.0	98.8	94.8	99.2	94.1	97.9	INS	96.2	97.9	97.5	99.4	99.5	97.5	97.1	94.7	99.5	98.7
Falling Number (sec)	382	346	361	422	412	403	436	411	409	467	428	367	353	411	450	387	368	334	450	INS	361	433	414	389	444	419	448	448	401	390

Hard Red Winter 2005 Survey - Medium Protein Samples (11.5% - 12.5%)

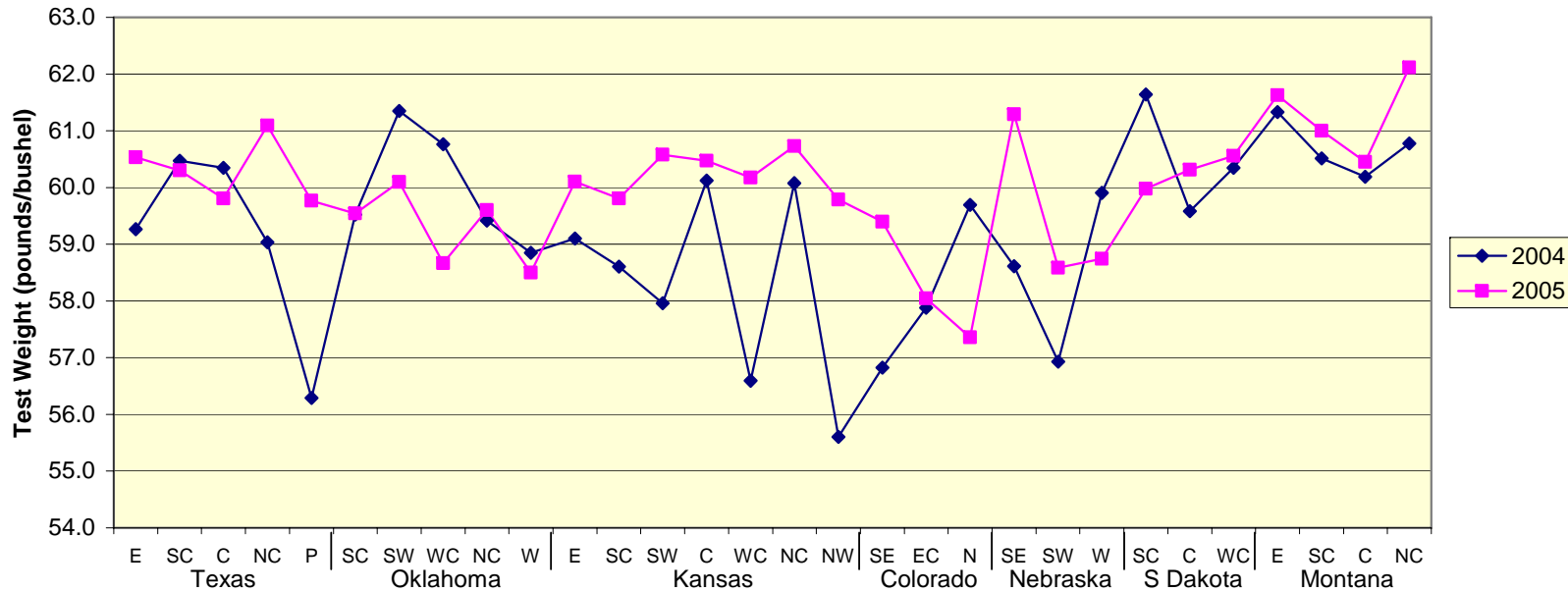
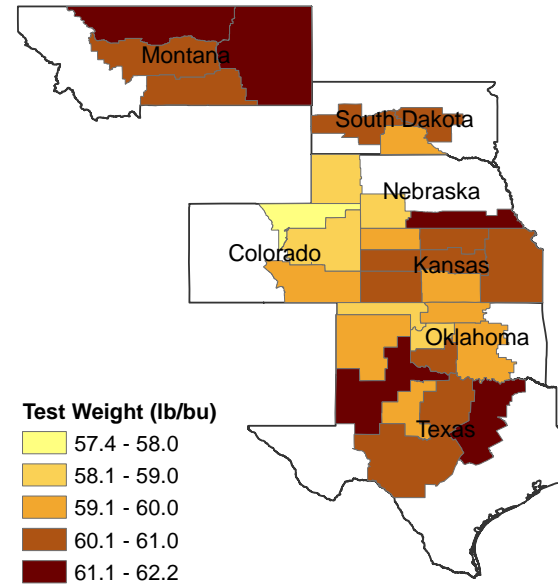
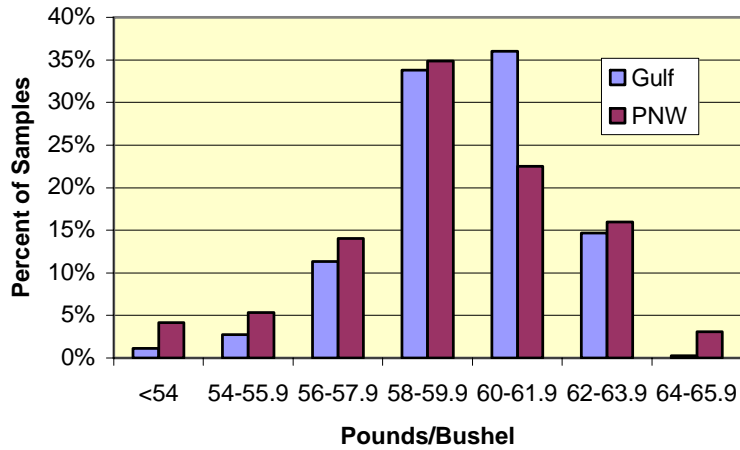
	Texas					Oklahoma					Kansas							Colorado			Nebraska			South Dakota			Montana			
	E	SC	C	NC	P	SC	SW	WC	NC	W	E	SC	SW	C	WC	NC	NW	SE	EC	N	SE	SW	W	SC	C	WC	E	SC	C	NC
Wheat Grade Data - from Individual Samples																														
Test Weight (lb/bu)	59.8	60.3	60.1	61.7	60.1	60.0	60.4	59.1	59.1	59.0	59.2	59.1	60.8	60.7	60.7	60.3	63.7	59.5	58.6	57.1	60.9	58.6	58.3	60.1	61.1	61.2	60.2	62.5	61.6	61.8
Test Weight (kg/hl)	78.7	79.4	79.0	81.1	79.1	78.9	79.5	77.7	77.8	77.6	77.9	77.8	80.0	79.8	79.8	79.3	83.7	78.3	77.1	75.1	80.0	77.1	76.7	79.1	80.3	80.5	79.1	82.1	81.0	81.2
Damage - Total (%)	0.2	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	1.5	0.8	0.1	0.0	0.0	0.1	0.0
Foreign Material (%)	0.0	0.1	0.1	0.0	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	1.5	0.1	0.1	0.1	0.0	0.1	0.0
Shrunken and Broken (%)	0.3	0.8	1.2	0.9	1.2	1.4	0.9	1.0	1.1	1.3	0.9	0.9	0.7	1.0	1.2	1.4	0.9	2.1	2.1	2.3	1.1	1.6	1.2	1.8	1.1	1.3	0.9	1.3	1.4	1.5
Total Defects (%)	0.5	1.0	1.5	1.1	1.6	1.8	1.3	1.3	1.2	1.9	1.1	1.2	0.9	1.1	1.3	1.5	1.0	2.3	2.5	2.6	1.2	1.7	1.2	3.3	2.0	1.4	1.0	1.3	1.5	1.5
Wheat of Other Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Constrasting Classes (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grade	2	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	2	3	1	2	2	2	1	1	1	1	1	1
Count	1	6	13	10	27	7	7	8	18	4	7	13	14	14	11	11	3	6	15	8	6	5	9	6	12	9	2	4	4	8
Wheat Grade Data - from Area Composite Samples																														
Test Weight (lb/bu)	INS	INS	60.1	62.1	59.6	59.9	60.2	59.2	59.1	60.0	58.8	59.8	61.4	60.7	60.7	60.2	INS	59.2	59.3	57.5	61.1	58.5	58.3	60.2	61.3	60.9	INS	62.1	60.1	62.1
Test Weight (kg/hl)	INS	INS	79.1	81.7	78.4	78.8	79.2	77.9	77.8	78.9	77.4	78.7	80.7	79.8	79.8	79.2	INS	77.9	78.0	75.7	80.4	77.0	76.7	79.2	80.6	80.1	INS	81.7	79.1	81.7
Damage - Total (%)	INS	INS	0.6	0.0	0.3	0.3	0.6	0.0	0.0	0.2	0.4	0.2	0.0	0.3	0.1	0.6	INS	0.2	0.1	0.8	0.0	0.5	0.4	1.5	1.5	0.2	INS	0.0	0.0	0.0
Foreign Material (%)	INS	INS	0.0	0.1	0.1	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	INS	0.1	0.2	0.1	0.0	0.0	0.0	1.1	0.0	0.0	0.1	0.1	0.0
Shrunken and Broken (%)	INS	INS	0.6	1.0	1.2	2.0	1.5	1.3	1.1	1.4	1.3	0.8	0.7	1.0	1.2	1.5	INS	2.6	1.9	2.5	1.1	2.0	1.5	1.9	1.0	1.2	INS	1.7	2.9	0.9
Total Defects (%)	INS	INS	1.2	1.1	1.6	2.7	2.2	1.5	1.1	1.6	1.7	1.0	0.7	1.4	1.4	2.2	INS	2.9	2.2	3.4	1.1	2.5	1.9	3.5	2.5	1.4	INS	1.7	3.0	1.0
Wheat of Other Classes (%)	INS	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0
Constrasting Classes (%)	INS	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0
Grade	INS	INS	1	1	2	2	1	2	2	1	2	2	1	1	1	1	INS	2	2	3	1	2	2	2	1	1	INS	1	1	1
Wheat Non-Grade Data - from Individual Samples																														
Dockage (%)	0.1	0.5	0.4	0.8	1.1	1.7	2.3	1.0	1.2	0.5	1.1	0.3	0.4	0.6	0.8	0.9	0.2	0.7	1.0	1.5	1.0	0.6	0.8	0.7	0.5	0.6	0.8	1.0	0.5	0.4
Moisture (%)	12.2	10.7	11.8	11.8	10.1	11.8	12.4	12.1	11.4	10.1	11.7	11.2	10.8	11.4	10.9	10.9	10.6	10.0	9.2	10.2	12.3	10.7	10.6	10.5	11.4	10.4	9.8	9.3	9.8	10.4
Protein (%) 12% mb	12.1	12.0	11.9	11.9	12.0	11.8	11.9	12.0	12.0	12.2	12.0	12.1	12.0	12.0	11.9	11.9	11.9	11.9	12.1	12.2	11.9	12.1	12.0	12.2	12.0	12.1	11.8	11.9	12.1	12.1
Ash (%) 14% mb	1.43	1.35	1.39	1.38	1.57	1.50	1.41	1.37	1.48	1.45	1.66	1.43	1.51	1.55	1.59	1.65	1.62	1.59	1.70	1.57	1.51	1.64	1.61	1.61	1.70	1.62	1.63	1.33	1.49	1.45
1000 Kernel Weight (g)	28.9	29.4	29.2	28.5	28.7	25.6	27.5	28.4	27.2	29.0	30.3	30.4	29.7	32.9	28.9	29.0	32.5	24.1	24.3	23.7	27.8	25.3	25.9	26.8	29.5	28.5	25.3	29.1	27.9	28.0
Wheat Falling Number (sec)	410	393	423	389	410	432	402	403	403	407	389	390	420	404	392	446	409	329	396	411	387	422	410	416	430	436	434	445	437	412
Wheat Non-Grade Data - from Area Composite Samples																														
Dockage (%)	INS	INS	1.4	0.9	1.4	0.9	0.9	0.6	0.7	0.4	1.0	0.2	0.3	0.6	0.7	0.8	INS	0.5	0.8	1.5	1.0	0.8	1.1	0.8	0.5	0.4	INS	1.1	1.0	0.4
Moisture (%)	INS	INS	12.2	11.4	10.1	11.9	13.1	12.1	11.2	10.2	12.0	11.6	11.1	11.5	10.8	11.2	INS	10.2	9.5	10.1	11.9	10.9	10.2	10.6	11.3	10.5	INS	9.0	9.9	10.7
Protein (%) 12% mb	INS	INS	11.8	11.6	12.5	11.7	11.7	11.9	12.5	12.2	11.8	12.3	12.4	11.9	12.0	12.1	INS	12.1	12.1	11.9	12.2	11.9	11.6	12.1	12.1	11.8	INS	12.1	12.2	12.5
Kernel Size Large (Over 7) (%)	INS	INS	60	54	62	49	57	55	54	60	64	70	59	81	62	54	INS	29	37	42	49	41	40	45	60	58	INS	60	45	60
Kernel Size Medium (Over 9) (%)	INS	INS	39	45	36	48	41	43	44	39	34	30	40	17	37	44	INS	66	61	55	49	56	57	52	38	41	INS	38	51	39
Kernel Size Small (Thru 9) (%)	INS	INS	1	2	1	3	2	2	2	1	2	1	2	1	1	2	INS	4	2	3	2	3	2	3	1	2	INS	2	3	1
Single Kernel Hardness	INS	INS	71.5	83.9	71.7	74.4	80.2	66.7	65.7	61.9	65.4	59.1	71.6	61.1	69.3	71.0	INS	71.6	75.5	73.4	72.8	69.9	67.9	65.6	68.8	69.7	INS	NA	76.8	75.9
Single Kernel Weight (mg)	INS	INS	29.4	28.7	29.7	27.5	28.4	30.0	30.2	30.9	29.5	31.8	29.9	35.1	30.7	29.9	INS	26.0	25.6	26.0	29.9	27.1	26.6	28.0	31.1	30.0	INS	NA	26.2	30.0
Single Kernel Diameter (mm)	INS	INS	2.24	2.23	2.25	2.20	2.24	2.33	2.33	2.31	2.28	2.38	2.31	2.54	2.28	2.29	INS	2.06	2.04	2.06	2.28	2.15	2.07	2.15	2.30	2.29	INS	NA	2.09	2.30
Sedimentation (cc)	INS	INS	32.0	39.0	34.0	29.0	33.0	30.0	34.0	42.0	32.0	36.0	38.0	39.0	46.0	31.0	INS	37.0	36.0	35.0	42.0	32.0	34.0	35.0	34.0	35.0	INS	33.0	40.0	42.0
Flour Data																														
Flour Extraction Rate (%)	INS	INS	69.7	68.3	70.2	68.6	69.8	69.8	68.2	70.0	70.3	68.8	67.7	68.2	69.8	67.3	INS	66.9	66.1	70.6	67.9	68.3	69.8	71.7	74.7	69.5	INS	69.0	67.7	71.9
Flour Color - *L	INS	INS	92.6	92.2	92.0	92.5	92.2	92.1	92.3	92.5	92.3	92.1	92.3	92.3	92.7	91.7	INS	92.5	92.6	92.5	92.8	92.5	92.7	92.3	92.5	92.8	INS	93.4	93.0	92.9
Flour Color - *a	INS	INS	-3.2	-3.4	-3.4	-3.0	-3.1	-3.1	-3.2	-3.2	-2.9	-3.0	-3.0	-3.3	-3.2	-2.9	INS	-3.3	-3.5	-3.3	-3.0	-3.3	-3.3	-3.2	-3.1	-3.2	INS	-3.1	-3.3	-3.3
Flour Color - *b	INS	INS	9.2	10.0	9.6	9.0	9.2	8.7	9.6	9.1	9.1	8.7	8.7	8.5	9.5	9.3	INS	9.5	10.3	9.5	9.0	9.6	9.2	9.0	9.1	8.8	INS	9.1	10.3	9.7
Flour Protein (%)	INS	INS	10.6	10.2	10.5	10.2	10.4	10.3	11.5	10.4	10.5	10.4	10.8	10.3	10.3	10.3	INS	10.6	10.7	10.8	10.6	10.3	10.4	10.7	10.4	10.4	INS	10.6	10.7	10.6
Flour Ash (%)	INS	INS	0.44	0.45	0.55	0.46	0.47	0.45	0.50	0.48	0.55	0.44	0.45	0.46	0.50	0.45	INS	0.45	0.49	0.55	0.45	0.55	0.50	0.44	0.45	0.42	INS	0.46	0.47	0.46
Wet Gluten (%)	INS	INS	26.3	27.3	29.3	26.8	27.6	27.5	32.7	28.3	26.7	26.6	28.4	28.3	28.3	27.0	INS	27.9	28.5	33.8	27.9	31.3	27.6	30.0	28.7	29.6	INS	29.2	26.4	29.1
Gluten Index	INS	INS	98.8	97.8	95.7	98.0	97.6	95.8	90.7	97.4	98.4	99.0	98.4	97.9	96.1	99.4	INS	97.0	96.8	75.9	99.3	97.6	97.7	97.4	97.7	99.0	INS	88.9	99.3	98.3
Falling Number (sec)	INS	INS	382	341	370	457	401	439	455	406	315	417	410	406	432	393	INS	384	463	447	390	399	410	425	381	435	INS	470	401	413
Amylograph (65g) (BU)	INS	INS	610	220	680	740	650	660	790	690	750	750	780	730	660	630	INS	160	670	590	590	620	690	860	900	880	INS	730	680	700
Starch Damage (%)	INS	INS	8.7	8.3	7.0	7.4	8.7	8.3	8.3	9.5	8.3	8.3	7.0	7.0	9.9	8.3	INS	7.0	7.9	7.9	7.0	7.4	7.9	7.						

Hard Red Winter 2005 Survey - High Protein Samples (> 12.5%)

	Texas					Oklahoma					Kansas						Colorado			Nebraska			South Dakota			Montana				
	E	SC	C	NC	P	SC	SW	WC	NC	W	E	SC	SW	C	WC	NC	NW	SE	EC	N	SE	SW	W	SC	C	WC	E	SC	C	NC
Wheat Grade Data - from Individual Samples																														
Test Weight (lb/bu)	NA	59.3	57.4	58.2	59.4	55.9	59.5	57.2	58.6	58.1	59.1	59.9	60.8	59.9	59.9	60.4	59.0	57.7	57.7	57.8	60.8	57.6	57.6	59.8	59.6	58.5	61.4	59.0	59.3	61.6
Test Weight (kg/hl)	NA	78.0	75.5	76.6	78.1	73.6	78.3	75.4	77.2	76.4	77.8	78.8	80.0	78.8	78.8	79.4	77.6	75.9	75.9	76.1	79.9	75.8	75.8	78.6	78.5	76.9	80.7	77.6	78.0	81.0
Damage - Total (%)	NA	0.1	0.2	0.1	0.2	0.3	0.1	1.3	0.6	0.4	0.4	0.2	0.4	0.1	0.1	0.0	0.5	0.2	0.3	0.3	0.1	0.2	0.1	0.3	1.6	0.1	0.0	0.1	0.0	0.0
Foreign Material (%)	NA	0.1	0.1	0.2	0.2	0.2	0.0	1.6	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.8	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Shrunken and Broken (%)	NA	1.4	0.8	2.4	1.5	2.1	1.4	2.0	0.9	1.3	1.2	1.0	0.9	1.1	0.9	1.5	1.1	0.7	1.3	0.7	1.5	1.0	1.5	1.3	1.3	1.7	2.1	2.4	1.8	1.1
Total Defects (%)	NA	1.6	1.0	2.7	1.7	2.5	1.6	4.8	1.5	1.8	1.6	1.3	1.3	1.2	1.0	1.6	1.6	0.9	1.6	1.0	1.6	1.3	2.3	1.5	2.9	1.8	2.1	2.5	1.8	1.2
Wheat of Other Classes (%)	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Constrasting Classes (%)	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grade	NA	2	3	2	2	4	2	3	2	2	2	2	1	2	2	1	2	3	3	3	1	3	3	2	2	2	1	2	2	1
Count	NA	3	2	4	42	2	17	7	10	14	4	18	20	20	20	19	25	2	61	5	6	19	12	6	9	4	1	4	5	32
Wheat Grade Data - from Area Composite Samples																														
Test Weight (lb/bu)	INS	INS	INS	INS	59.7	INS	60.4	57.2	59.4	58.1	59.2	60.1	60.3	60.6	60.2	60.1	58.9	INS	57.9	57.5	61.0	57.5	58.1	59.8	59.8	58.9	INS	55.8	58.9	61.6
Test Weight (kg/hl)	INS	INS	INS	INS	78.6	INS	79.5	75.3	78.2	76.5	77.9	79.1	79.3	79.7	79.2	79.1	77.5	INS	76.2	75.7	80.2	75.7	76.5	78.7	78.7	77.5	INS	73.5	77.5	81.0
Damage - Total (%)	INS	INS	INS	INS	0.4	INS	0.3	0.4	0.2	0.6	0.3	0.4	0.6	0.6	0.5	0.0	0.0	INS	0.2	0.5	0.1	0.0	0.0	0.6	1.8	0.0	INS	0.0	0.2	0.0
Foreign Material (%)	INS	INS	INS	INS	0.2	INS	0.1	1.8	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	INS	0.1	0.1	0.0	0.2	0.7	0.0	0.0	0.0	INS	0.0	0.1	0.0
Shrunken and Broken (%)	INS	INS	INS	INS	1.3	INS	1.0	2.3	0.7	1.3	1.1	0.9	1.0	0.9	0.8	1.5	0.8	INS	1.4	0.5	0.8	0.7	1.3	1.1	1.3	1.9	INS	4.2	2.3	1.1
Total Defects (%)	INS	INS	INS	INS	1.9	INS	1.4	4.5	0.9	2.0	1.4	1.4	1.7	1.6	1.4	1.5	0.8	INS	1.7	1.1	0.9	0.9	2.0	1.7	3.1	1.9	INS	4.2	2.6	1.1
Wheat of Other Classes (%)	INS	INS	INS	INS	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0
Constrasting Classes (%)	INS	INS	INS	INS	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	INS	0.0	0.0	0.0
Grade	INS	INS	INS	INS	2	INS	1	3	2	2	2	1	4	1	1	1	2	INS	3	3	1	3	2	2	2	2	INS	4	2	1
Wheat Non-Grade Data - from Individual Samples																														
Dockage (%)	NA	3.2	0.5	1.4	0.8	1.7	0.8	1.7	0.5	0.9	0.3	0.5	0.6	0.7	0.7	0.6	0.6	0.6	1.0	0.8	0.5	0.9	1.0	0.8	0.6	1.1	0.2	0.8	0.5	0.5
Moisture (%)	NA	12.2	11.7	10.0	10.8	10.9	11.9	12.0	12.0	10.2	12.0	11.8	10.4	11.7	10.5	10.4	10.4	9.4	10.9	10.9	10.6	11.4	9.8	11.2	11.6	11.0	9.8	9.6	8.8	9.8
Protein (%) 12% mb	NA	13.1	14.9	14.8	13.6	13.3	13.8	13.0	13.6	14.0	14.5	13.7	13.3	14.1	14.3	13.9	14.5	14.4	14.3	15.3	13.1	14.1	14.2	13.1	12.9	13.2	13.8	13.4	14.9	13.9
Ash (%) 14% mb	NA	1.48	1.28	1.67	1.55	1.68	1.48	1.47	1.41	1.46	1.67	1.45	1.57	1.50	1.56	1.77	1.64	1.42	1.69	1.78	1.78	1.74	1.69	1.61	3.29	1.65	1.56	1.59	1.59	1.47
1000 Kernel Weight (g)	NA	26.6	26.2	27.4	26.5	23.1	26.0	23.9	27.4	26.3	30.8	30.6	29.1	30.3	28.8	27.5	27.0	26.2	25.6	25.9	28.4	25.4	24.6	26.1	27.3	23.6	27.9	26.6	25.0	28.2
Wheat Falling Number (sec)	NA	386	380	410	396	405	448	350	379	387	398	411	418	416	412	430	404	349	364	411	397	412	397	424	410	427	410	408	459	425
Wheat Non-Grade Data - from Area Composite Samples																														
Dockage (%)	INS	INS	INS	INS	0.8	INS	0.6	0.8	0.5	0.7	0.3	0.4	0.4	0.6	0.4	0.4	0.7	INS	0.7	0.7	0.4	0.9	0.7	0.8	0.6	1.3	INS	0.9	0.8	0.5
Moisture (%)	INS	INS	INS	INS	10.5	INS	12.4	12.4	12.3	10.2	12.4	12.1	10.6	11.5	10.2	10.6	10.7	INS	9.6	11.4	10.7	11.7	9.9	11.0	11.6	10.6	INS	8.9	8.7	10.1
Protein (%) 12% mb	INS	INS	INS	INS	13.9	INS	13.7	13.4	13.9	14.4	14.4	13.5	13.2	13.9	14.4	13.6	14.6	INS	14.5	15.4	12.8	14.0	14.5	12.6	13.1	13.0	INS	14.4	14.8	14.3
Kernel Size Large (Over 7) (%)	INS	INS	INS	INS	41	INS	49	39	57	45	64	76	55	68	54	47	45	INS	36	32	56	45	33	48	51	30	INS	53	35	42
Kernel Size Medium (Over 9) (%)	INS	INS	INS	INS	57	INS	48	57	42	53	35	23	44	30	45	51	54	INS	61	64	43	53	63	51	47	67	INS	43	60	56
Kernel Size Small (Thru 9) (%)	INS	INS	INS	INS	2	INS	3	4	1	2	1	1	1	1	1	2	1	INS	3	3	1	1	4	2	2	3	INS	4	4	2
Single Kernel Hardness	INS	INS	INS	INS	69.9	INS	73.8	71.5	72.0	69.0	64.2	64.8	69.8	68.5	66.5	69.5	72.4	INS	70.6	70.1	67.3	64.9	63.2	63.0	70.3	74.0	INS	62.1	74.2	76.3
Single Kernel Weight (mg)	INS	INS	INS	INS	27.4	INS	28.9	26.6	28.1	26.8	30.4	32.5	30.3	31.2	30.4	29.3	28.2	INS	25.8	26.6	31.7	28.3	27.5	28.6	29.6	26.5	INS	25.2	26.5	27.9
Single Kernel Diameter (mm)	INS	INS	INS	INS	2.13	INS	2.27	2.12	2.24	2.08	2.32	2.41	2.28	2.33	2.28	2.27	2.19	INS	2.05	2.13	2.38	2.17	2.17	2.19	2.24	2.04	INS	2.02	2.11	2.18
Sedimentation (cc)	INS	INS	INS	INS	47.0	INS	48.0	40.0	55.0	53.0	63.0	60.0	49.0	64.0	61.0	59.0	53.0	INS	48.0	57.0	54.0	46.0	44.0	35.0	41.0	40.0	INS	50.0	47.0	57.0
Flour Data																														
Flour Extraction Rate (%)	INS	INS	INS	INS	68.8	INS	68.8	69.0	67.2	67.8	69.4	68.1	70.8	68.5	70.5	67.0	71.5	INS	65.6	68.3	68.5	67.1	69.6	70.0	73.0	71.4	INS	68.4	67.6	73.0
Flour Color - *L	INS	INS	INS	INS	91.7	INS	92.5	92.2	91.9	92.3	92.2	92.1	92.3	92.0	92.3	90.6	90.6	INS	92.4	92.1	92.3	92.6	92.6	92.3	93.0	92.2	INS	93.2	92.8	92.8
Flour Color - *a	INS	INS	INS	INS	-3.3	INS	-3.2	-3.2	-3.3	-3.1	-3.1	-2.9	-3.0	-3.2	-3.3	-2.9	-2.8	INS	-3.6	-3.2	-3.1	-3.3	-3.3	-3.2	-3.1	-3.2	INS	-3.2	-3.2	-3.2
Flour Color - *b	INS	INS	INS	INS	10.2	INS	9.4	9.4	9.5	9.2	8.7	8.7	8.6	8.9	8.7	9.3	9.8	INS	10.3	9.8	9.3	9.8	9.3	8.7	9.2	9.2	INS	8.7	10.3	10.1
Flour Protein (%)	INS	INS	INS	INS	11.6	INS	11.7	11.3	11.8	12.2	12.3	12.0	11.7	11.9	12.7	11.4	12.2	INS	12.1	13.4	11.5	12.6	12.0	10.6	11.3	11.5	INS	11.9	12.7	12.5
Flour Ash (%)	INS	INS	INS	INS	0.48	INS	0.48	0.50	0.48	0.46	0.53	0.45	0.54	0.44	0.48	0.45	0.52	INS	0.50	0.55	0.46	0.51	0.51	0.47	0.46	0.51	INS	0.46	0.46	0.46
Wet Gluten (%)	INS	INS	INS	INS	32.9	INS	32.2	30.4	32.6	36.8	34.4	32.9	32.5	33.4	35.2	32.7	36.1	INS	34.7	37.3	31.9	34.6	33.1	29.6	29.4	32.4	INS	34.8	34.4	34.6
Gluten Index	INS	INS	INS	INS	93.2	INS	98.2	97.1	94.5	92.6	94.9	97.9	95.8	98.5	95.7	98.2	94.5	INS	93.8	90.6	97.2	97.2	97.1	98.5	98.6	97.5	INS	85.1	95.6	90.6
Falling Number (sec)	INS	INS	INS	INS	439	INS	407	334	372	415	458	417	418	436	430	473	447	INS	476	458	404	436	406	445	432	511	INS	438	543	451
Amylograph (65g) (BU)	INS	INS	INS	INS	650	INS	760	250	730	630	770	760	820	780	760	670	510	INS	650	680	460	730	730	880	1000	740	INS	700	720	690
Starch Damage (%)	INS	INS	INS	INS	7.4	INS	7.0	4.2	7.0	7.9	7.4	8.3	7.4																	

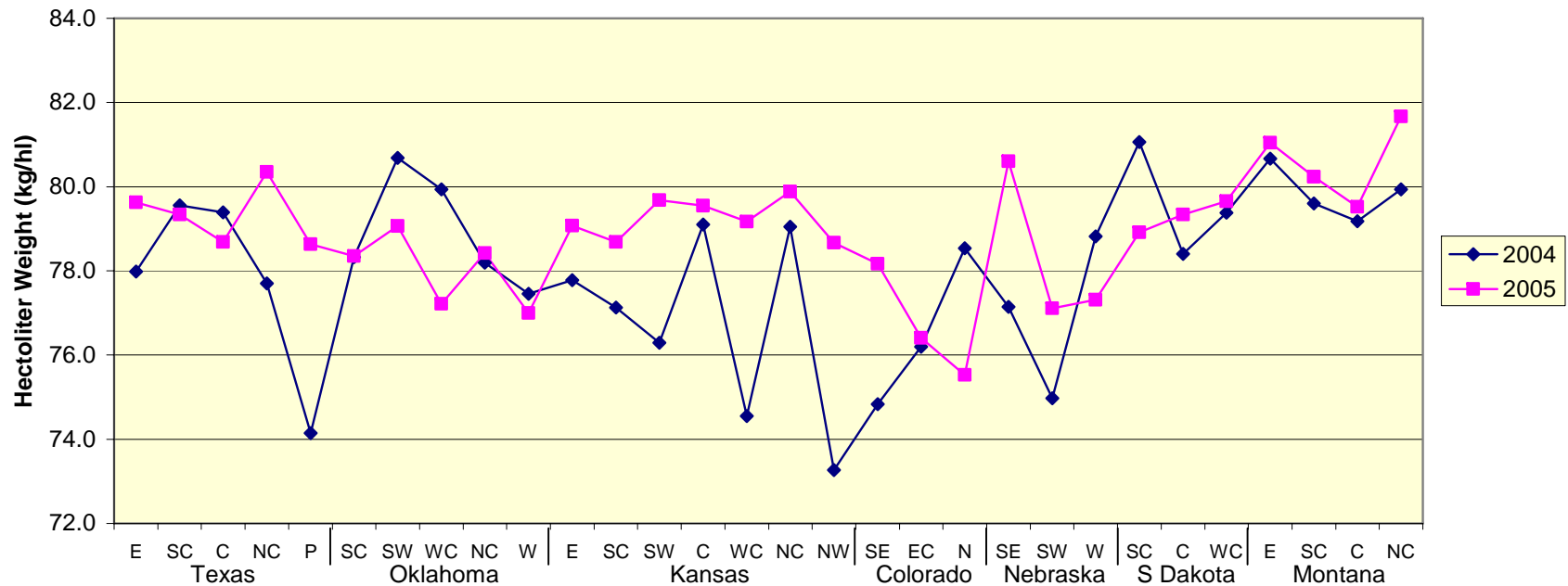
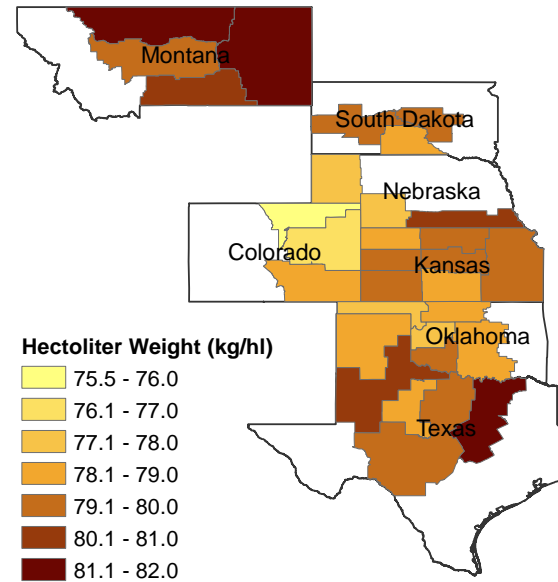
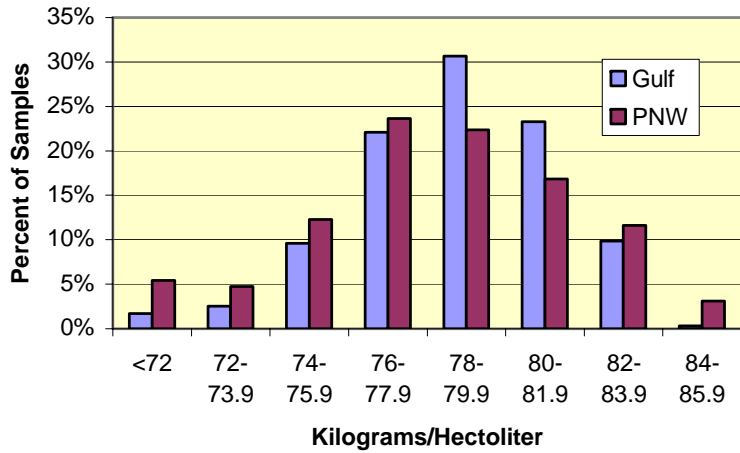
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Test Weight



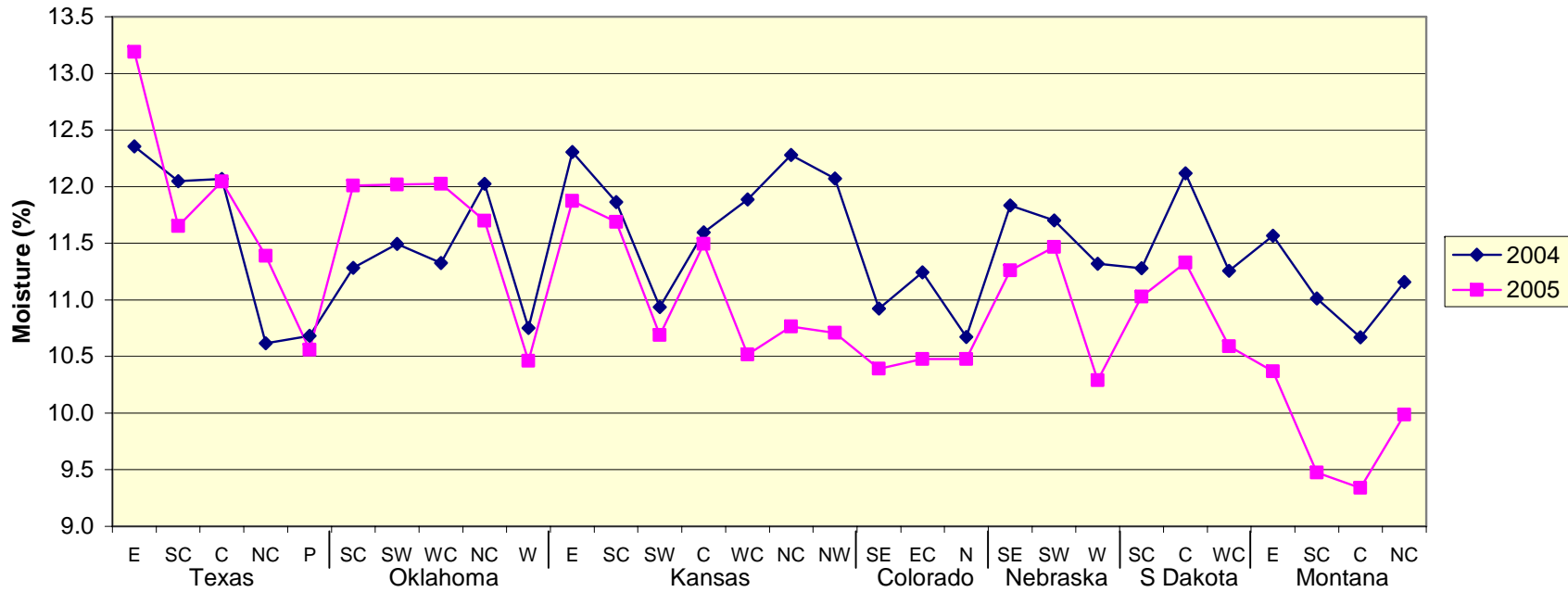
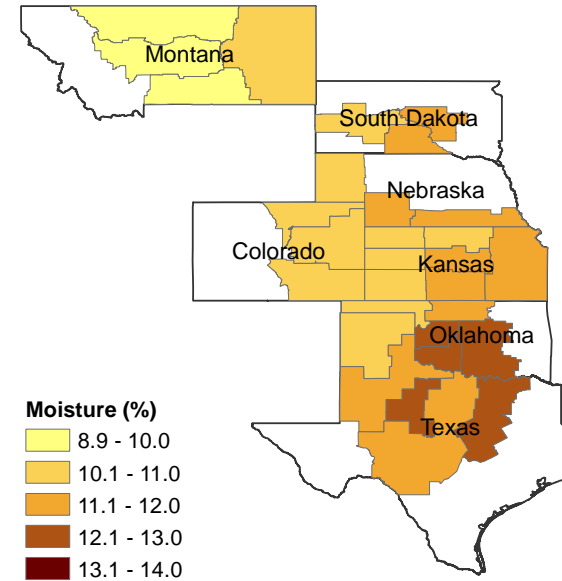
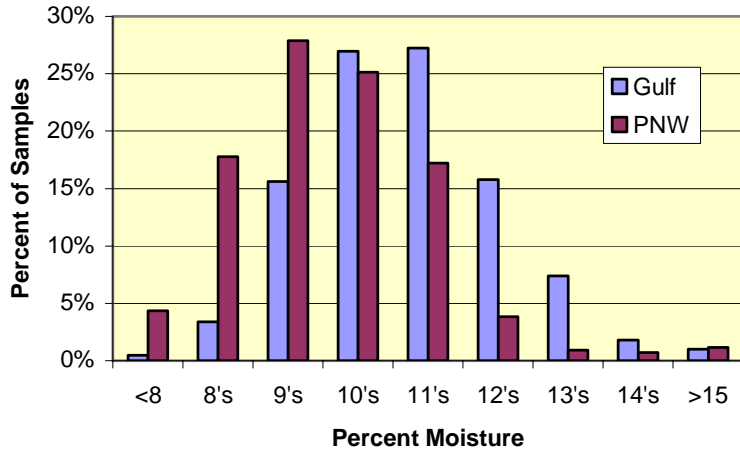
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Hectoliter Weight



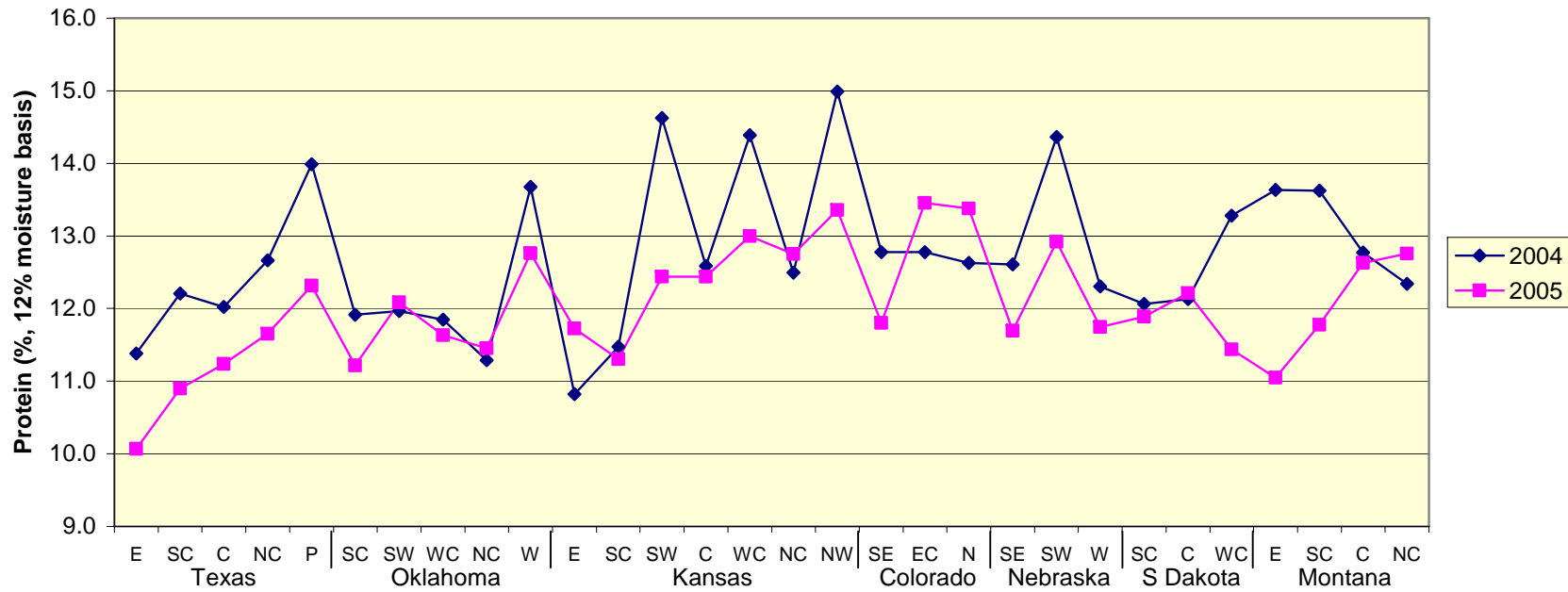
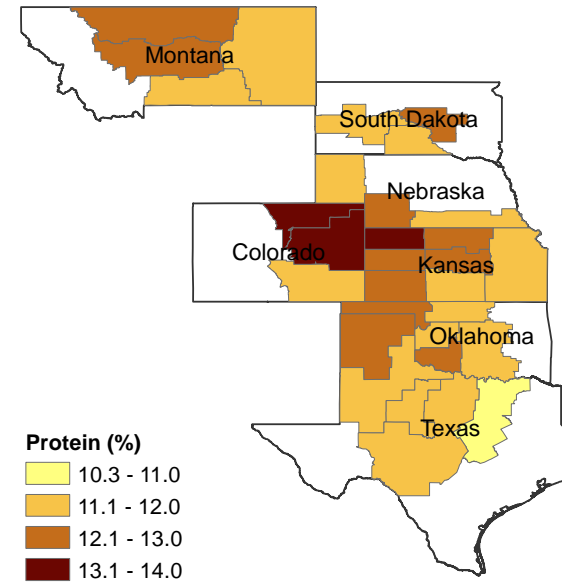
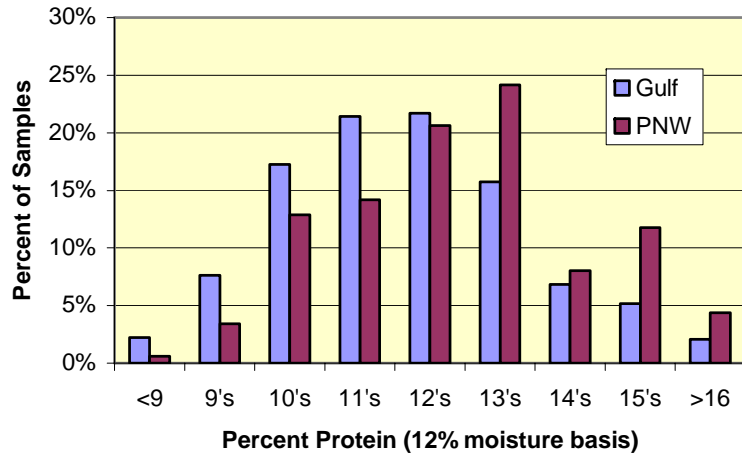
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Wheat Moisture



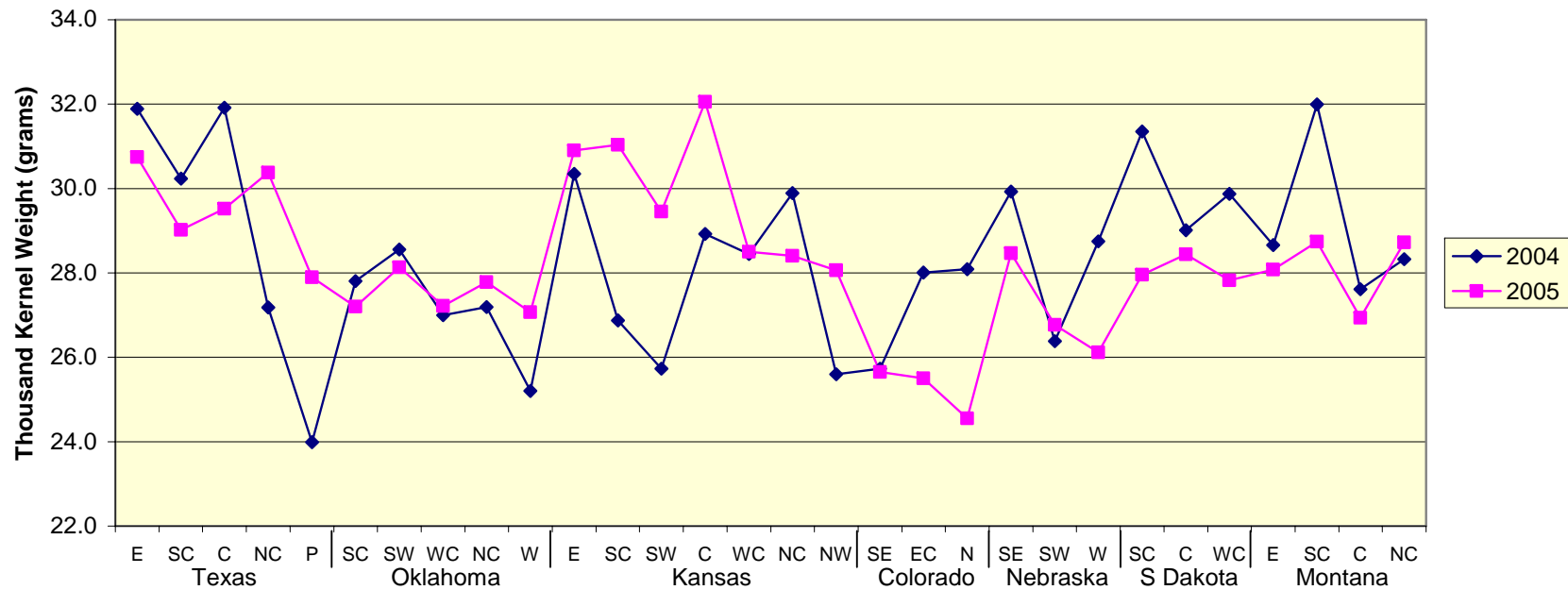
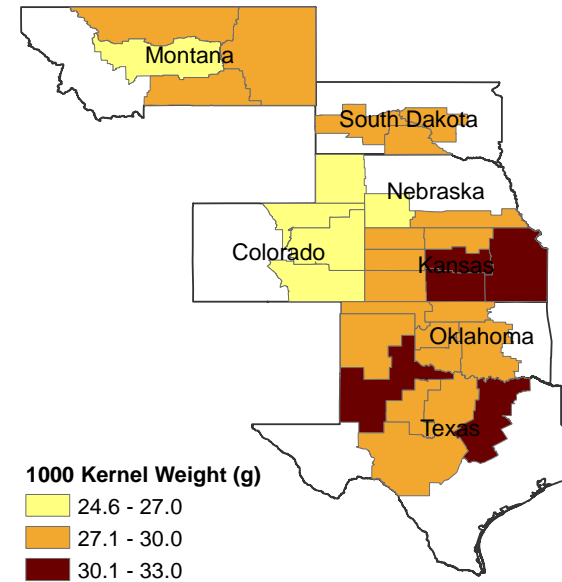
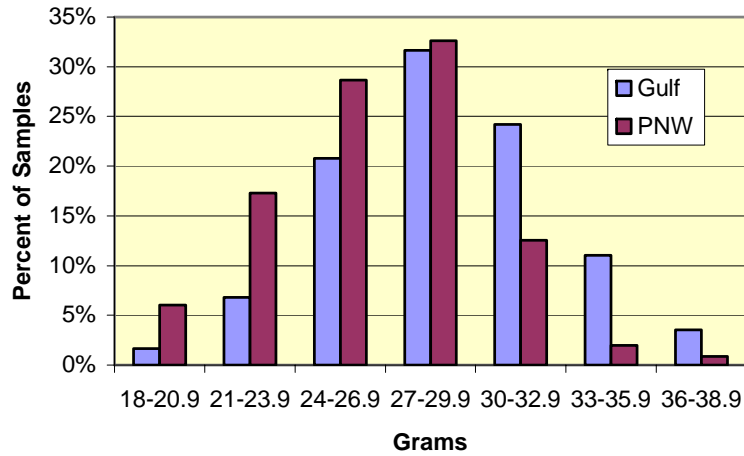
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Wheat Protein



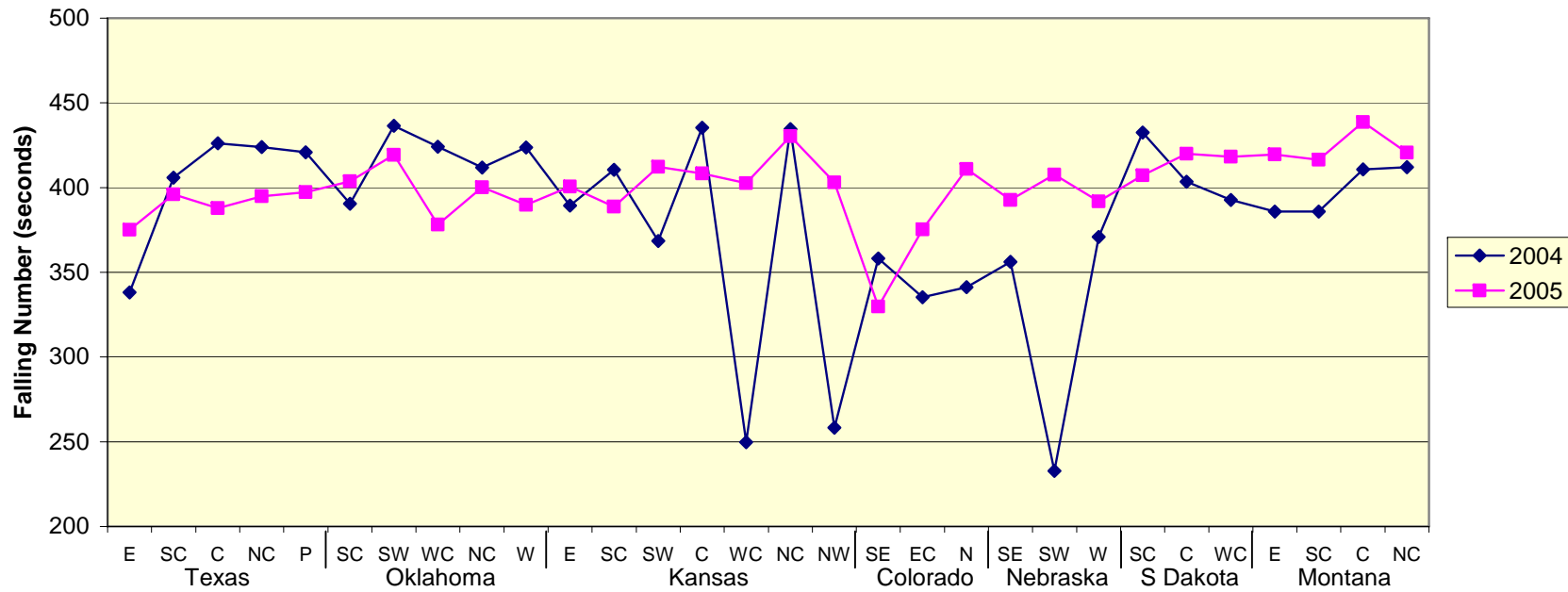
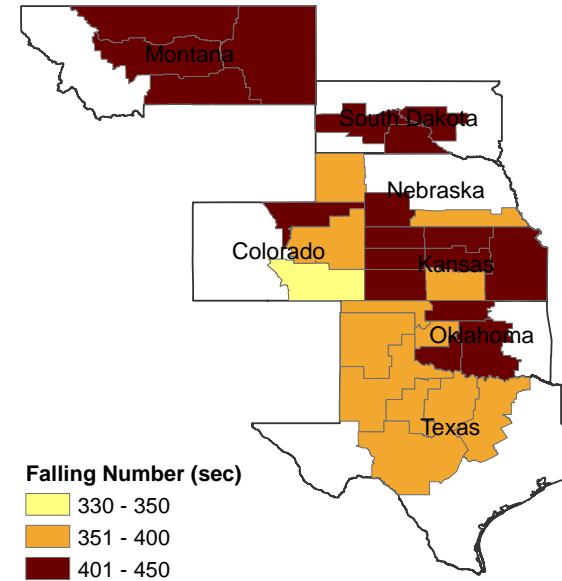
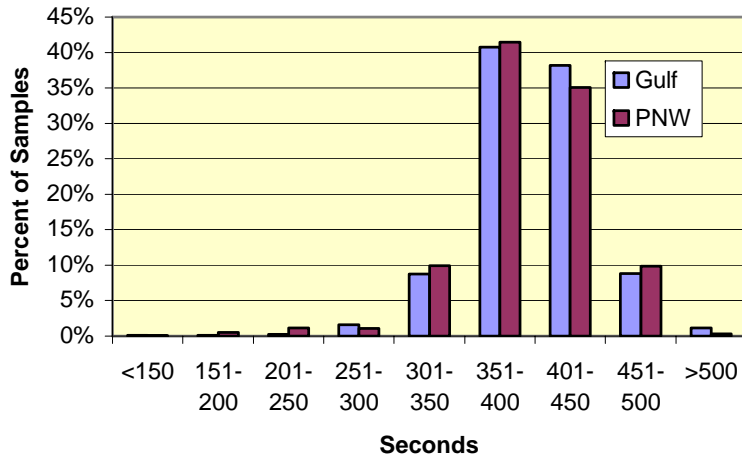
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Thousand Kernel Weight



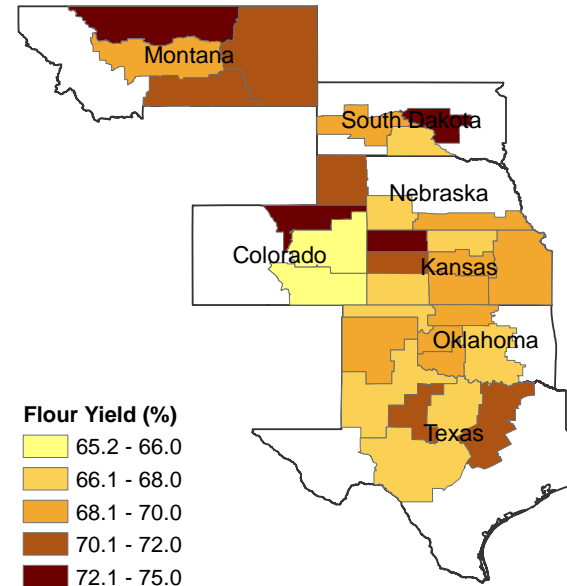
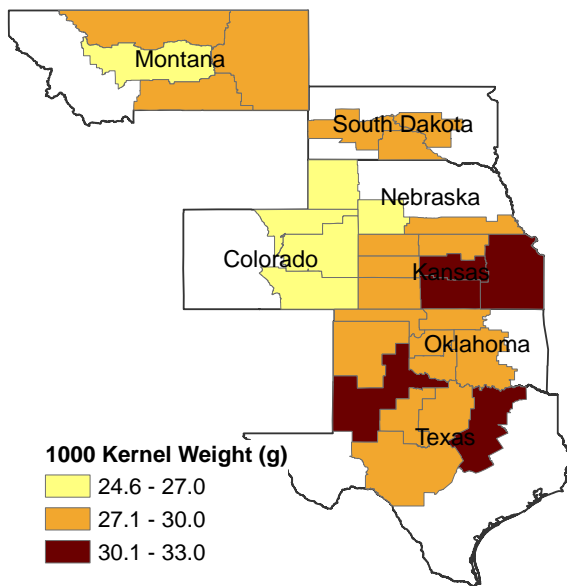
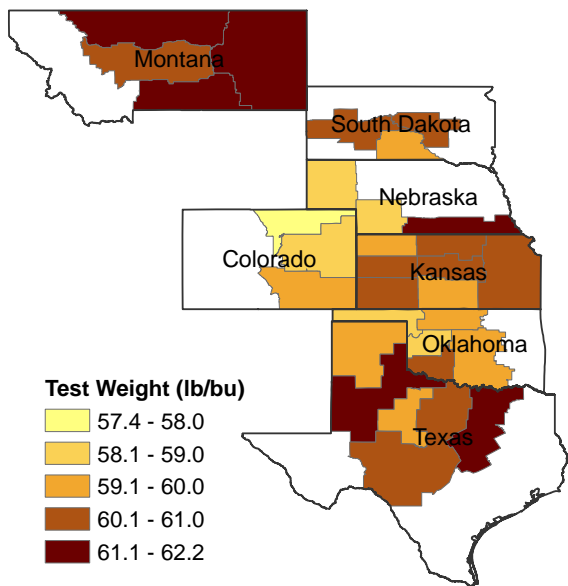
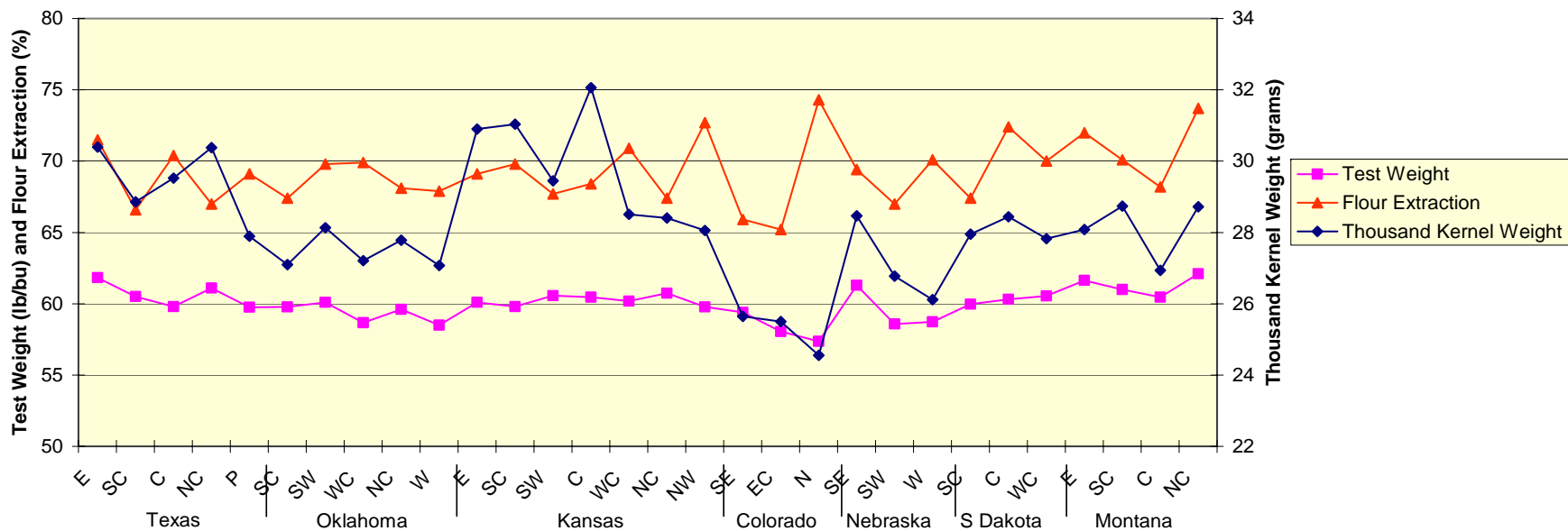
2005 Distributions and Comparisons with Previous Years For Selected Quality Factors

Wheat Falling Number



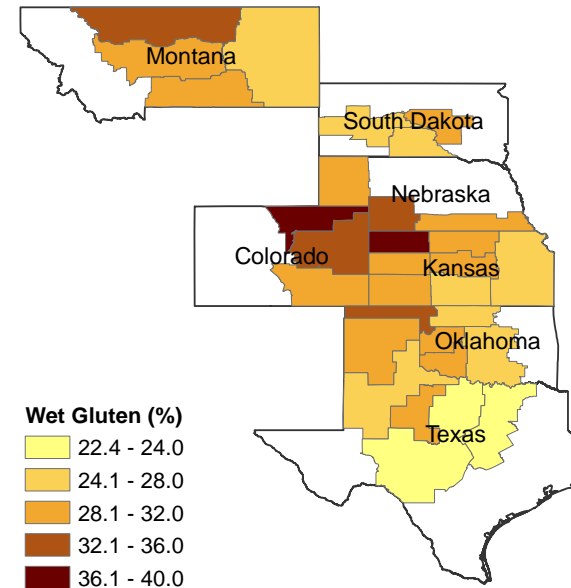
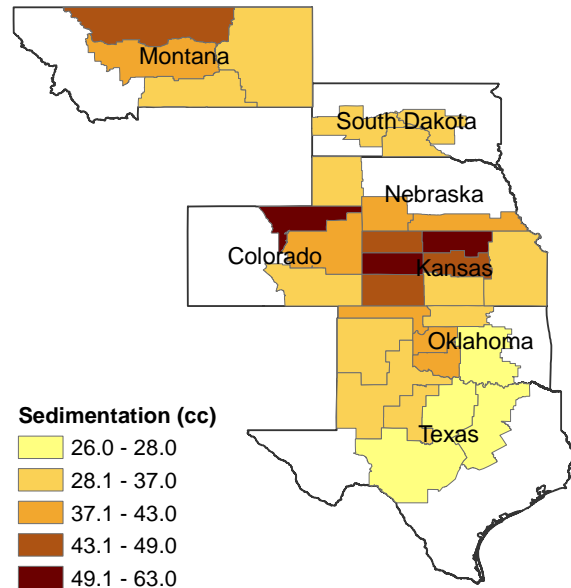
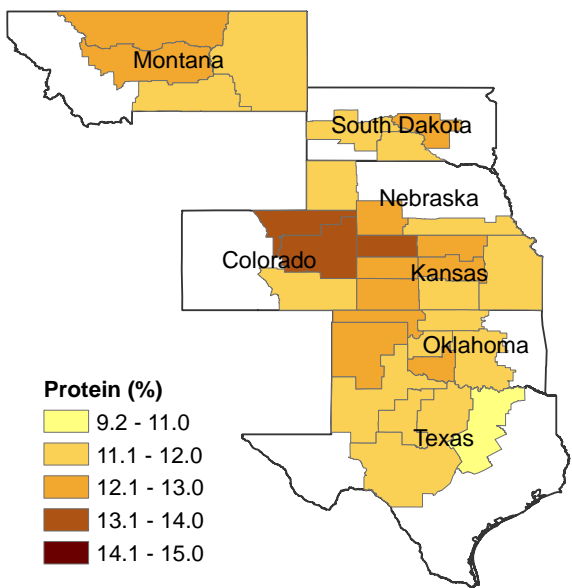
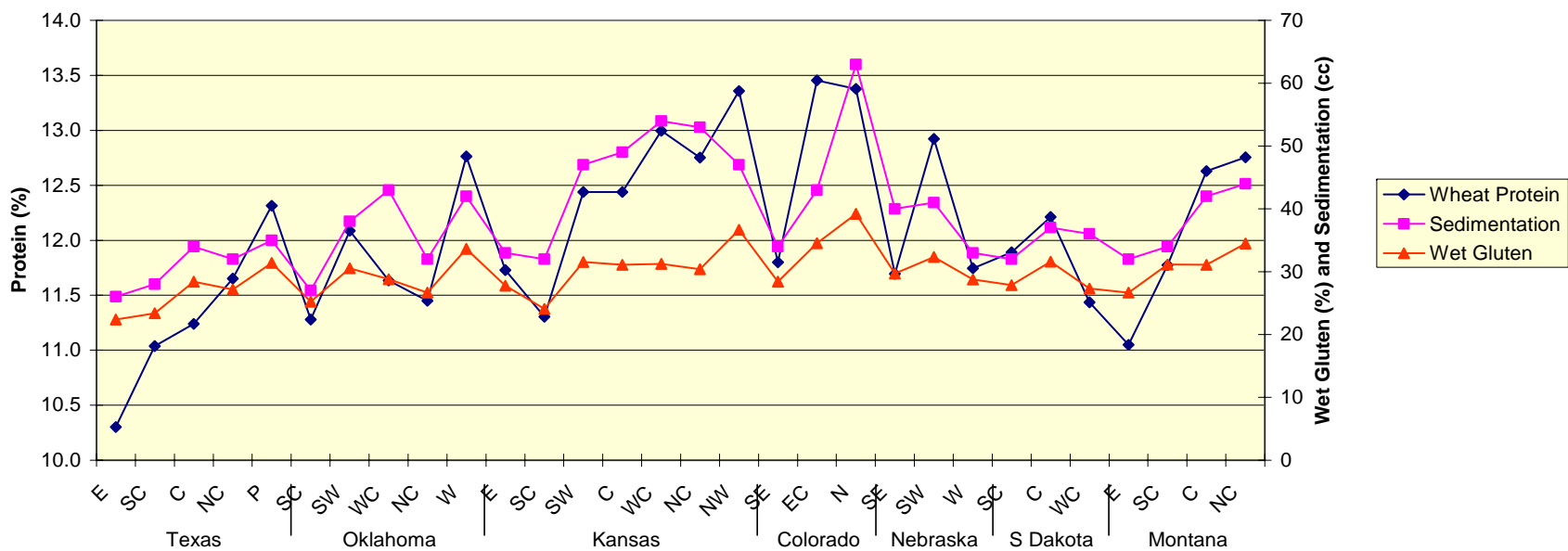
Comparisons of 2005 Results For Selected Quality Factors

Test Weight, Thousand Kernel Weight and Laboratory Mill Flour Extraction



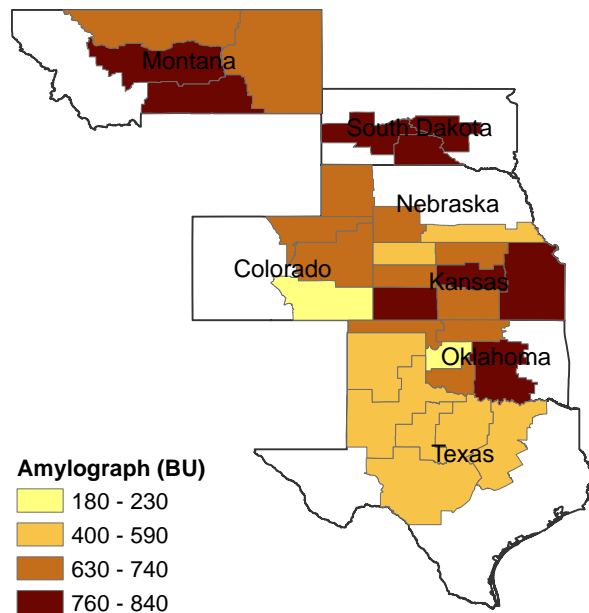
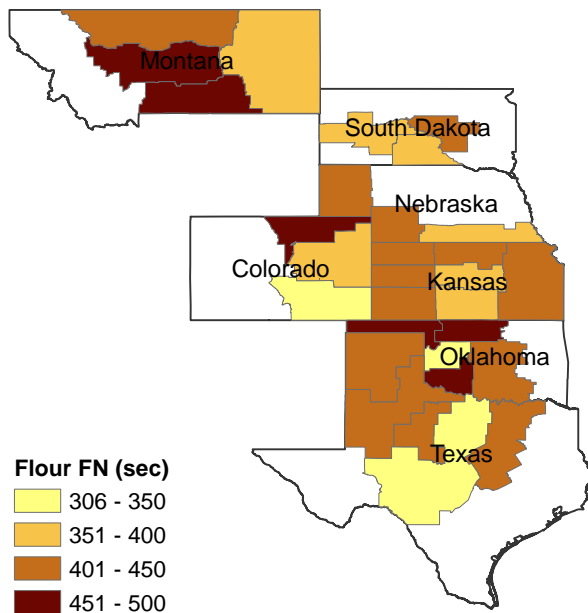
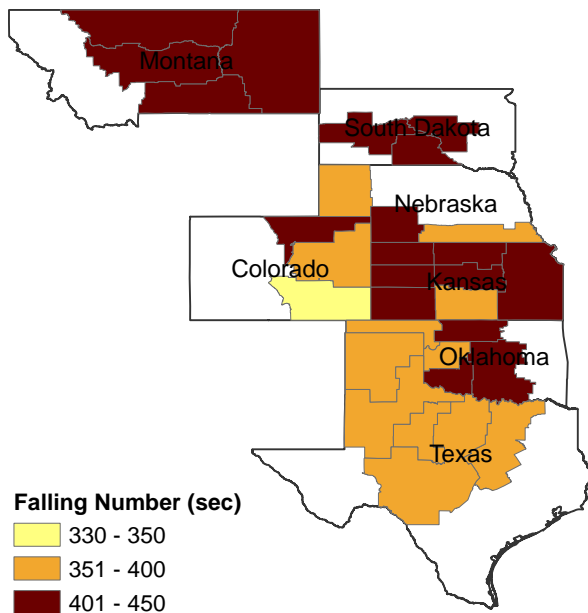
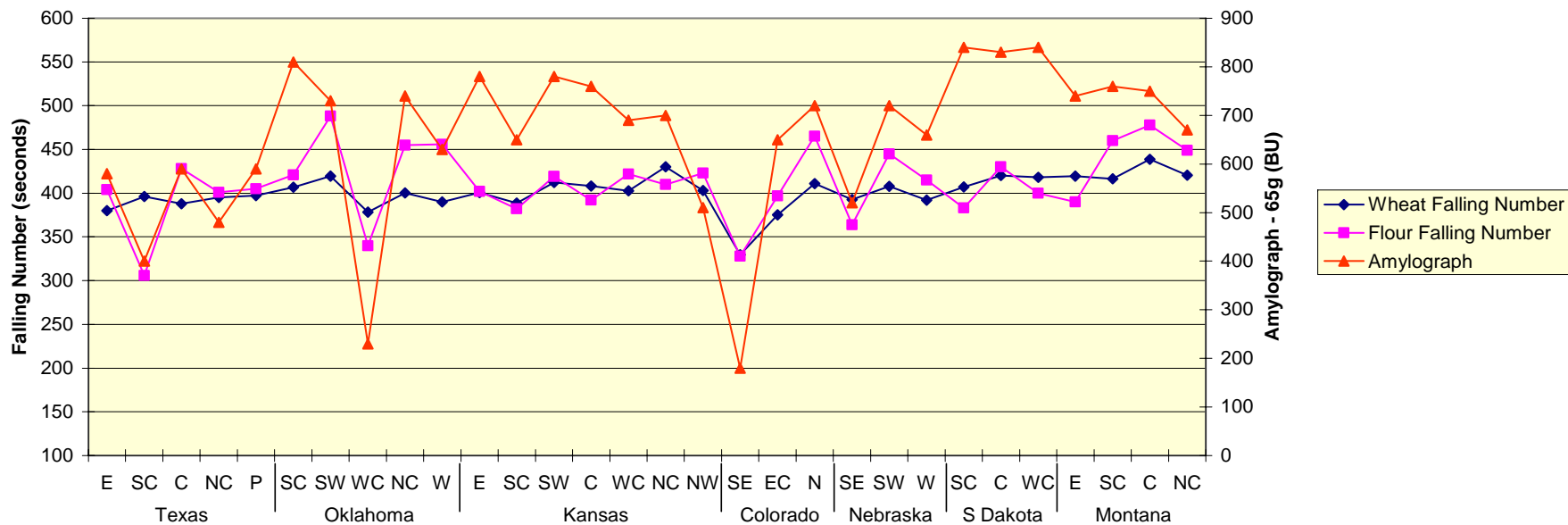
Comparisons of 2005 Results For Selected Quality Factors

Protein, Sedimentation and Wet Gluten



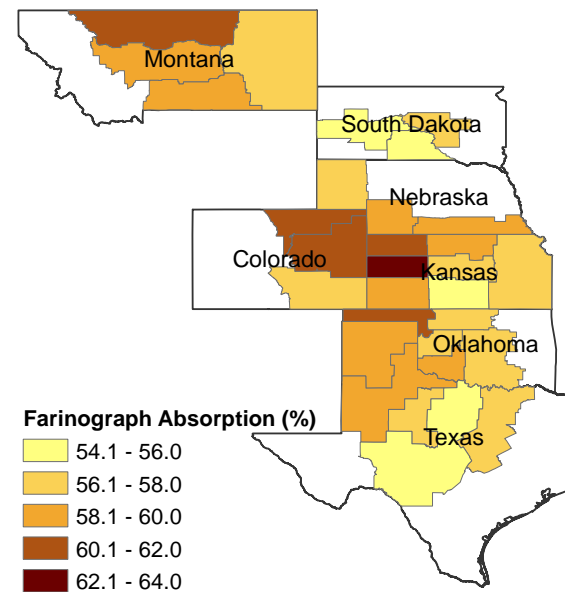
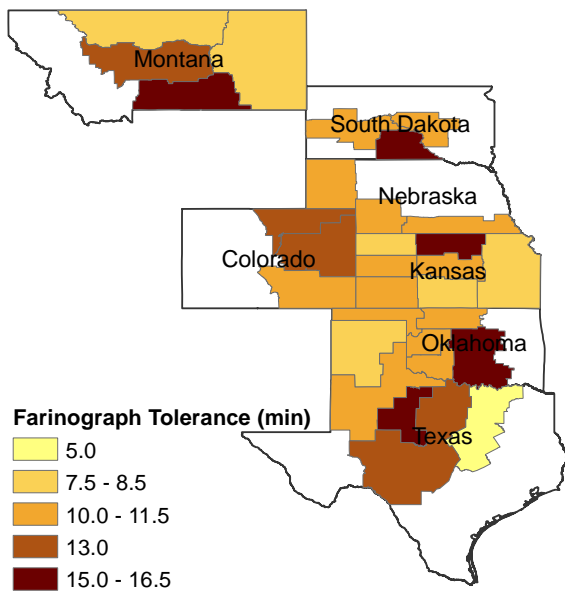
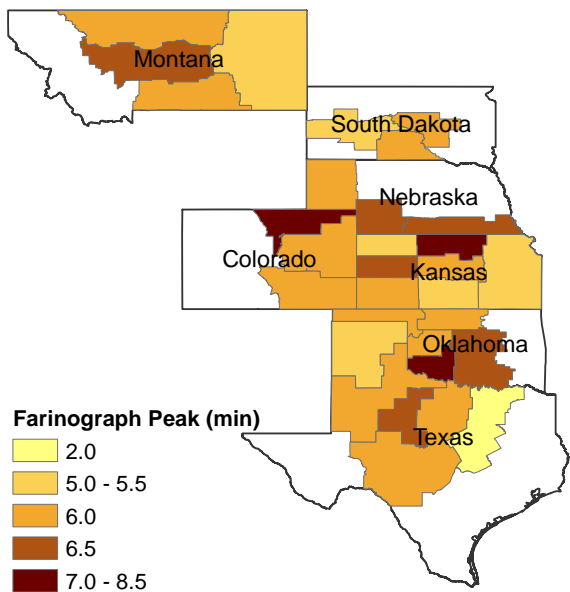
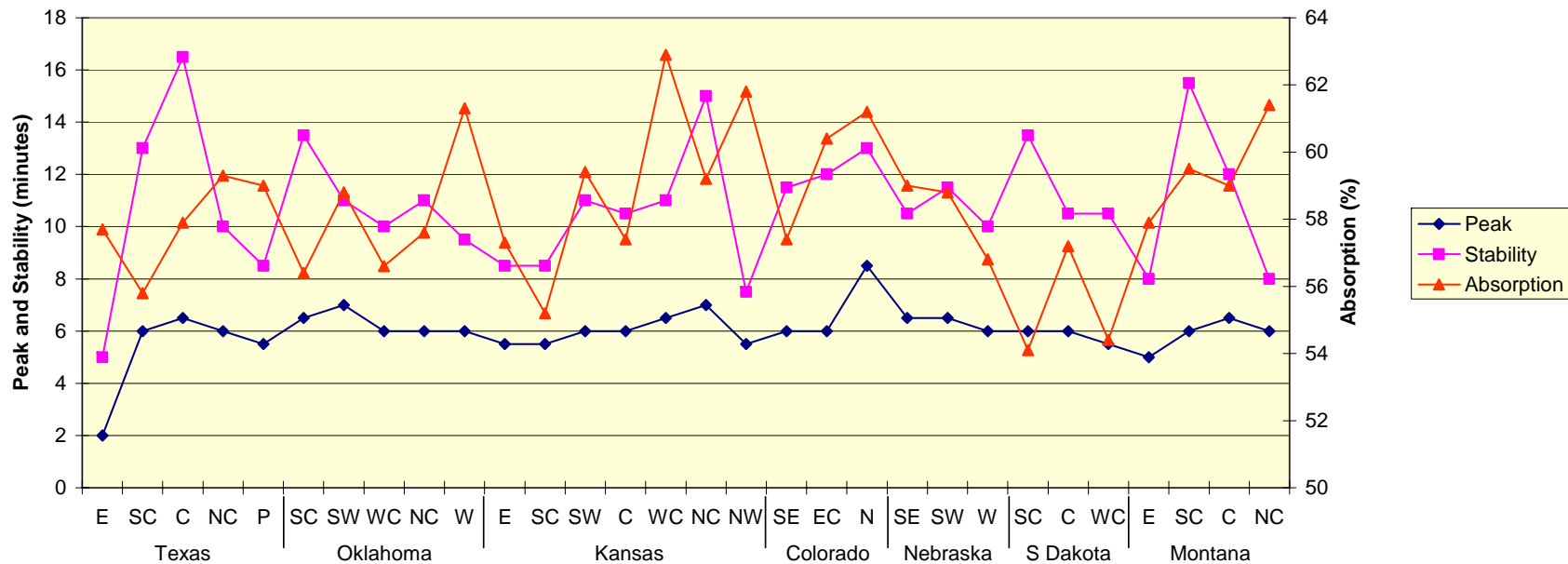
Comparisons of 2005 Results For Selected Quality Factors

Falling Numbers and Amylograph



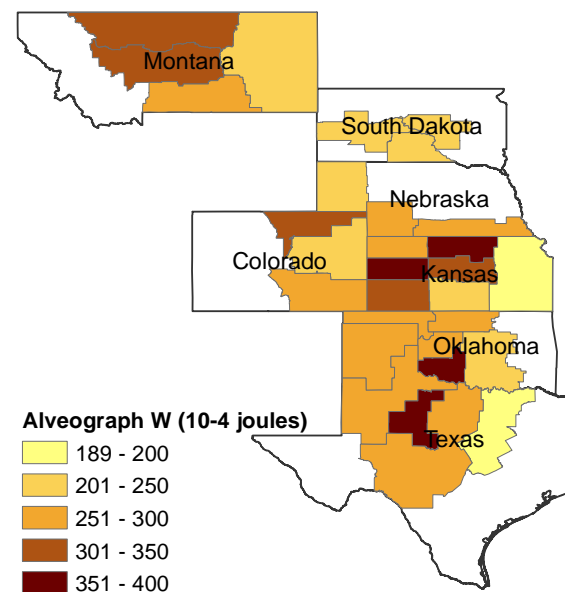
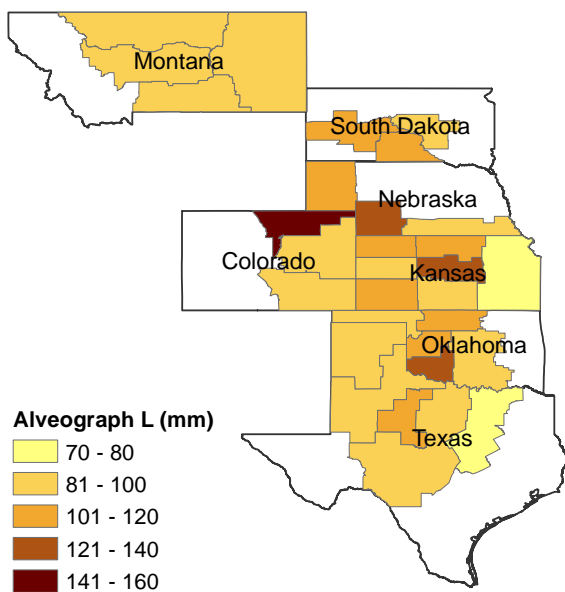
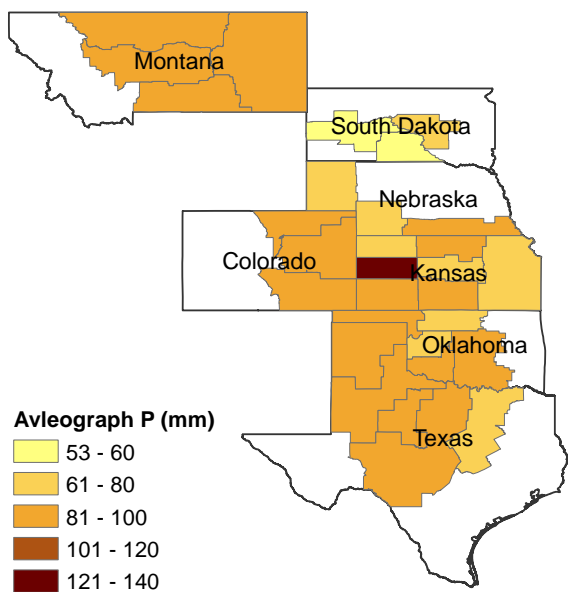
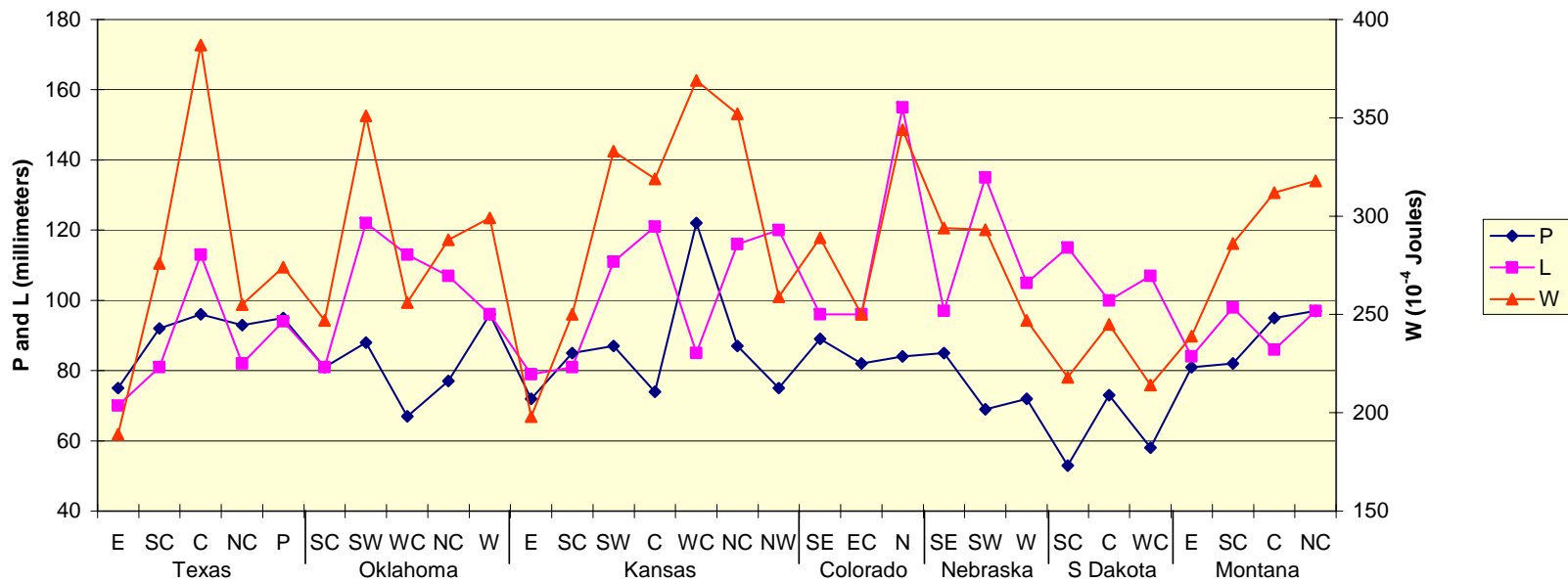
Comparisons of 2005 Results For Selected Quality Factors

Farinograph



Comparisons of 2005 Results For Selected Quality Factors

Alveograph



Comparisons of 2005 Results For Selected Quality Factors

Dockage, Damage and Total Defects

