2018 Hard Winter Wheat Regional Performance Nursery Quality Report

Hard Winter Wheat Quality Laboratory

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About the 2018 Crop ...

Locations from the **NRPN**, and **SRPN** were subdivided into **intraregional production zones**. The intraregional production zones represent broad production regions in which several locations have been composited by similar historical yield trends. Full quality testing is performed on these samples, and the data are listed beginning with the name of the nursery followed by a zone identifier (eg. "NRPN-NCP breadmaking properties," the NCP indicating North Central Plains Zone).

The **NRPN**, and **SRPN** regional nursery locations with number of samples submitted in the parenthesis were subdivided and variety-composited according to the following zones:

Northern Regional Performance Nursery (NRPN)

North Central Plains (NCP)

Lincoln, NE
Dakota Lake, SD
Brookings, SD
Winner, SD

Northern Plains (NP)

Wichita, KS
St. Paul, MN

Northern High Plains (NHP)

Bozman, MT
Moccasin, MT
Minot, ND
Casselton, ND
Williston, ND

Southern Regional Performance Nursery (SRPN)

North Central Plains (NCP)

Lincoln, NE
Dakota Lake, SD
Winner, SD

Northern High Plains (NHP)

Akron, CO
Burlington, CO
Ft. Collins, CO
Julesburg, CO
Colby, KS
Sidney, NE

South Central Plains (SCP)

Manhattan, KS
Hutchison, KS
Wichita, KS
Lahoma, OK
Stillwater, OK
Bushland-dry, TX
Bushland-irr, TX
McGregor, TX

Southern High Plains (SHP)

Goodwell-irr, OK
Hays, KS (snh)

HWWQL Laboratory Analyses

About the HWWQL Quality Data ...

Milling, flour chemical, physical dough, breadmaking, noodle-making properties and flour protein analysis of 2018 Hard Winter Wheat regional performance nurseries have been evaluated and analyzed in the USDA Hard Winter Wheat Quality Laboratory. The nurseries are: **Northern Regional Performance Nursery (NRPN)**, and **Southern Regional Performance Nursery (SRPN).** Tested samples were composites from multi-location trials. Data are reported in five tables: Wheat physical data, Milling, flour chemical, and noodle color data, Mixograph data, Flour pasting properties, and Breadmaking properties.

The following parameters are currently reported:

Physical and Hardness Data

- Test weight (TW) = lbs/bushel. (AACC Method 55-10)
- SKCS kernel moisture, size, and weight = Single Kernel Characterization System: the average of 300 kernels for kernel moisture (%), size (mm), and weight (mg) and their standard deviations.
- SKCS hardness (AACC Method 55-31) = hardness score: the average of 300 kernels for kernel hardness and its standard deviation.

Chemical Data

NIR Protein Content
NIR calibrations for protein were developed according to standard AACC methods: wheat meal (AACC Method 39-10), wheat flour (AACC Method 39-11) and whole kernel wheat (AACC Method 39-25). Laboratory values for protein content and subsequent equation development and calibration checks were determined by nitrogen combustion method (AACC Method 46-30) in all three sample types.

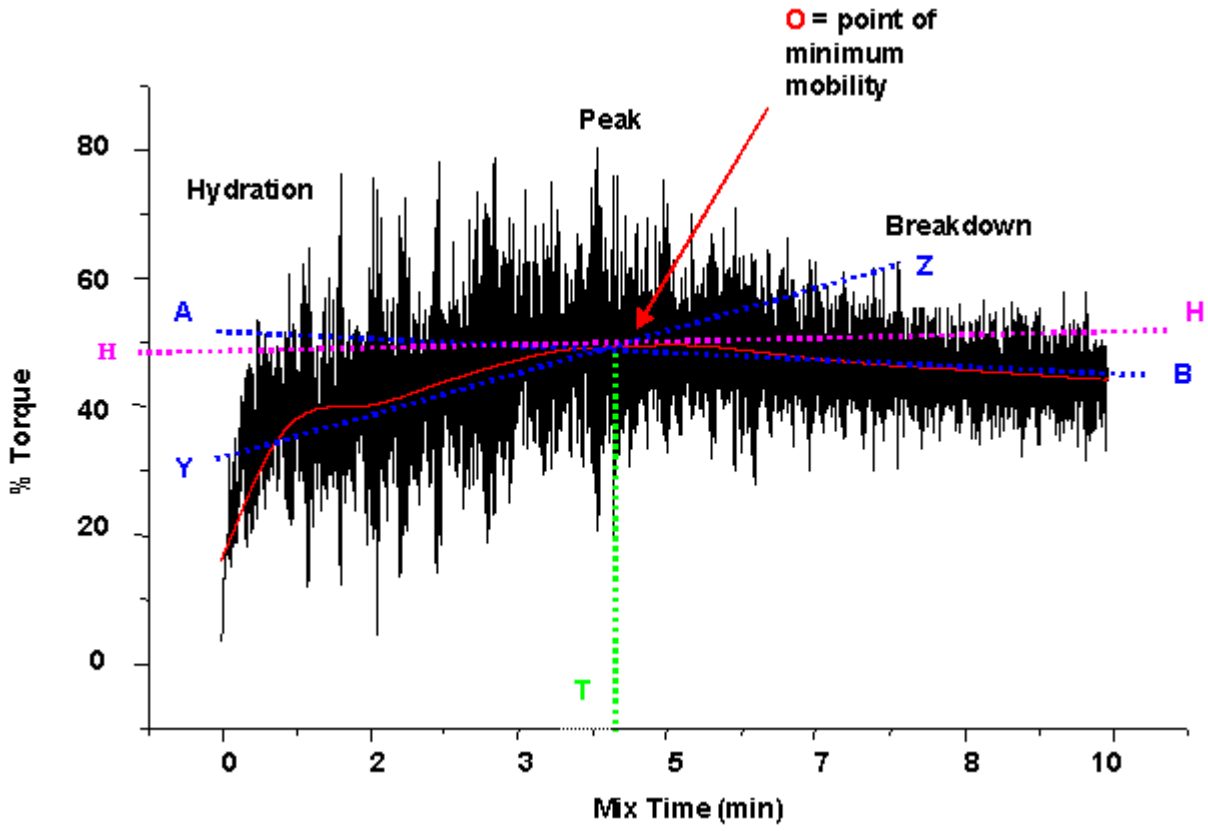
Wheat
- Protein (FP) = grain protein content (%) on 14% mb. (AACC Method 46-30 or 39-10)
- Flour % (FY) = flour yield (extraction) from milling (AACC Methods 26-10A, -50)

Flour
- Ash (FA) = flour ash content (%) on 14% mb. (AACC Method 08-01)
- Protein (FP) = flour protein content (%) on 14% mb. (AACC Method 46-30 or 39-11)
- Color (dry flour) = Minolta method
- PPO = polyphenol oxidase activity defined as a change of 0.001absorbance unit (AU)/min/mL

Mixograph Data

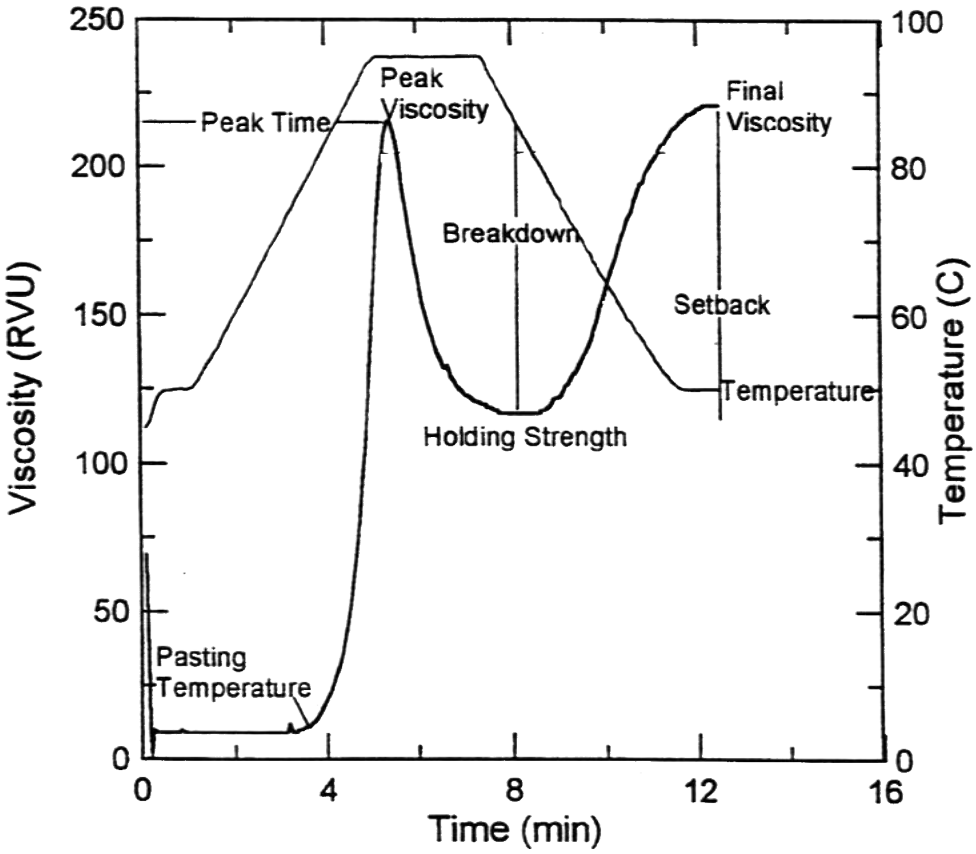
Mixograph (AACC Method 54-40)
- Absorption = optimal water added (% of flour wt. on 14% mb).
- Mix Time = time (as-is), in minutes, to peak dough development.
- Tolerance = resistance of dough to over-mixing (0 = unsatisfactory, 4 = satisfactory, 6 = outstanding).

Mixogram Curve



Rapid Visco Analyser (RVA) (AACC Method 61-02)
<u>13 min pasting profile</u>:
- Peak viscosity = maximum viscosity developed during or soon after the heating portion of the test, in RVU.
- Peak time = time at which the peak viscosity occurred, in minutes.
- Pasting temperature = temperature where viscosity first increases by at least 2 RVU over a 20 sec. period, in ºC.
- Peak temperature = temperature at which the peak viscosity occurred, in ºC.
- Holding strength = minimum viscosity after the peak, normally occurring around the commencement of sample cooling, in RVU.
- Breakdown = peak viscosity minus trough viscosity, in RVU.
- Final viscosity = viscosity at the end of the test, in RVU.
- Setback from Peak = final viscosity minus peak viscosity, in RVU.
- Setback from Trough = final viscosity minus trough viscosity, in RVU.

Pasting profile:



Breadmaking Properties *(Pup Loaf based on 100 g flour, AACC Method 10-10B)*
- Flour protein (FP) = flour protein content (14% mb) (AACC Method 46-30 or 39-11).
- Flour absorption = optimal water added (%) for breadmaking.
- Mix time = bake mix time (min) with as-is and corrected (based on a formula if protein < 12% at 14%mb)
- Dough weight = dough weight (g) after mixing.
- Proof height = height of fermented dough (cm) after proofing.
- Crumb grain = internal loaf appearance; 0 = unsatisfactory, 4 = satisfactory 6 = outstanding).
- Loaf volume (LV) = cc (by rape seed displacement).
- C-Cell Images: 4^{th} and 5^{th} slices of 8 scorable slices scanned by C-cell Image Analyzer.

Noodlemaking Properties
- Alkaline noodle color by Minolta colorimeter

ACKNOWLEDGEMENTS

HWWQL personnel who contributed to the collection and analysis of the RPN samples are listed below:

Milling Lab: Laura McLaughlin, B.S.

Bake Lab: Margo Caley, B.S.; Theresa Sutton, B.S.; Zhihua (Susan) Xiao, M.D.; Guixiang (Lucy) Lu, M.D.; and Alicsa Mayer, M.S.

Analytical Lab: Kevin Fay, B.S.

Data Evaluation & Report Editing: Yuanhong (Richard) Chen, Ph.D. (HWWQL Associate Director)

HWWQL: Brad Seabourn, Ph.D (HWWQL Director)

RPN Relational database: Scott Haley, Ph.D (Colorado State University)
Achieving acceptable end-use (milling and baking) quality is a fundamental objective of wheat breeding programs throughout the U.S. hard winter wheat region. Numerous statistical methods have been developed to measure quality. Several years ago, Dr. Scott Haley (Colorado State University), in conjunction with the USDA-ARS Hard Winter Wheat Quality Laboratory (HWWQL), developed a relational database for summarization and interpretation of regional performance nursery wheat end-use quality data generated annually by the HWWQL (Scott D. Haley, Rod D. May, Bradford W. Seabourn, and Okkyung K. Chung. 1999. *Relational database system for summarization and interpretation of Hard Winter Wheat regional quality data*. Crop Sci. 39:309–315). Until that time, few tools were available to assist in the decision-making process when faced with a large number of parameters from comprehensive milling and baking tests. The database system uses a graphical interface that requires input from the user. The database system provides simultaneous assessment of multiple quality traits on a standardized scale, *user-specified prioritization* of end-use quality traits for numerical and qualitative ratings of genotypes, tabulation of major quality deficiencies of genotypes, and summarization of quality ratings for a genotype across multiple nurseries.

Tables for milling and baking scores of each of Intraregional production zones in this report are direct outputs from the Relational Database program.

The data were provided by the Hard Winter Wheat Quality Laboratory (HWWQL), located at the USDA/ARS, Center for Grain and Animal Health Research (CGAHR) (Former name: Grain Marketing and Production Research Center, GMPRC), Manhattan, Kansas. Some data may not appear in all years.

**AACC methods cited are from the American Association of Cereal Chemists Approved Methods. 2000. The Association: St. Paul, MN.

Northern
Regional Performance Nursery

2018 NRPN Intraregional Production Zone

Entry	Selection No.	Pedigree	Source
1	Kharkof	Kharkof	check
2	Overland	Overland	check
3	Wesley	Wesley	check
4	Jagalene	Jagalene	check
5	Jerry	Jerry	check
6	NW13MD108-3	Mace/KS05HW15-2	ARS-LNK
7	NW13MD109-1	Mace/KS05HW15-2	ARS-LNK
8	CO15SFD061	Bearpaw/Antero//Antero	CSU
9	CO15SFD092	Byrd/Bearpaw//Byrd	CSU
10	CO15SFD095	Byrd/Bearpaw//Byrd	CSU
11	CO15SFD107	Byrd/Bearpaw//Byrd	CSU
12	AP-17CP020072	(06BC796#8/SY WOLF)	Agripro
13	AP-17CP020137	(TAM 112/CO04393//SY WOLF)	Agripro
14	AP-17CP020142	(HATCHER/Hitch//SY WOLF)	Agripro
15	AP-17CP020143	(HATCHER/Hitch//SY WOLF)	Agripro
16	AP-17CP020147	(BC03250-4/OVERLAND//TAM 111)	Agripro
17	LCH14DH-21-1781		LCS
18	LCH14-53		LCS
19	DH12HRW-9-9		LCS
20	DH11HRW-58-9		LCS
21	16NORD-54	Radiant/RCATL33//Ideal	NDSU
22	16NORD-58	SD07W083-4/Jerry	NDSU
23	16NORD-62	OK00611W/SD97W609/3/MT0423//MT0419/KS00F5-20-3	NDSU
24	NHH144913-3	SETTLER CL/NE07457//Brawl CL	UNL
25	NE10478-1	NI03418/Camelot (sel.)	UNL
26	NE14434	SD98W175-1/NW03666//Freeman	UNL
27	NE14538	SD98W175-1/NW03666//Freeman	UNL
28	NE14691	SD05W138/NE01604	UNL
29	NE14696	NE05537/Overland	UNL
30	NI14729	NE05426/Harry	UNL
31	NW15573	KS05HW15-2/NW03681	UNL
32	NE14421	NE05426/Overland	UNL
33	NE15410	Wesley * Madsen /TAM111	UNL
34	NW15404	KS05HW15-2/NW03681	UNL
35	MT1547	Yellowstone/MT0684	MT State
36	MT1563	Yellowstone*2/PI640431	MT State
37	MT1564	Yellowstone*2/PI640431	MT State
38	MTS1588	MT0598/98X366E29-1	MT State
39	SD12008-2	BC98334-10W-8W/SD05W030	SDSU
40	SD13062-2	SD06158/SD00111-9	SDSU
41	SD13W064-7	SD05W012/NuDakota	SDSU
42	SD14113-3	T154/SD06069	SDSU
43	SD14115-5	T154/SD07165	SDSU
44	CA9W09-903	BZ9M03-1151/CDCFALCON	WestBred
45	FA4W11-6067	SMOKY-HILL/CDCFALCON	WestBred

List of NRPN Sample ID

Entry	Line ID from Breeders	HWWQL ID		
		North Central Plains	Northern High Plains	Northern Plains
1	Kharkof	18-NNC1101	18-NNH1101	18-NNP1101
2	Overland	18-NNC1102	18-NNH1102	18-NNP1102
3	Wesley	18-NNC1103	18-NNH1103	18-NNP1103
4	Jagalene	18-NNC1104	18-NNH1104	18-NNP1104
5	Jerry	18-NNC1105	18-NNH1105	18-NNP1105
6	NW13MD108-3	18-NNC1106	18-NNH1106	18-NNP1106
7	NW13MD109-1	18-NNC1107	18-NNH1107	18-NNP1107
8	CO15SFD061	18-NNC1108	18-NNH1108	18-NNP1108
9	CO15SFD092	18-NNC1109	18-NNH1109	18-NNP1109
10	CO15SFD095	18-NNC1110	18-NNH1110	18-NNP1110
11	CO15SFD107	18-NNC1111	18-NNH1111	18-NNP1111
12	AP-17CP020072	18-NNC1112	18-NNH1112	18-NNP1112
13	AP-17CP020137	18-NNC1113	18-NNH1113	18-NNP1113
14	AP-17CP020142	18-NNC1114	18-NNH1114	18-NNP1114
15	AP-17CP020143	18-NNC1115	18-NNH1115	18-NNP1115
16	AP-17CP020147	18-NNC1116	18-NNH1116	18-NNP1116
17	LCH14DH-21-1781	18-NNC1117	18-NNH1117	18-NNP1117
18	LCH14-53	18-NNC1118	18-NNH1118	18-NNP1118
19	DH12HRW-9-9	18-NNC1119	18-NNH1119	18-NNP1119
20	DH11HRW-58-9	18-NNC1120	18-NNH1120	18-NNP1120
21	16NORD-54	18-NNC1121	18-NNH1121	18-NNP1121
22	16NORD-58	18-NNC1122	18-NNH1122	18-NNP1122
23	16NORD-62	18-NNC1123	18-NNH1123	18-NNP1123
24	NHH144913-3	18-NNC1124	18-NNH1124	18-NNP1124
25	NE10478-1	18-NNC1125	18-NNH1125	18-NNP1125
26	NE14434	18-NNC1126	18-NNH1126	18-NNP1126
27	NE14538	18-NNC1127	18-NNH1127	18-NNP1127
28	NE14691	18-NNC1128	18-NNH1128	18-NNP1128
29	NE14696	18-NNC1129	18-NNH1129	18-NNP1129
30	NI14729	18-NNC1130	18-NNH1130	18-NNP1130
31	NW15573	18-NNC1131	18-NNH1131	18-NNP1131
32	NE14421	18-NNC1132	18-NNH1132	18-NNP1132
33	NE15410	18-NNC1133	18-NNH1133	18-NNP1133
34	NW15404	18-NNC1134	18-NNH1134	18-NNP1134
35	MT1547	18-NNC1135	18-NNH1135	18-NNP1135
36	MT1563	18-NNC1136	18-NNH1136	18-NNP1136
37	MT1564	18-NNC1137	18-NNH1137	18-NNP1137
38	MTS1588	18-NNC1138	18-NNH1138	18-NNP1138
39	SD12008-2	18-NNC1139	18-NNH1139	18-NNP1139
40	SD13062-2	18-NNC1140	18-NNH1140	18-NNP1140
41	SD13W064-7	18-NNC1141	18-NNH1141	18-NNP1141
42	SD14113-3	18-NNC1142	18-NNH1142	18-NNP1142
43	SD14115-5	18-NNC1143	18-NNH1143	18-NNP1143
44	CA9W09-903	18-NNC1144	18-NNH1144	18-NNP1144
45	FA4W11-6067	18-NNC1145	18-NNH1145	18-NNP1145

Hard Winter Wheat Quality Report

2018 NRPN-NCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	40.9	Very Poor	70.3	56.1	Good	80.8		6,16,
Overland	46.2	Poor	79.5	49.6	Poor	71.4		16,
Wesley	50.3	Good	86.7	65.9	Very Good	94.9		1,5,14,15,
Jagalene	44.4	Very Poor	76.4	57.3	Good	82.6		14,15,
Jerry	52.3	Very Good	90.1	60.7	Good	87.4		15,
NW13MD108-3	45.0	Very Poor	77.4	59.8	Good	86.1		5,
NW13MD109-1	52.6	Very Good	90.5	56.1	Good	80.7		14,15,18,
CO15SFD061	47.2	Poor	81.3	65.3	Very Good	94.0		
CO15SFD092	47.4	Average	81.7	41.4	Very Poor	59.6		2,4,12,17,
CO15SFD095	56.2	Very Good	96.8	39.9	Very Poor	57.5		15,18,
CO15SFD107	54.8	Very Good	94.4	47.0	Poor	67.7		2,16,
AP-17CP020072	45.5	Poor	78.3	50.9	Average	73.3		8,15,
AP-17CP020137	51.0	Good	87.8	45.8	Poor	66.0		2,12,13,15,17,
AP-17CP020142	58.1	Very Good	100.0	53.4	Average	76.9		14,15,
AP-17CP020143	52.2	Very Good	89.9	34.9	Very Poor	50.3		2,4,14,15,
AP-17CP020147	48.7	Average	83.9	48.3	Poor	69.5		
LCH14DH-21-1781	46.3	Poor	79.7	68.7	Very Good	99.0		5,15,
LCH14-53	45.4	Poor	78.1	53.8	Average	77.4		
DH12HRW-9-9	44.6	Very Poor	76.7	48.5	Poor	69.9		3,5,
DH11HRW-58-9	46.4	Poor	79.9	53.7	Average	77.3		
16NORD-54	49.1	Average	84.6	38.2	Very Poor	55.1		1,16,17,20,
16NORD-58	50.3	Good	86.7	49.0	Poor	70.5		4,10,16,19,20,
16NORD-62	51.3	Good	88.4	54.2	Good	78.1		16,20,
NHH144913-3	36.5	Very Poor	62.8	53.7	Average	77.4		1,6,8,16,
NE10478-1	50.0	Good	86.0	68.7	Very Good	99.0		
NE14434	44.8	Very Poor	77.2	41.5	Very Poor	59.7		14,15,
NE14538	44.1	Very Poor	75.9	56.2	Good	80.9		14,15,
NE14691	49.0	Average	84.4	51.0	Average	73.4		
NE14696	48.3	Average	83.1	61.0	Good	87.8		15,18,
NI14729	46.2	Poor	79.6	65.6	Very Good	94.5		14,15,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

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2018 NRPN-NCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
NW15573	50.7	Good	87.2	59.1	Good	85.0		
NE14421	50.4	Good	86.8	61.8	Very Good	89.0		15,
NE15410	53.1	Very Good	91.3	40.7	Very Poor	58.6		16,
NW15404	55.2	Very Good	95.1	66.8	Very Good	96.2		16,
MT1547	51.5	Good	88.6	50.9	Average	73.3		15,
MT1563	50.2	Good	86.4	45.0	Poor	64.8		14,15,
MT1564	52.1	Very Good	89.7	62.3	Very Good	89.6		3,14,15,
MTS1588	47.3	Poor	81.4	46.0	Poor	66.2		3,9,14,15,
SD12008-2	49.6	Average	85.4	50.3	Poor	72.5		13,
SD13062-2	43.0	Very Poor	74.0	39.7	Very Poor	57.2		9,10,16,19,20,21,
SD13W064-7	49.6	Average	85.3	41.2	Very Poor	59.3		12,13,16,17,19,
SD14113-3	48.7	Average	83.9	53.3	Average	76.8		16,
SD14115-5	46.0	Poor	79.3	53.2	Average	76.6		
CA9W09-903	47.7	Average	82.0	44.3	Very Poor	63.8		11,16,
FA4W11-6067	44.2	Very Poor	76.2	69.5	Very Good	100.0		

2018 NRPN Intraregional Production Zone

North Central Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	59.1	14.0	0.7	31.6	10.6	2.56	0.33	37	17	MIXED	42-32-15-11-03
Overland	58.5	13.8	0.6	31.5	11.7	2.58	0.37	60	18	HARD	08-14-25-53-01
Wesley	57.1	13.6	0.6	33.0	10.9	2.63	0.40	61	18	HARD	06-14-27-53-01
Jagalene	58.9	13.3	0.5	30.0	10.7	2.58	0.37	71	21	HARD	03-10-20-67-01
Jerry	58.9	13.6	0.5	34.5	11.1	2.69	0.32	66	17	HARD	03-07-23-67-01
NW13MD108-3	57.6	13.5	0.6	31.5	11.8	2.59	0.41	61	17	HARD	06-13-28-53-01
NW13MD109-1	58.8	13.2	0.6	33.1	10.1	2.66	0.39	57	18	HARD	09-23-26-42-01
CO15SFD061	59.5	13.7	0.6	32.5	11.0	2.55	0.37	55	20	MIXED	14-21-22-43-03
CO15SFD092	58.6	13.6	0.6	27.0	9.4	2.38	0.35	51	19	MIXED	15-28-24-33-03
CO15SFD095	61.1	13.5	0.6	30.7	10.8	2.54	0.35	66	16	HARD	02-07-24-67-01
CO15SFD107	60.0	13.0	0.5	28.8	8.7	2.51	0.33	54	18	MIXED	11-25-26-38-03
AP-17CP020072	59.3	13.5	0.6	32.1	9.3	2.64	0.35	58	18	HARD	06-22-26-46-01
AP-17CP020137	59.6	12.9	0.6	28.9	10.6	2.47	0.36	60	15	HARD	05-11-34-50-01
AP-17CP020142	61.7	13.3	0.5	32.3	9.6	2.64	0.35	60	17	HARD	05-16-25-54-01
AP-17CP020143	60.5	13.6	0.6	28.5	9.2	2.46	0.38	65	19	HARD	03-16-23-58-01
AP-17CP020147	58.4	14.2	0.4	29.7	9.8	2.54	0.37	59	17	HARD	07-21-21-51-01
LCH14DH-21-1781	60.0	13.9	0.5	31.0	11.1	2.56	0.41	57	18	HARD	07-21-31-41-01
LCH14-53	58.2	13.5	0.4	30.4	11.1	2.48	0.40	68	16	HARD	01-08-20-71-01
DH12HRW-9-9	58.8	14.4	0.5	31.3	12.3	2.55	0.41	71	17	HARD	02-05-17-76-01
DH11HRW-58-9	59.1	13.5	0.4	32.2	10.8	2.66	0.39	72	19	HARD	02-08-16-74-01
16NORD-54	57.1	13.1	0.4	32.8	9.5	2.69	0.34	59	16	HARD	04-14-31-51-01
16NORD-58	58.0	13.8	0.5	30.3	9.9	2.44	0.36	53	18	MIXED	12-26-31-31-03
16NORD-62	58.6	12.9	0.4	35.9	9.1	2.78	0.36	61	16	HARD	04-13-28-55-01
NHH144913-3	56.3	13.4	0.4	31.6	9.9	2.56	0.37	23	16	SOFT	75-17-05-03-05
NE10478-1	60.0	13.4	0.4	32.2	11.0	2.61	0.37	70	18	HARD	03-06-19-72-01
NE14434	57.6	14.6	0.5	32.6	11.0	2.62	0.38	49	19	MIXED	21-28-23-28-03
NE14538	58.1	13.9	0.5	32.8	10.9	2.59	0.39	57	19	HARD	09-21-27-43-01
NE14691	58.7	13.7	0.5	33.3	10.8	2.71	0.38	68	18	HARD	03-07-23-67-01
NE14696	58.6	14.1	0.5	35.2	11.0	2.67	0.34	60	16	HARD	06-14-30-50-01
NI14729	57.9	13.7	0.5	30.3	10.1	2.54	0.37	67	18	HARD	03-09-22-66-01
NW15573	58.3	13.8	0.3	34.3	11.0	2.70	0.38	58	17	HARD	06-16-27-51-01
NE14421	59.1	14.3	0.4	33.3	10.1	2.70	0.38	62	17	HARD	03-16-27-54-01
NE15410	58.8	13.9	0.4	35.1	10.8	2.73	0.35	55	18	MIXED	12-20-27-41-03
NW15404	59.5	13.7	0.4	33.4	10.6	2.68	0.37	63	17	HARD	03-16-27-54-01
MT1547	58.4	13.7	0.5	33.5	11.7	2.69	0.39	64	16	HARD	02-10-30-58-01
MT1563	58.8	14.1	0.4	32.7	9.0	2.67	0.37	67	16	HARD	02-06-27-65-01
MT1564	58.9	13.8	0.5	35.6	12.4	2.61	0.40	66	19	HARD	03-12-23-62-01
MTS1588	58.4	13.9	0.4	32.9	12.3	2.51	0.36	62	16	HARD	04-10-32-54-01
SD12008-2	60.7	13.8	0.5	29.8	8.8	2.57	0.35	66	18	HARD	03-12-24-61-01
SD13062-2	58.1	13.9	0.4	33.6	11.6	2.60	0.37	65	18	HARD	04-09-25-62-01
SD13W064-7	58.8	13.8	0.4	31.8	10.3	2.51	0.35	57	17	HARD	08-17-32-43-01
SD14113-3	58.6	13.8	0.4	29.4	11.0	2.47	0.36	63	19	HARD	05-17-23-55-01
SD14115-5	59.1	13.7	0.3	33.6	10.9	2.65	0.37	60	18	HARD	07-18-25-50-01
CA9W09-903	58.6	13.5	0.4	32.7	10.1	2.65	0.39	52	20	MIXED	17-21-27-35-03
FA4W11-6067	60.0	13.2	0.4	30.1	11.1	2.54	0.36	62	19	HARD	07-13-25-55-01

2018 NRPN Intraregional Production Zone

North Central Plains

	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	16.4	66.0	0.47	15.0	0.613	77.72	-0.99	21.99	-13.46	1.79	2.30
Overland	15.1	69.1	0.51	13.5	0.642	77.16	-0.91	22.49	-10.05	1.52	0.49
Wesley	15.3	70.3	0.46	14.3	0.671	78.31	-0.92	21.78	-10.67	1.34	0.98
Jagalene	14.7	67.7	0.52	13.7	0.630	77.57	-0.92	23.16	-10.02	1.48	1.54
Jerry	14.8	69.0	0.48	13.7	0.631	77.90	-1.05	23.78	-10.45	1.53	2.00
NW13MD108-3	14.0	67.8	0.46	12.8	0.724	79.17	-0.90	21.34	-10.24	1.47	2.25
NW13MD109-1	14.5	69.6	0.41	13.4	0.720	79.71	-0.96	21.65	-9.99	1.39	2.02
CO15SFD061	14.2	69.5	0.49	12.6	0.886	79.08	-1.34	21.12	-12.42	1.48	2.58
CO15SFD092	14.2	70.6	0.48	12.9	0.790	78.28	-1.22	23.25	-8.94	1.25	0.89
CO15SFD095	14.6	70.2	0.42	13.5	0.683	77.93	-0.99	23.28	-8.31	1.21	2.08
CO15SFD107	14.1	72.0	0.47	12.9	0.741	78.70	-1.13	22.01	-8.61	1.30	1.11
AP-17CP020072	14.5	65.8	0.48	12.8	0.884	77.39	-0.57	22.09	-11.79	1.47	1.89
AP-17CP020137	14.5	69.6	0.47	13.1	0.840	77.14	-0.62	21.86	-12.29	1.42	1.94
AP-17CP020142	14.5	70.4	0.42	13.1	0.741	77.86	-0.47	20.71	-10.26	1.18	1.69
AP-17CP020143	14.5	69.9	0.46	12.4	0.691	76.90	-0.89	21.41	-8.97	1.35	1.62
AP-17CP020147	13.9	67.8	0.39	12.7	0.674	78.75	-1.00	20.71	-9.17	1.32	2.91
LCH14DH-21-1781	15.1	66.9	0.41	14.0	0.644	78.54	-1.11	22.12	-8.72	1.17	1.84
LCH14-53	14.0	66.4	0.45	12.7	0.731	77.11	-0.90	23.44	-9.13	1.31	0.83
DH12HRW-9-9	14.2	67.0	0.51	12.9	0.664	77.65	-1.19	24.36	-10.43	1.52	2.30
DH11HRW-58-9	14.4	67.1	0.51	13.4	0.702	76.85	-1.10	20.38	-11.62	1.76	2.76
16NORD-54	16.5	67.8	0.47	16.2	0.738	75.89	-1.34	25.75	-10.14	1.58	0.87
16NORD-58	15.7	70.9	0.46	13.8	0.673	77.54	-0.56	19.96	-12.79	1.60	3.77
16NORD-62	16.0	66.1	0.42	15.1	0.580	74.77	0.08	20.39	-11.95	1.65	1.05
NHH144913-3	14.8	63.9	0.43	13.1	0.757	77.74	-1.01	22.42	-10.27	1.43	2.03
NE10478-1	14.9	68.4	0.48	13.6	0.595	77.91	-0.36	20.07	-10.74	1.12	2.09
NE14434	14.1	68.2	0.44	12.5	0.527	78.60	-1.19	20.46	-10.91	1.22	4.66
NE14538	14.2	66.7	0.44	12.7	0.534	78.96	-0.86	20.28	-11.03	1.20	4.65
NE14691	15.1	67.1	0.43	13.6	0.597	78.31	-0.65	19.90	-9.13	1.19	3.02
NE14696	15.0	67.3	0.49	13.5	0.580	77.69	-0.61	19.88	-10.63	1.23	3.37
NI14729	14.2	66.9	0.44	12.9	0.570	79.16	-0.71	19.27	-10.50	0.96	4.54
NW15573	15.0	69.7	0.49	13.3	0.642	76.64	-0.74	20.13	-9.82	1.33	2.29
NE14421	15.0	68.1	0.47	13.2	0.521	78.01	-1.13	20.96	-9.88	1.32	1.98
NE15410	14.6	70.0	0.45	12.9	0.638	78.49	-1.24	21.80	-8.74	1.33	1.66
NW15404	14.8	70.3	0.44	13.6	0.670	78.52	-0.76	20.17	-10.55	1.39	2.85
MT1547	15.3	69.0	0.43	14.1	0.501	78.23	-0.76	21.95	-10.22	1.48	2.34
MT1563	15.2	66.7	0.47	13.6	0.465	76.82	-0.65	23.21	-9.60	1.65	2.21
MT1564	15.3	70.1	0.43	13.7	0.676	78.22	-0.52	20.54	-9.92	1.35	1.93
MTS1588	15.6	69.5	0.55	14.0	0.568	75.32	-0.89	22.48	-11.02	1.30	1.54
SD12008-2	15.2	67.3	0.49	13.5	0.387	77.75	-1.14	23.88	-8.43	1.40	3.56
SD13062-2	15.2	67.5	0.60	13.6	0.550	74.81	-0.70	22.83	-10.16	1.67	0.69
SD13W064-7	14.2	70.0	0.52	12.9	0.556	77.67	-1.20	23.62	-10.40	1.76	1.49

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
SD14113-3	14.9	69.8	0.44	13.6	0.655	79.08	-1.13	22.55	-9.33	1.17	1.43
SD14115-5	14.7	67.3	0.51	13.2	0.527	78.71	-1.22	22.05	-11.47	1.52	1.78
CA9W09-903	13.9	69.8	0.51	12.2	0.619	77.82	-1.24	21.66	-10.10	1.52	3.05
FA4W11-6067	14.2	67.4	0.51	12.4	0.490	77.65	-1.00	22.11	-10.25	1.40	1.30

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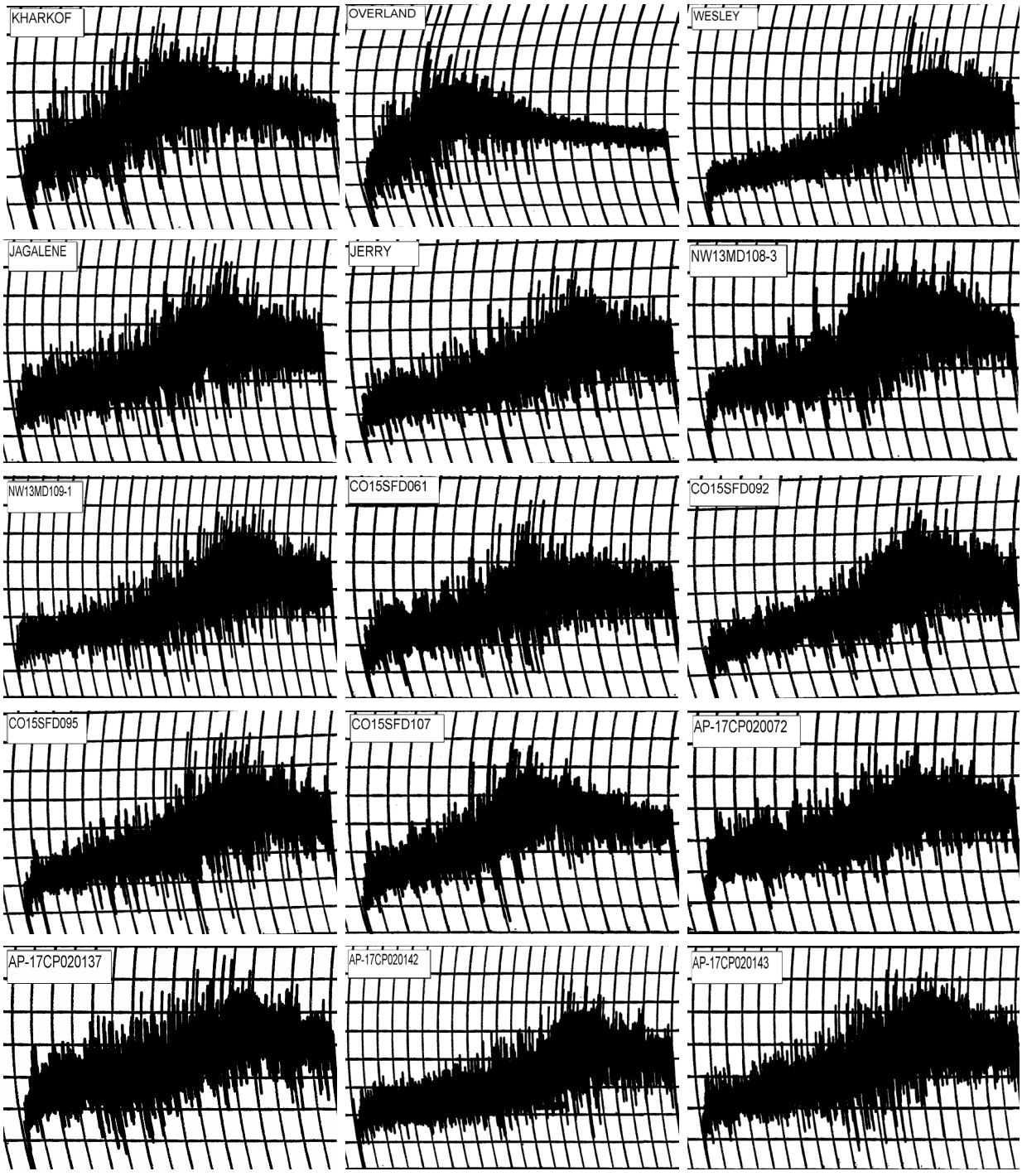
North Central Plains

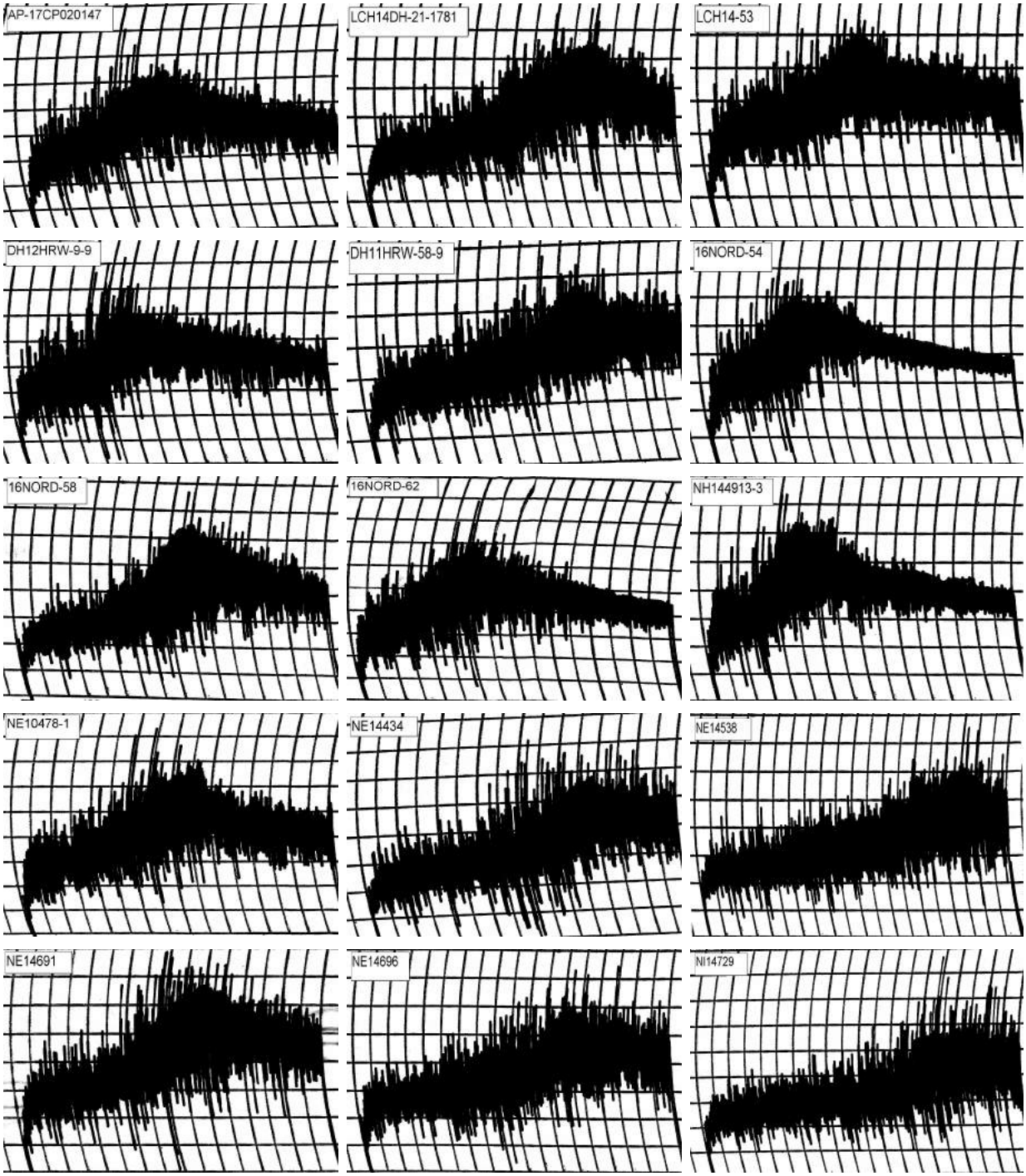
		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	15.0	67.9	4.00	4.00	2
Overland	13.5	66.0	2.75	2.75	1
Wesley	14.3	68.3	6.88	6.88	5
Jagalene	13.7	67.3	6.13	6.13	4
Jerry	13.7	67.3	5.75	5.75	4
NW13MD108-3	12.8	68.7	5.00	5.00	4
NW13MD109-1	13.4	66.8	7.88	7.88	4
CO15SFD061	12.6	66.4	4.50	4.50	4
CO15SFD092	12.9	65.9	5.50	5.50	4
CO15SFD095	13.5	67.0	6.63	6.63	4
CO15SFD107	12.9	66.0	4.50	4.50	2
AP-17CP020072	12.8	65.8	5.63	5.63	3
AP-17CP020137	13.1	63.7	5.88	5.88	3
AP-17CP020142	13.1	66.3	7.75	7.75	4
AP-17CP020143	12.4	65.1	7.13	7.13	4
AP-17CP020147	12.7	65.5	3.63	3.63	3
LCH14DH-21-1781	14.0	67.5	5.63	5.63	4
LCH14-53	12.7	65.7	4.00	4.00	3
DH12HRW-9-9	12.9	65.9	3.00	3.00	3
DH11HRW-58-9	13.4	68.2	5.50	5.50	4
16NORD-54	16.2	68.3	2.38	2.38	0
16NORD-58	13.8	67.3	4.50	4.50	2
16NORD-62	15.1	67.8	3.00	3.00	1
NHH144913-3	13.1	65.9	2.63	2.63	1
NE10478-1	13.6	67.0	4.38	4.38	4
NE14434	12.5	65.8	5.75	5.75	5
NE14538	12.7	67.0	8.50	8.50	5
NE14691	13.6	67.2	5.00	5.00	4
NE14696	13.5	67.0	6.25	6.25	5
NI14729	12.9	67.4	8.38	8.38	6
NW15573	13.3	66.6	4.50	4.50	3
NE14421	13.2	66.4	6.13	6.13	4
NE15410	12.9	66.4	3.25	3.25	1
NW15404	13.6	67.0	4.00	4.00	2
MT1547	14.1	67.4	6.88	6.88	5
MT1563	13.6	67.2	10.0	10.0	6
MT1564	13.7	67.7	12.3	12.3	5
MTS1588	14.0	67.2	6.38	6.38	5
SD12008-2	13.5	65.0	4.50	4.50	4
SD13062-2	13.6	67.2	2.50	2.50	1
SD13W064-7	12.9	64.5	2.25	2.25	0

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
SD14113-3	13.6	67.2	3.75	3.75	2
SD14115-5	13.2	66.4	4.50	4.50	3
CA9W09-903	12.2	65.3	4.50	4.50	2
FA4W11-6067	12.4	65.5	4.75	4.75	3

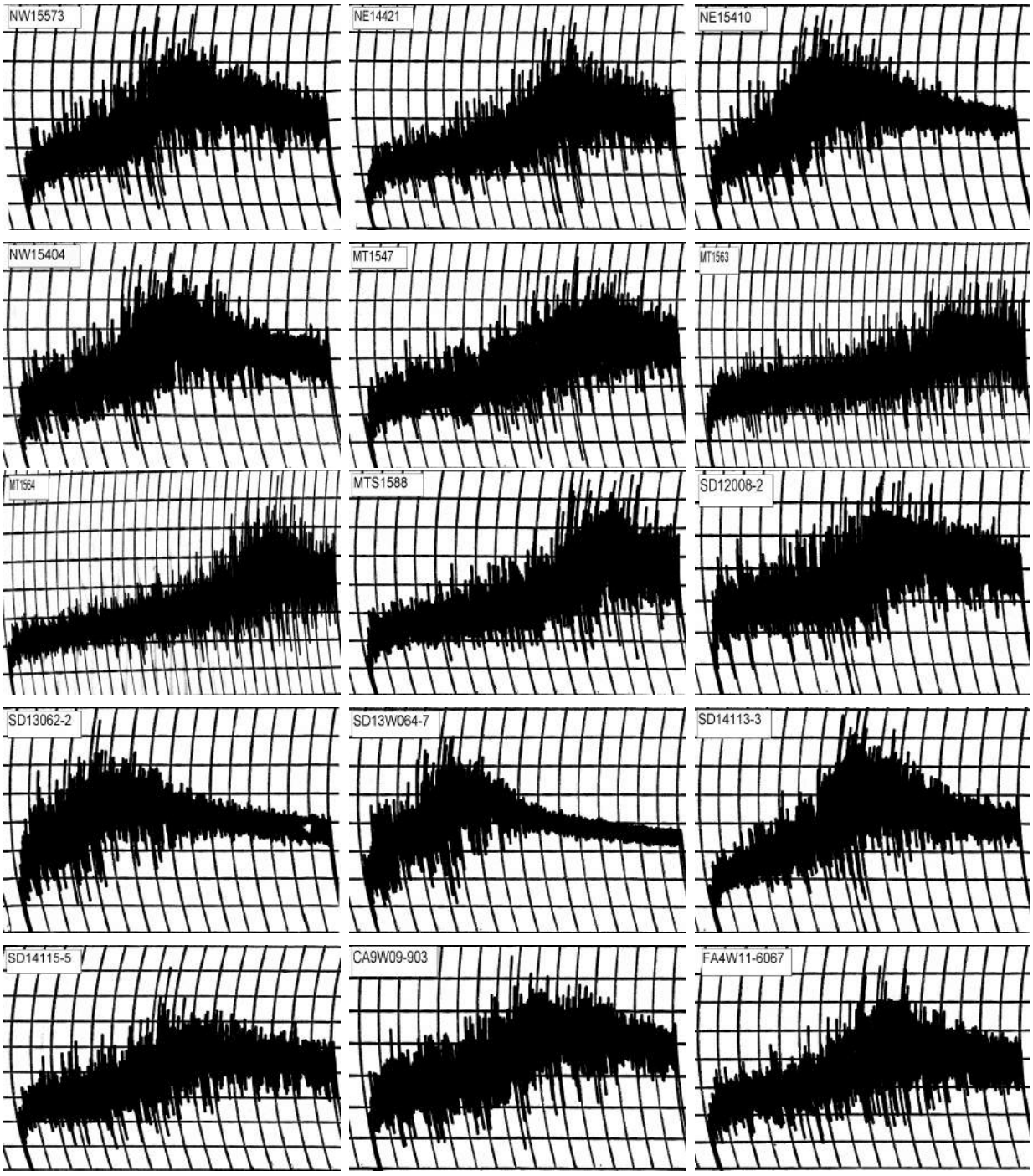
2018 NRPN Intraregional Production Zone
North Central Plains



2018 NRPN Intraregional Production Zone
North Central Plains



2018 NRPN Intraregional Production Zone
North Central Plains



2018 NRPN Intraregional Production Zone

North Central Plains

	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	130.25	191.58	118.42	73.17	207.33	88.92	6.20
Overland	119.08	200.92	118.08	82.83	216.67	98.58	6.07
Wesley	112.67	202.33	120.67	81.67	223.67	103.00	6.07
Jagalene	122.25	232.25	147.67	84.58	261.75	114.08	6.13
Jerry	120.83	196.33	117.67	78.67	212.00	94.33	6.07
NW13MD108-3	79.92	110.08	39.42	70.67	89.75	50.33	5.20
NW13MD109-1	51.67	76.08	20.00	56.08	47.08	27.08	4.87
CO15SFD061	111.58	191.25	120.00	71.25	222.00	102.00	6.00
CO15SFD092	110.50	255.08	149.58	105.50	261.67	112.08	6.07
CO15SFD095	122.00	257.50	163.25	94.25	277.67	114.42	6.13
CO15SFD107	114.92	231.17	138.83	92.33	247.83	109.00	6.07
AP-17CP020072	148.83	245.42	172.42	73.00	277.58	105.17	6.47
AP-17CP020137	117.42	227.83	147.42	80.42	249.08	101.67	6.33
AP-17CP020142	103.92	209.17	120.17	89.00	222.50	102.33	5.93
AP-17CP020143	104.17	226.92	136.50	90.42	247.17	110.67	6.00
AP-17CP020147	65.83	161.67	54.00	107.67	110.58	56.58	5.47
LCH14DH-21-1781	90.75	172.33	90.42	81.92	171.92	81.50	5.93
LCH14-53	121.83	215.83	124.75	91.08	223.17	98.42	6.13
DH12HRW-9-9	134.92	233.08	156.50	76.58	264.58	108.08	6.40
DH11HRW-58-9	96.75	151.83	59.75	92.08	122.75	63.00	5.60
16NORD-54	131.42	168.83	106.25	62.58	195.58	89.33	6.13
16NORD-58	49.25	84.00	17.17	66.83	39.92	22.75	4.87
16NORD-62	45.17	63.17	11.58	51.58	28.33	16.75	4.67
NHH144913-3	84.33	163.58	80.58	83.00	156.25	75.67	5.87
NE10478-1	108.08	189.83	120.17	69.67	219.33	99.17	6.07
NE14434	101.17	240.00	152.33	87.67	257.92	105.58	6.20
NE14538	103.67	241.42	154.83	86.58	257.33	102.50	6.27
NE14691	123.83	210.75	145.00	65.75	249.08	104.08	6.20
NE14696	119.25	198.67	118.58	80.08	215.83	97.25	6.00
NI14729	123.42	222.75	130.33	92.42	233.42	103.08	6.13
NW15573	60.58	132.08	37.17	94.92	80.17	43.00	5.33
NE14421	120.00	195.08	109.17	85.92	198.75	89.58	6.00
NE15410	109.92	237.67	148.83	88.83	260.92	112.08	6.20
NW15404	60.67	110.00	23.75	86.25	54.08	30.33	5.07
MT1547	117.17	215.75	126.75	89.00	222.58	95.83	6.13
MT1563	125.50	222.83	136.42	86.42	240.92	104.50	6.20
MT1564	76.67	132.00	50.75	81.25	110.25	59.50	5.40
MTS1588	118.58	194.25	117.92	76.33	222.83	104.92	6.00
SD12008-2	125.58	217.58	130.00	87.58	233.33	103.33	6.13
SD13062-2	113.75	175.83	103.67	72.17	192.08	88.42	6.00
SD13W064-7	67.42	93.33	36.08	57.25	82.08	46.00	5.33
SD14113-3	115.33	199.33	112.42	86.92	212.00	99.58	5.93
SD14115-5	121.33	209.33	140.42	68.92	248.17	107.75	6.13
CA9W09-903	52.00	103.75	20.42	83.33	46.67	26.25	4.93
FA4W11-6067	117.50	221.83	134.67	87.17	232.08	97.42	6.20

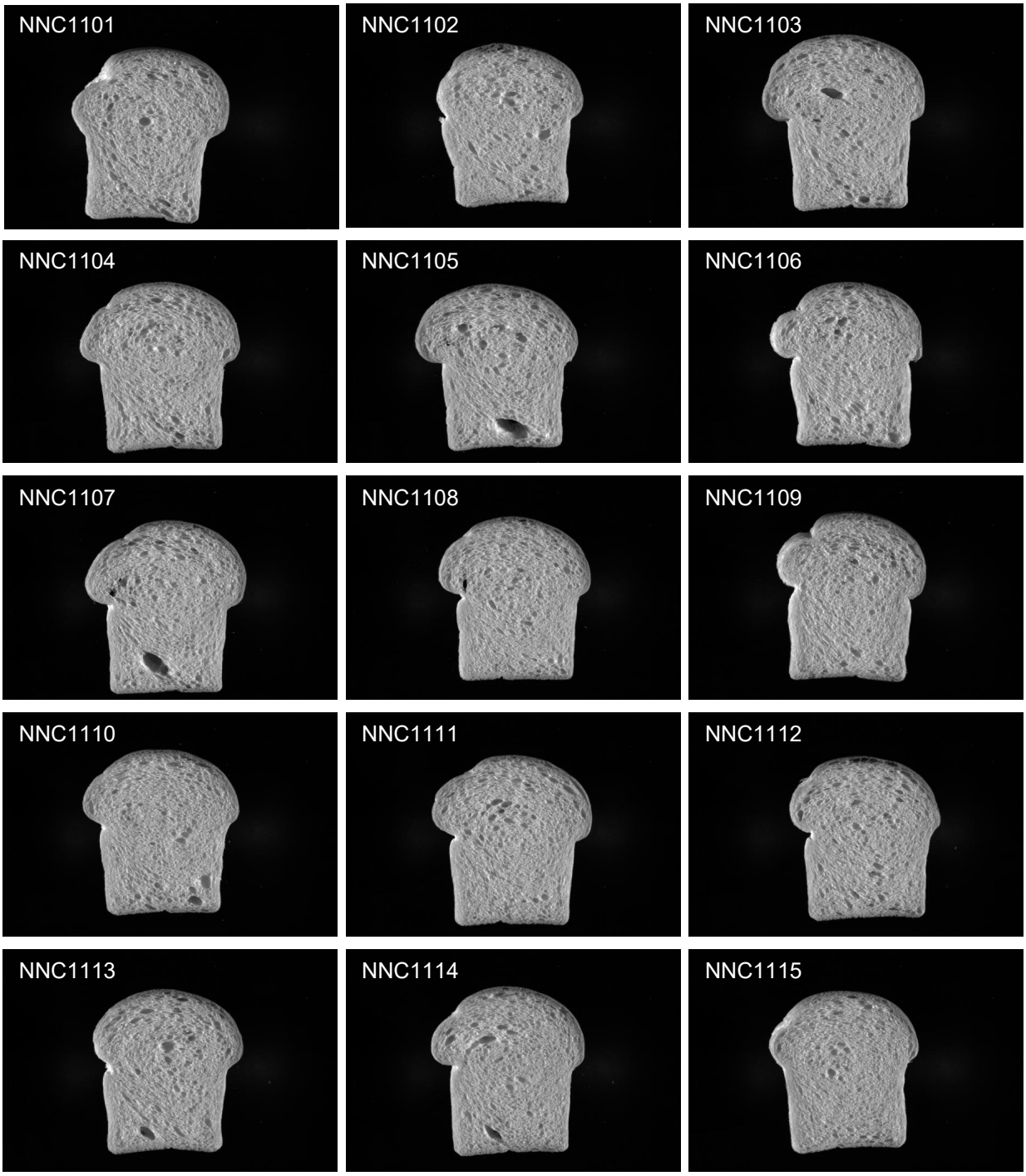
2018 NRPN Intraregional Production Zone

North Central Plains

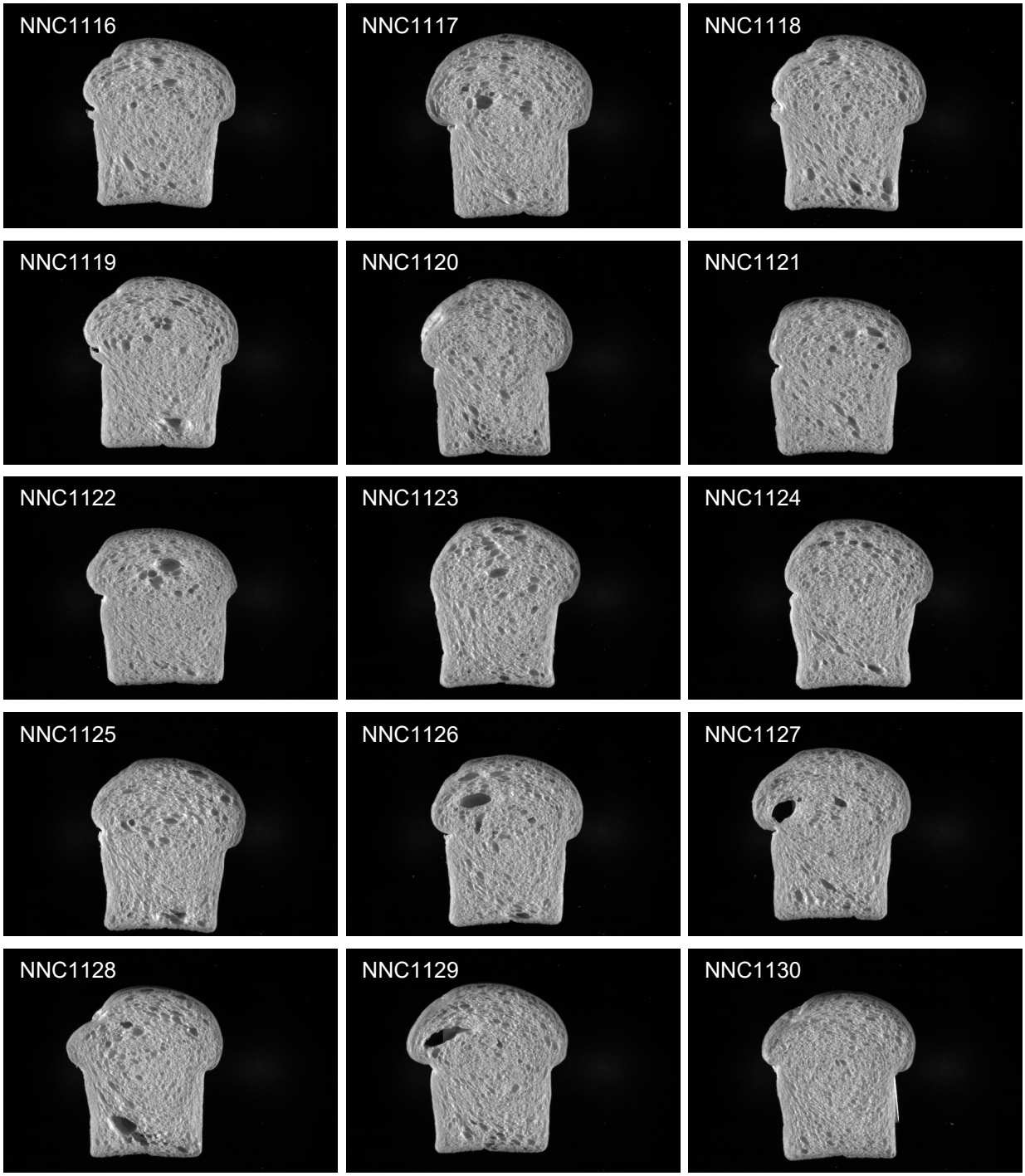
	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
Kharkof	15.0	66.6	5.25	5.25	175.6	8.0	3.5	1050	6.9	62
Overland	13.5	64.9	3.38	3.38	175.0	7.9	3.0	920	6.0	59
Wesley	14.3	67.9	10.50	10.50	177.5	7.7	5.0	1050	6.9	67
Jagalene	13.7	67.3	7.63	7.63	176.8	7.2	4.0	990	6.5	64
Jerry	13.7	66.9	6.25	6.25	176.2	7.3	4.0	965	6.4	62
NW13MD108-3	12.8	67.3	5.00	5.00	176.9	7.4	3.0	935	6.1	65
NW13MD109-1	13.4	67.1	9.75	9.75	175.4	7.0	4.0	1020	6.7	69
CO15SFD061	12.6	66.1	6.00	6.00	175.6	7.2	5.0	925	6.0	65
CO15SFD092	12.9	64.1	6.75	6.75	173.9	7.3	3.5	970	6.4	68
CO15SFD095	13.5	67.2	7.25	7.25	176.9	7.0	4.5	940	6.1	61
CO15SFD107	12.9	65.0	5.50	5.50	175.0	7.2	4.5	985	6.4	69
AP-17CP020072	12.8	66.0	6.50	6.50	175.5	7.4	3.0	935	6.1	65
AP-17CP020137	13.1	64.1	6.75	6.75	173.0	7.5	3.0	910	6.1	61
AP-17CP020142	13.1	66.3	9.25	9.25	175.5	7.4	4.0	985	6.5	68
AP-17CP020143	12.4	65.3	9.00	9.00	174.3	7.6	4.5	945	6.3	69
AP-17CP020147	12.7	65.2	4.25	4.25	175.8	7.4	3.5	985	6.4	71
LCH14DH-21-1781	14.0	67.3	7.00	7.00	177.5	8.0	4.0	1170	7.7	79
LCH14-53	12.7	66.1	4.63	4.63	176.1	7.6	3.5	1040	6.7	76
DH12HRW-9-9	12.9	66.1	4.25	4.25	176.1	7.4	3.5	995	6.4	70
DH11HRW-58-9	13.4	67.9	6.13	6.13	176.8	7.5	3.5	1075	7.0	75
16NORD-54	16.2	66.0	3.00	3.00	171.9	7.5	2.5	890	5.8	45
16NORD-58	13.8	67.2	7.00	7.00	177.3	7.2	3.0	860	5.5	52
16NORD-62	15.1	66.1	3.25	3.25	175.4	7.9	3.0	965	6.3	55
NHH144913-3	13.1	65.9	3.50	3.50	175.9	7.7	3.0	985	6.4	68
NE10478-1	13.6	67.2	5.25	5.25	176.8	7.8	4.0	1000	6.6	66
NE14434	12.5	65.5	7.50	7.50	175.1	7.6	3.5	985	6.5	72
NE14538	12.7	67.3	9.38	9.38	176.1	7.6	4.0	995	6.6	72
NE14691	13.6	67.3	6.13	6.13	176.7	7.6	4.5	1025	6.7	68
NE14696	13.5	67.3	7.25	7.25	175.9	7.1	4.0	1035	6.7	70
NI14729	12.9	67.3	10.13	10.13	176.3	7.4	5.0	1060	6.9	77
NW15573	13.3	66.2	5.00	5.00	176.6	7.3	3.0	950	6.2	63
NE14421	13.2	66.1	6.50	6.50	175.5	7.2	5.0	950	6.2	64
NE15410	12.9	65.3	4.00	4.00	174.6	7.3	3.5	895	5.8	60
NW15404	13.6	66.3	4.50	4.50	176.2	7.4	4.0	1020	6.6	68
MT1547	14.1	67.1	7.25	7.25	176.0	7.7	4.5	1115	7.4	74
MT1563	13.6	67.3	10.00	10.00	175.5	7.5	4.5	1045	6.9	70
MT1564	13.7	67.3	12.75	12.75	175.7	7.4	4.0	1105	7.3	75
MTS1588	14.0	67.3	8.50	8.50	176.3	7.6	4.5	1080	7.1	71
SD12008-2	13.5	65.3	5.50	5.50	174.7	7.4	2.5	1010	6.6	67
SD13062-2	13.6	65.2	2.75	2.75	175.4	7.3	2.0	875	5.7	54
SD13W064-7	12.9	63.0	2.75	2.75	173.1	7.3	3.0	885	5.8	59
SD14113-3	13.6	66.3	5.00	5.00	176.5	7.6	3.5	1020	6.6	68
SD14115-5	13.2	66.0	5.38	5.38	174.8	7.8	4.5	1045	7.0	73

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
CA9W09-903	12.2	65.2	5.75	5.75	175.3	7.5	4.5	950	6.2	70
FA4W11-6067	12.4	65.2	6.00	6.00	175.2	7.5	5.0	1050	6.9	80

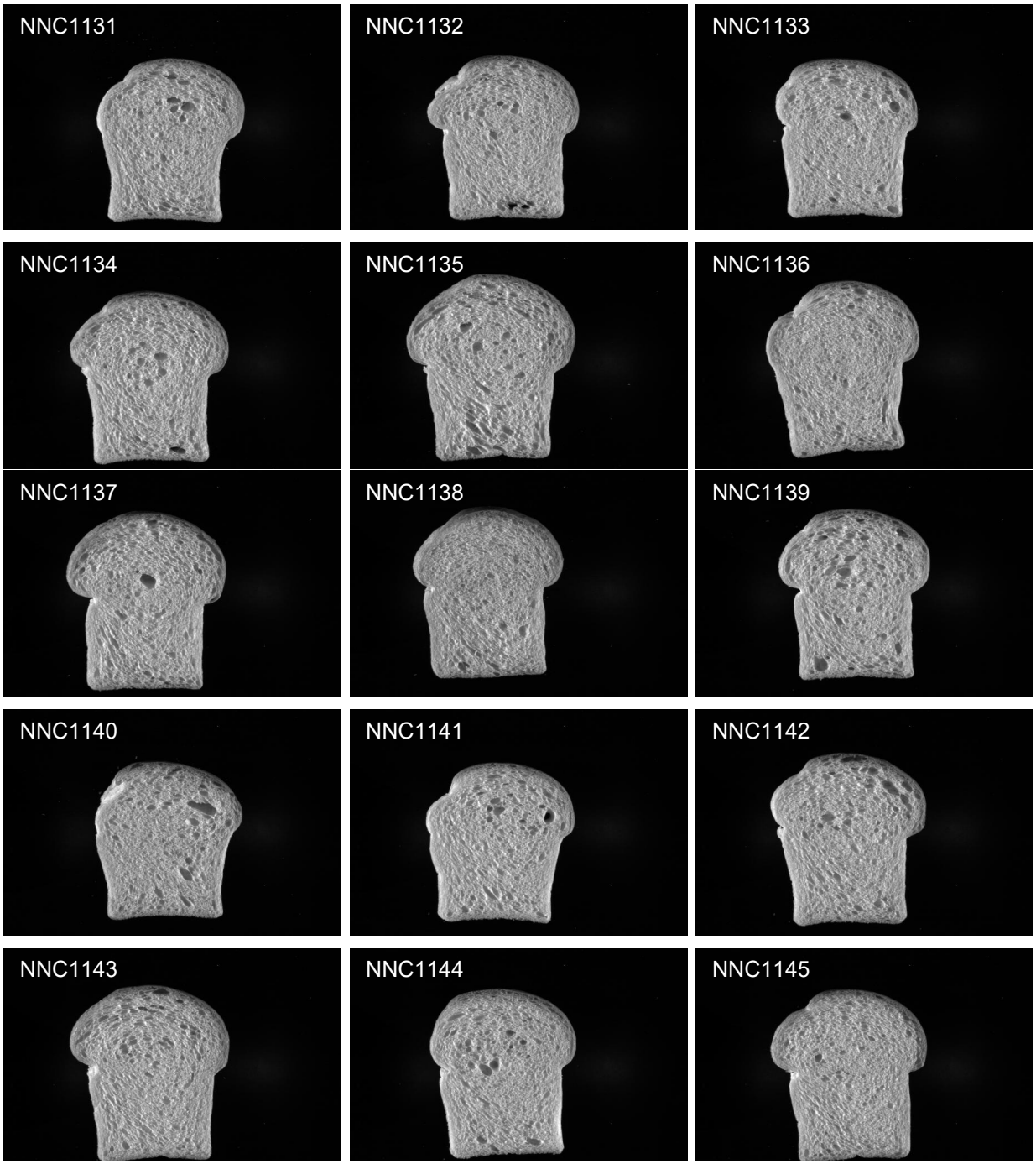
2018 NRPN Intraregional Production Zone
North Central Plains



2018 NRPN Intraregional Production Zone
North Central Plains



2018 NRPN Intraregional Production Zone
North Central Plains



Hard Winter Wheat Quality Report

2018 NRPN-NHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	43.3	Very Poor	73.7	67.9	Very Good	100.0		8,10,
Overland	56.6	Very Good	96.3	37.9	Very Poor	55.8		10,15,16,20,21,
Wesley	54.8	Good	93.2	67.7	Very Good	99.8		14,
Jagalene	54.6	Good	93.0	56.5	Good	83.2		
Jerry	57.0	Very Good	97.0	63.4	Very Good	93.5		
NW13MD108-3	53.8	Good	91.6	44.8	Poor	66.1		18,19,
NW13MD109-1	55.6	Very Good	94.5	36.2	Very Poor	53.3		5,14,15,18,
CO15SFD061	53.4	Average	90.9	44.3	Poor	65.3		
CO15SFD092	50.7	Poor	86.3	51.8	Good	76.3		2,4,
CO15SFD095	55.2	Very Good	94.0	57.4	Very Good	84.6		18,
CO15SFD107	53.2	Average	90.5	58.2	Very Good	85.7		2,4,16,
AP-17CP020072	41.3	Very Poor	70.2	57.2	Good	84.3		8,10,
AP-17CP020137	51.5	Average	87.6	37.4	Very Poor	55.1		2,4,12,13,16,17,
AP-17CP020142	57.1	Very Good	97.1	52.4	Good	77.3		14,15,
AP-17CP020143	54.3	Good	92.3	55.5	Good	81.8		4,15,
AP-17CP020147	50.3	Poor	85.5	41.8	Poor	61.7		
LCH14DH-21-1781	52.3	Average	88.9	62.0	Very Good	91.4		
LCH14-53	46.3	Very Poor	78.7	47.0	Average	69.3		3,8,16,
DH12HRW-9-9	49.0	Very Poor	83.4	46.4	Average	68.3		9,10,16,
DH11HRW-58-9	47.7	Very Poor	81.1	51.7	Average	76.2		8,10,
16NORD-54	53.0	Average	90.2	41.6	Very Poor	61.3		1,9,16,20,
16NORD-58	55.9	Very Good	95.1	44.0	Poor	64.8		16,
16NORD-62	56.1	Very Good	95.5	58.6	Very Good	86.3		20,
NHH144913-3	41.7	Very Poor	71.0	46.4	Average	68.3		1,6,8,12,16,
NE10478-1	50.9	Poor	86.6	53.8	Good	79.2		21,
NE14434	50.7	Poor	86.2	41.5	Very Poor	61.2		
NE14538	47.2	Very Poor	80.3	56.2	Good	82.9		14,15,
NE14691	55.0	Good	93.6	64.8	Very Good	95.6		
NE14696	48.6	Very Poor	82.7	44.0	Poor	64.9		3,9,
NI14729	52.5	Average	89.4	41.9	Poor	61.7		14,15,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 NRPN-NHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
NW15573	53.3	Average	90.6	49.1	Average	72.3		16,21,
NE14421	51.1	Poor	86.9	41.8	Poor	61.7		5,
NE15410	54.0	Good	91.9	35.8	Very Poor	52.8		16,18,19,20,
NW15404	55.1	Good	93.8	64.6	Very Good	95.2		16,
MT1547	58.8	Very Good	100.0	49.5	Average	73.0		
MT1563	49.4	Poor	84.1	50.1	Average	73.8		5,14,15,
MT1564	54.2	Good	92.2	38.9	Very Poor	57.3		3,14,15,
MTS1588	51.4	Poor	87.5	49.4	Average	72.8		4,
SD12008-2	50.0	Poor	85.1	45.6	Poor	67.2		12,13,16,
SD13062-2	53.6	Good	91.3	39.7	Very Poor	58.5		9,10,16,21,
SD13W064-7	52.5	Average	89.4	28.7	Very Poor	42.4		11,12,13,14,15,16,17,19,21,
SD14113-3	55.5	Very Good	94.5	49.6	Average	73.2		16,
SD14115-5	50.8	Poor	86.3	57.0	Good	84.0		3,16,
CA9W09-903	52.7	Average	89.6	46.0	Poor	67.7		5,11,12,16,
FA4W11-6067	49.2	Very Poor	83.7	56.9	Good	83.9		

2018 NRPN Intraregional Production Zone

Northern High Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	61.2	14.1	0.4	34.1	10.3	2.74	0.35	48	20	MIXED	24-24-24-28-03
Overland	60.6	13.9	0.5	34.8	12.4	2.74	0.35	72	15	HARD	01-04-16-79-01
Wesley	59.5	13.6	0.5	34.6	13.3	2.74	0.43	67	16	HARD	01-07-27-65-01
Jagalene	61.4	13.5	0.5	35.2	12.5	2.81	0.40	79	18	HARD	00-03-10-87-01
Jerry	60.3	14.2	0.6	36.5	11.2	2.76	0.36	75	15	HARD	00-03-12-85-01
NW13MD108-3	59.6	13.7	0.5	33.5	10.4	2.74	0.37	68	16	HARD	02-07-23-68-01
NW13MD109-1	60.3	13.7	0.5	37.3	12.8	2.78	0.45	64	17	HARD	02-11-26-61-01
CO15SFD061	60.9	13.6	0.6	34.2	12.0	2.64	0.40	68	15	HARD	01-08-22-69-01
CO15SFD092	60.4	13.4	0.5	29.1	11.9	2.50	0.39	62	18	HARD	04-15-26-55-01
CO15SFD095	62.1	13.9	0.5	31.3	11.8	2.58	0.36	70	18	HARD	03-05-18-74-01
CO15SFD107	60.5	13.7	0.8	29.7	10.8	2.53	0.36	63	17	HARD	04-13-25-58-01
AP-17CP020072	59.5	12.9	0.6	32.2	12.2	2.63	0.42	69	17	HARD	02-07-21-70-01
AP-17CP020137	61.2	12.7	0.6	28.5	10.0	2.50	0.38	65	18	HARD	03-12-25-60-01
AP-17CP020142	62.0	13.6	0.8	33.0	11.0	2.62	0.39	66	15	HARD	02-06-25-67-01
AP-17CP020143	60.8	13.6	0.7	31.1	11.1	2.53	0.37	70	16	HARD	01-07-18-74-01
AP-17CP020147	59.4	13.7	0.6	33.0	11.0	2.65	0.40	62	17	HARD	04-13-28-55-01
LCH14DH-21-1781	61.1	13.7	0.4	33.3	11.4	2.66	0.37	60	14	HARD	03-12-36-49-01
LCH14-53	59.6	14.0	0.6	37.3	13.9	2.65	0.41	72	17	HARD	01-05-17-77-01
DH12HRW-9-9	60.1	14.2	0.5	38.5	13.0	2.73	0.43	76	16	HARD	01-03-12-84-01
DH11HRW-58-9	61.0	13.8	0.5	36.2	13.5	2.76	0.38	78	19	HARD	02-05-10-83-01
16NORD-54	58.9	13.1	0.4	36.3	11.8	2.79	0.35	59	16	HARD	06-15-31-48-01
16NORD-58	60.3	12.8	0.4	35.8	9.9	2.57	0.33	55	17	MIXED	11-20-29-40-03
16NORD-62	60.4	12.8	0.5	39.2	9.7	2.87	0.36	59	17	HARD	04-14-36-46-01
NHH144913-3	58.0	13.2	0.4	36.3	11.0	2.66	0.36	24	16	SOFT	70-20-08-02-05
NE10478-1	59.8	12.9	0.4	36.0	12.7	2.71	0.39	70	17	HARD	03-07-18-72-01
NE14434	60.1	12.9	0.5	33.2	11.0	2.63	0.39	55	17	MIXED	11-20-34-35-03
NE14538	59.9	12.5	0.6	34.2	12.0	2.66	0.43	62	18	HARD	05-13-26-56-01
NE14691	60.2	12.4	0.7	37.6	10.9	2.86	0.37	68	14	HARD	02-04-22-72-01
NE14696	59.7	12.7	0.6	35.6	13.6	2.66	0.43	65	16	HARD	03-11-23-63-01
NI14729	59.9	12.4	0.6	33.5	11.6	2.65	0.40	69	17	HARD	01-07-19-73-01
NW15573	59.3	13.7	0.5	35.8	12.3	2.76	0.39	64	16	HARD	04-08-24-64-01
NE14421	60.7	13.9	0.5	34.8	12.4	2.70	0.44	61	17	HARD	05-14-26-55-01
NE15410	60.4	13.8	0.5	37.8	13.0	2.79	0.42	56	17	HARD	07-22-30-41-01
NW15404	60.4	14.2	0.6	38.6	13.0	2.83	0.39	67	15	HARD	02-07-22-69-01
MT1547	60.3	13.6	0.5	35.7	10.3	2.74	0.39	69	16	HARD	02-06-19-73-01
MT1563	59.2	13.2	0.4	35.3	12.7	2.67	0.44	71	17	HARD	03-06-14-77-01
MT1564	60.3	13.0	0.5	35.9	13.8	2.65	0.43	69	16	HARD	02-05-16-77-01
MTS1588	60.5	12.8	0.4	31.8	12.4	2.50	0.40	65	17	HARD	04-08-25-63-01
SD12008-2	61.9	13.1	0.5	31.7	11.0	2.63	0.40	68	19	HARD	05-11-16-68-01
SD13062-2	61.3	13.2	0.4	36.6	10.8	2.67	0.37	66	17	HARD	04-10-21-65-01
SD13W064-7	60.2	12.7	0.6	35.8	11.9	2.58	0.38	60	17	HARD	06-14-26-54-01
SD14113-3	61.1	12.6	0.5	31.9	10.9	2.56	0.36	64	17	HARD	03-12-27-58-01
SD14115-5	61.7	12.3	0.5	36.6	13.7	2.72	0.42	61	17	HARD	05-16-26-53-01
CA9W09-903	61.7	12.5	0.5	36.0	12.1	2.73	0.44	54	18	MIXED	14-16-33-37-03
FA4W11-6067	61.9	12.0	0.5	31.8	12.2	2.64	0.40	62	18	HARD	05-13-25-57-01

2018 NRPN Intraregional Production Zone

Northern High Plains

	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	15.2	64.1	0.41	13.7	0.458	80.52	-1.74	22.68	-10.18	1.24	1.96
Overland	14.2	69.5	0.44	12.3	0.443	78.73	-1.31	22.86	-10.33	1.30	1.82
Wesley	15.1	70.2	0.42	13.7	0.523	79.83	-1.43	21.77	-11.10	1.33	2.16
Jagalene	13.8	68.5	0.45	12.7	0.421	79.53	-1.40	23.18	-10.00	1.32	2.84
Jerry	13.5	68.1	0.42	12.8	0.412	79.31	-1.50	23.65	-9.71	1.34	2.80
NW13MD108-3	12.4	67.5	0.39	11.8	0.512	81.01	-1.59	21.38	-10.30	1.35	4.07
NW13MD109-1	13.5	69.5	0.38	12.5	0.425	80.61	-1.60	23.14	-9.10	1.60	3.08
CO15SFD061	13.2	68.0	0.41	11.6	0.514	80.10	-2.02	22.80	-10.89	1.34	3.15
CO15SFD092	13.1	69.9	0.41	12.0	0.534	80.34	-1.69	22.39	-10.51	1.26	4.49
CO15SFD095	13.9	69.7	0.41	12.8	0.488	80.39	-1.75	23.40	-8.61	1.23	3.24
CO15SFD107	13.0	70.0	0.43	12.0	0.497	80.24	-1.65	22.73	-9.40	1.37	2.87
AP-17CP020072	13.5	63.4	0.44	12.2	0.619	77.96	-1.33	25.11	-9.58	1.64	0.85
AP-17CP020137	13.3	67.9	0.39	12.3	0.608	78.84	-1.56	25.21	-9.19	1.45	1.57
AP-17CP020142	13.6	69.1	0.39	12.5	0.492	79.39	-1.23	22.16	-9.68	1.30	2.29
AP-17CP020143	13.0	68.7	0.40	11.8	0.429	79.14	-1.69	24.12	-8.21	1.21	1.42
AP-17CP020147	13.0	67.5	0.39	11.8	0.460	78.88	-1.63	24.40	-8.49	1.49	1.57
LCH14DH-21-1781	14.7	67.2	0.42	13.6	0.429	79.65	-1.63	23.89	-9.78	1.19	2.03
LCH14-53	13.4	64.9	0.44	12.2	0.461	77.57	-1.25	25.56	-9.35	1.41	0.61
DH12HRW-9-9	12.8	65.6	0.47	11.6	0.402	77.74	-1.79	27.74	-8.17	1.66	0.27
DH11HRW-58-9	13.9	64.9	0.45	12.7	0.589	79.59	-1.75	22.98	-9.56	1.83	2.34
16NORD-54	14.8	69.4	0.46	14.0	0.579	77.23	-2.06	29.48	-8.88	1.85	0.19
16NORD-58	13.4	70.0	0.42	12.5	0.602	79.57	-1.24	21.97	-9.20	1.72	1.64
16NORD-62	14.9	67.1	0.38	13.9	0.525	78.60	-1.13	23.31	-8.85	1.79	1.04
NHH144913-3	13.6	64.2	0.38	12.2	0.614	78.62	-1.38	24.01	-9.80	1.60	2.27
NE10478-1	14.1	67.1	0.42	12.7	0.535	79.05	-0.94	22.35	-10.88	1.40	2.17
NE14434	13.1	68.2	0.40	11.9	0.474	79.18	-1.85	25.49	-9.71	1.48	1.97
NE14538	12.9	66.4	0.40	11.8	0.469	79.39	-1.72	23.17	-9.88	1.62	3.92
NE14691	14.3	66.4	0.41	13.1	0.420	79.46	-1.13	21.37	-8.97	1.20	2.54
NE14696	13.8	67.7	0.47	12.6	0.426	78.11	-1.28	23.17	-8.69	1.22	1.46
NI14729	13.3	68.2	0.41	12.3	0.454	80.26	-1.18	20.59	-11.10	1.33	4.65
NW15573	14.1	69.2	0.43	12.8	0.528	80.15	-1.56	22.96	-10.09	1.77	2.58
NE14421	13.4	68.3	0.42	12.3	0.447	79.47	-1.71	22.47	-9.16	1.35	2.07
NE15410	13.0	69.3	0.40	11.9	0.486	79.58	-1.78	23.13	-8.57	1.39	2.08
NW15404	14.1	68.0	0.42	13.4	0.542	79.92	-1.27	21.18	-10.23	1.61	3.10
MT1547	13.5	69.6	0.40	12.6	0.470	81.01	-1.30	21.73	-11.05	1.52	3.77
MT1563	13.3	67.6	0.44	12.0	0.444	78.47	-1.31	24.86	-8.70	1.62	1.85
MT1564	13.8	69.5	0.43	12.7	0.518	79.66	-0.98	22.03	-9.63	1.59	1.69
MTS1588	13.6	69.4	0.41	12.5	0.529	78.77	-1.63	26.70	-10.16	1.21	1.13
SD12008-2	13.6	67.4	0.44	12.5	0.312	78.93	-1.46	26.77	-7.96	1.20	2.46
SD13062-2	13.1	68.1	0.46	11.8	0.463	78.44	-1.52	25.15	-10.13	1.71	1.95
SD13W064-7	12.1	69.3	0.44	11.1	0.518	80.14	-2.03	25.42	-9.13	1.85	1.62

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
SD14113-3	13.2	70.3	0.42	12.2	0.498	80.37	-1.64	22.70	-8.95	1.48	2.88
SD14115-5	13.3	67.0	0.42	12.1	0.447	78.81	-1.57	23.95	-9.69	1.67	1.71
CA9W09-903	12.7	68.7	0.38	11.2	0.605	79.81	-1.77	22.98	-9.10	1.53	3.35
FA4W11-6067	13.1	67.2	0.41	11.7	0.534	78.92	-1.62	23.89	-8.54	1.53	0.77

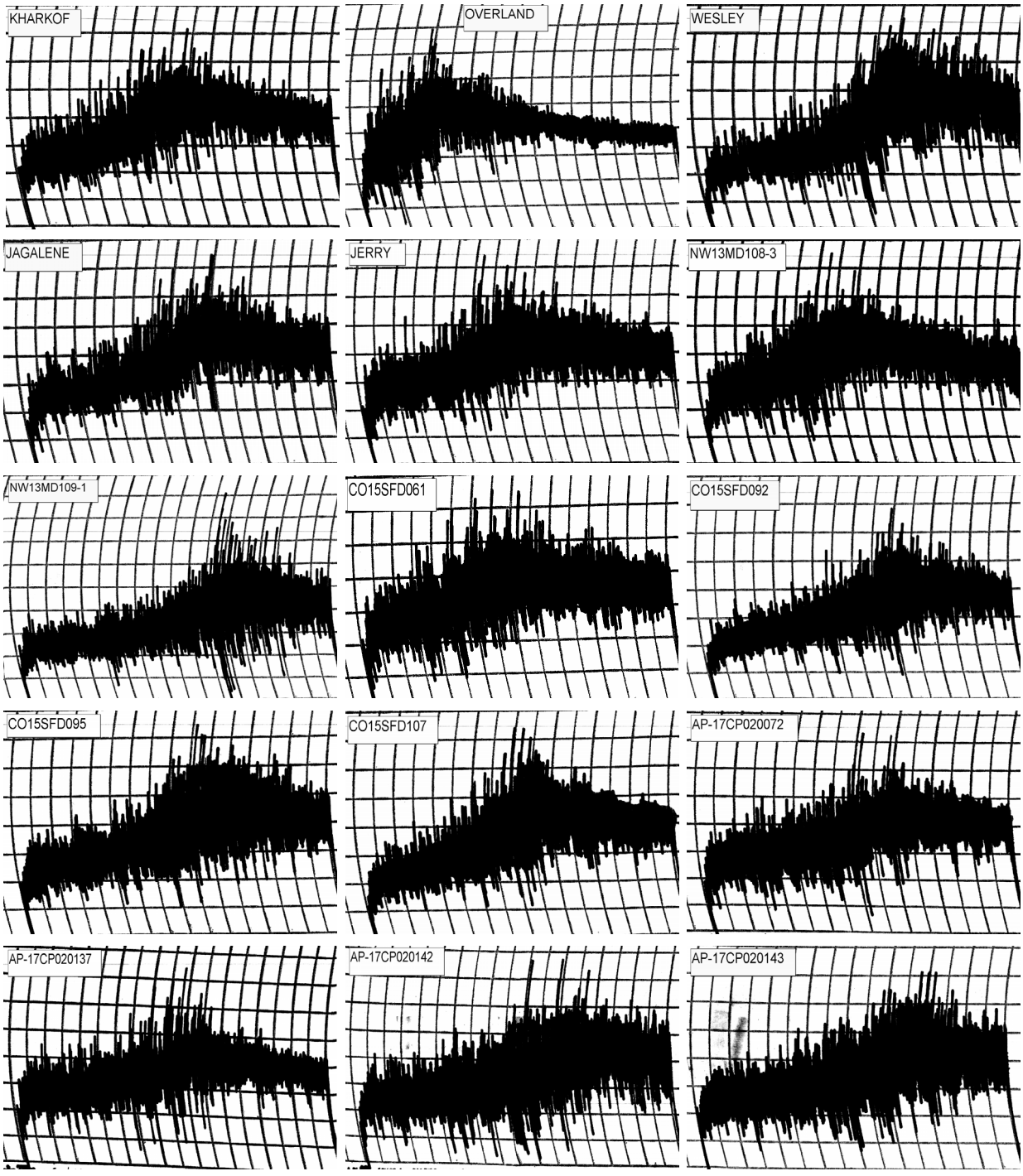
2018 NRPN Intraregional Production Zone

Northern High Plains

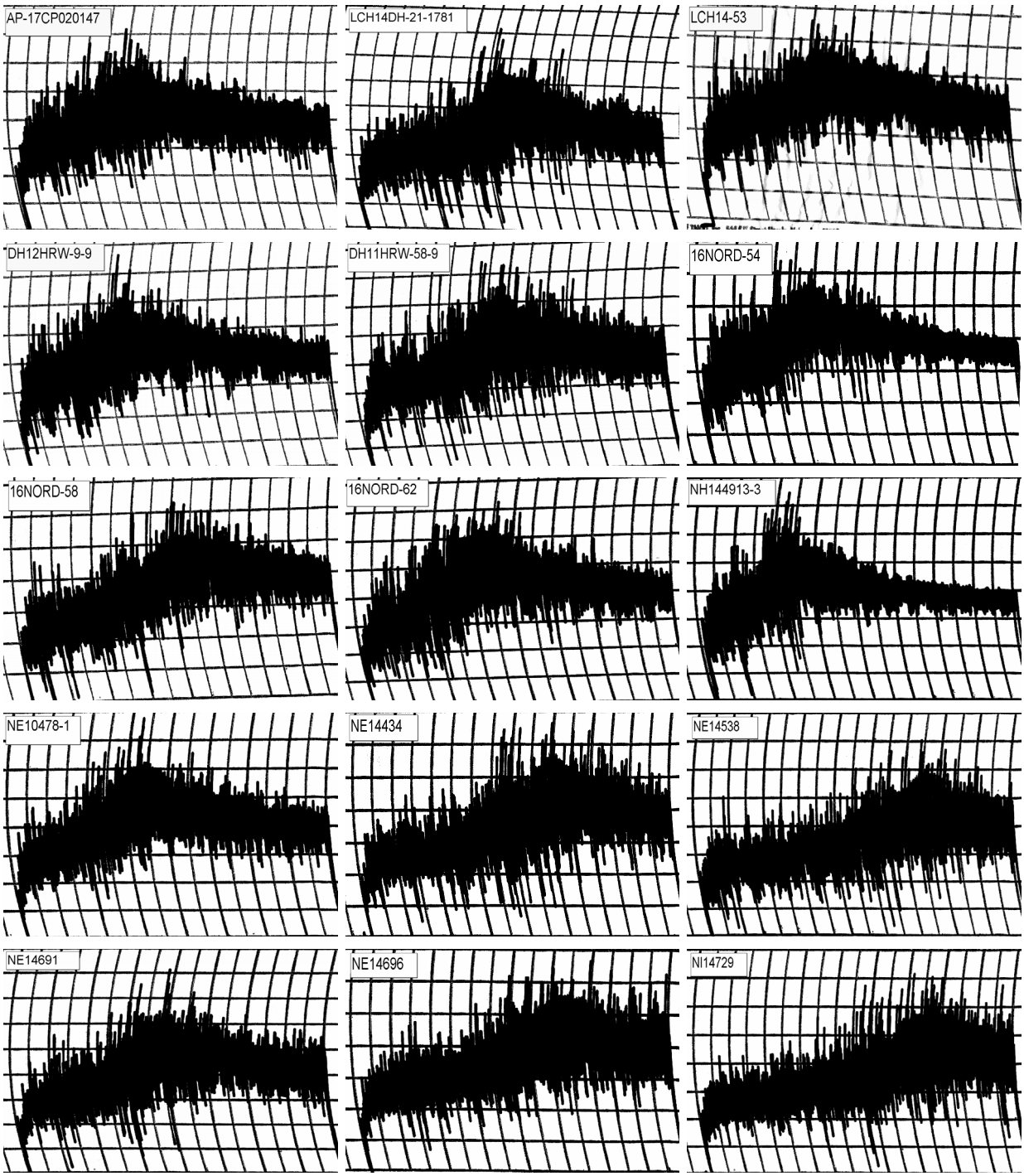
		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	13.7	67.3	4.25	4.25	3
Overland	12.3	64.5	2.13	2.13	1
Wesley	13.7	67.7	5.00	5.00	5
Jagalene	12.7	66.6	5.00	5.00	4
Jerry	12.8	66.3	4.13	4.13	3
NW13MD108-3	11.8	67.5	4.00	3.89	3
NW13MD109-1	12.5	65.7	6.50	6.50	5
CO15SFD061	11.6	65.3	4.00	3.82	3
CO15SFD092	12.0	64.4	5.25	5.24	4
CO15SFD095	12.8	66.3	5.38	5.38	4
CO15SFD107	12.0	65.0	4.50	4.50	2
AP-17CP020072	12.2	65.3	5.00	5.00	3
AP-17CP020137	12.3	61.9	5.38	5.38	2
AP-17CP020142	12.5	65.3	6.50	6.50	5
AP-17CP020143	11.8	64.5	6.00	5.83	5
AP-17CP020147	11.8	64.6	3.25	3.16	3
LCH14DH-21-1781	13.6	67.1	4.00	4.00	4
LCH14-53	12.2	65.3	3.25	3.25	2
DH12HRW-9-9	11.6	64.4	2.88	2.76	2
DH11HRW-58-9	12.7	66.1	3.75	3.75	4
16NORD-54	14.0	65.3	2.88	2.88	1
16NORD-58	12.5	65.7	4.50	4.50	2
16NORD-62	13.9	66.6	3.25	3.25	3
NHH144913-3	12.2	64.3	2.25	2.25	1
NE10478-1	12.7	66.1	3.38	3.38	3
NE14434	11.9	64.8	5.00	4.96	4
NE14538	11.8	66.1	6.63	6.45	5
NE14691	13.1	66.3	4.00	4.00	4
NE14696	12.6	66.0	5.38	5.38	5
NI14729	12.3	67.0	6.75	6.75	5
NW15573	12.8	66.3	2.88	2.88	2
NE14421	12.3	65.9	5.38	5.38	3
NE15410	11.9	65.3	3.50	3.45	1
NW15404	13.4	66.8	3.63	3.63	2
MT1547	12.6	66.0	5.50	5.50	4
MT1563	12.0	65.4	7.88	7.87	5
MT1564	12.7	65.6	8.25	8.25	4
MTS1588	12.5	65.8	5.00	5.00	4
SD12008-2	12.5	63.3	4.25	4.25	2
SD13062-2	11.8	64.6	2.25	2.21	1
SD13W064-7	11.1	61.4	2.00	1.78	1

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
SD14113-3	12.2	65.2	2.75	2.75	1
SD14115-5	12.1	65.1	3.50	3.50	2
CA9W09-903	11.2	63.7	3.50	3.18	2
FA4W11-6067	11.7	64.3	4.38	4.20	3

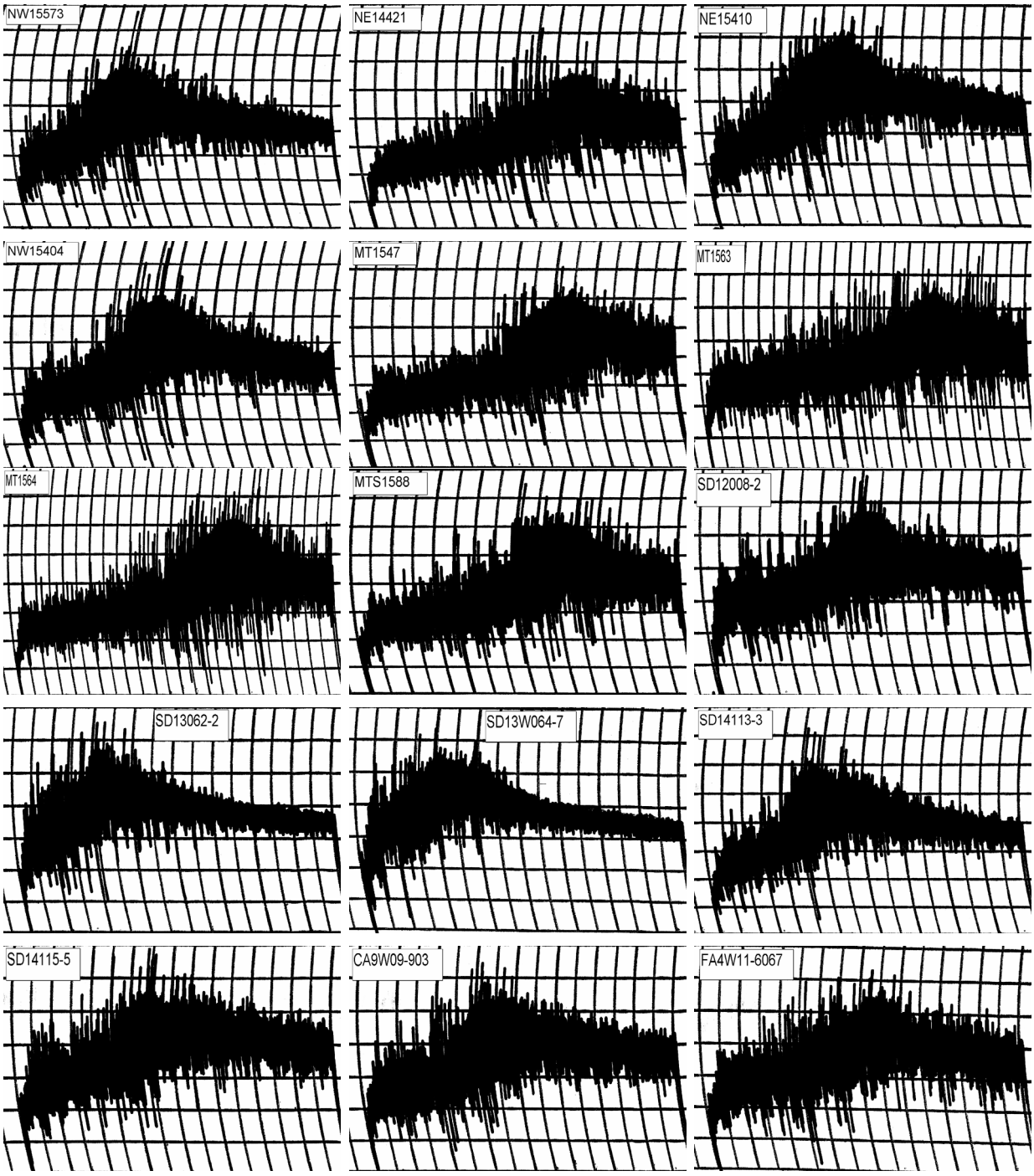
2018 NRPN Intraregional Production Zone
Northern High Plains



2018 NRPN Intraregional Production Zone
Northern High Plains



2018 NRPN Intraregional Production Zone
Northern High Plains



2018 NRPN Intraregional Production Zone

Northern High Plains

	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	149.08	236.83	169.25	67.58	267.75	98.50	6.47
Overland	133.42	221.33	155.92	65.42	260.42	104.50	6.33
Wesley	133.25	210.00	147.25	62.75	253.50	106.25	6.27
Jagalene	123.67	222.25	149.83	72.42	260.25	110.42	6.20
Jerry	114.67	221.17	148.42	72.75	254.00	105.58	6.27
NW13MD108-3	124.67	214.50	139.67	74.83	252.00	112.33	6.13
NW13MD109-1	91.33	198.42	132.17	66.25	246.25	114.08	6.07
CO15SFD061	127.50	235.42	181.42	54.00	306.83	125.42	6.40
CO15SFD092	122.50	270.75	170.50	100.25	290.83	120.33	6.20
CO15SFD095	131.42	256.17	174.33	81.83	292.33	118.00	6.27
CO15SFD107	103.75	251.25	171.42	79.83	295.08	123.67	6.27
AP-17CP020072	161.33	243.67	181.00	62.67	291.50	110.50	6.47
AP-17CP020137	112.92	247.33	171.08	76.25	284.25	113.17	6.33
AP-17CP020142	97.67	220.17	147.50	72.67	259.58	112.08	6.13
AP-17CP020143	105.25	232.08	150.33	81.75	267.42	117.08	6.07
AP-17CP020147	98.50	282.58	158.58	124.00	249.42	90.83	6.20
LCH14DH-21-1781	143.17	248.42	181.83	66.58	291.83	110.00	6.40
LCH14-53	128.50	244.92	164.67	80.25	276.42	111.75	6.33
DH12HRW-9-9	112.67	233.08	165.50	67.58	275.83	110.33	6.40
DH11HRW-58-9	117.25	262.25	165.58	96.67	263.08	97.50	6.33
16NORD-54	148.58	212.00	155.83	56.17	258.17	102.33	6.40
16NORD-58	106.50	181.67	100.92	80.75	182.67	81.75	5.93
16NORD-62	108.25	186.58	114.33	72.25	197.00	82.67	6.20
NHH144913-3	126.67	221.42	141.92	79.50	243.25	101.33	6.13
NE10478-1	139.83	199.92	145.58	54.33	256.25	110.67	6.20
NE14434	137.50	265.08	186.00	79.08	305.50	119.50	6.27
NE14538	136.83	280.00	197.00	83.00	312.83	115.83	6.40
NE14691	144.42	215.33	157.83	57.50	263.08	105.25	6.33
NE14696	116.00	229.25	160.33	68.92	269.25	108.92	6.33
NI14729	119.83	253.83	169.92	83.92	281.08	111.17	6.27
NW15573	103.42	226.08	125.75	100.33	207.75	82.00	6.13
NE14421	106.17	229.75	151.00	78.75	254.00	103.00	6.20
NE15410	136.67	234.42	154.25	80.17	270.75	116.50	6.20
NW15404	118.00	220.08	123.17	96.92	206.00	82.83	6.20
MT1547	124.17	251.92	163.58	88.33	267.67	104.08	6.27
MT1563	133.08	251.50	165.17	86.33	281.50	116.33	6.27
MT1564	123.42	234.50	156.58	77.92	269.33	112.75	6.20
MTS1588	120.42	231.67	161.50	70.17	282.00	120.50	6.27
SD12008-2	130.83	258.17	174.25	83.92	290.58	116.33	6.33
SD13062-2	141.75	227.75	167.83	59.92	276.50	108.67	6.40
SD13W064-7	110.83	200.67	137.58	63.08	246.58	109.00	6.20
SD14113-3	105.67	216.92	144.00	72.92	254.92	110.92	6.13
SD14115-5	129.42	214.83	161.00	53.83	274.17	113.17	6.20
CA9W09-903	116.33	251.08	146.25	104.83	236.67	90.42	6.27
FA4W11-6067	145.50	265.67	186.75	78.92	295.42	108.67	6.40

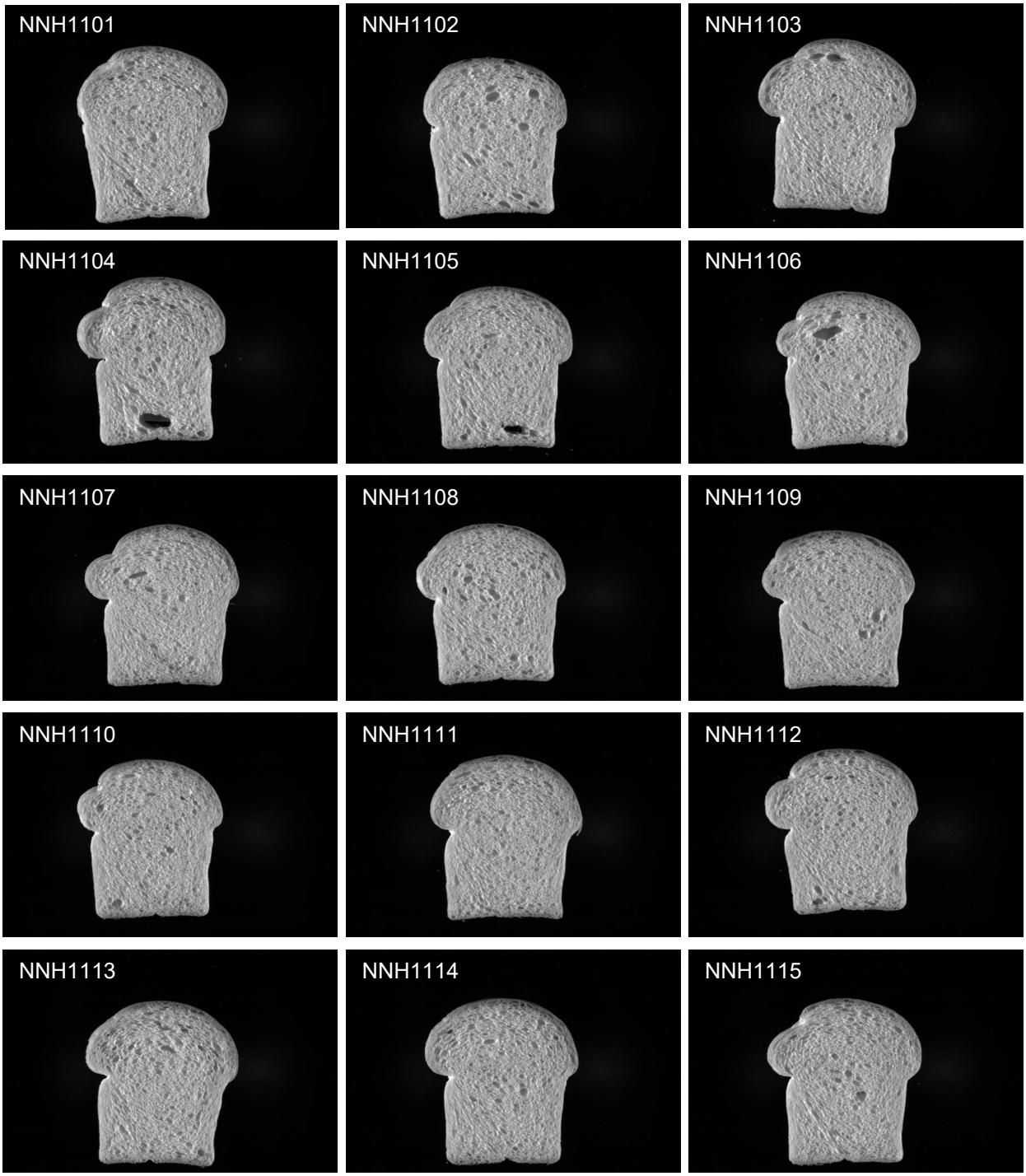
2018 NRPN Intraregional Production Zone

Northern High Plains

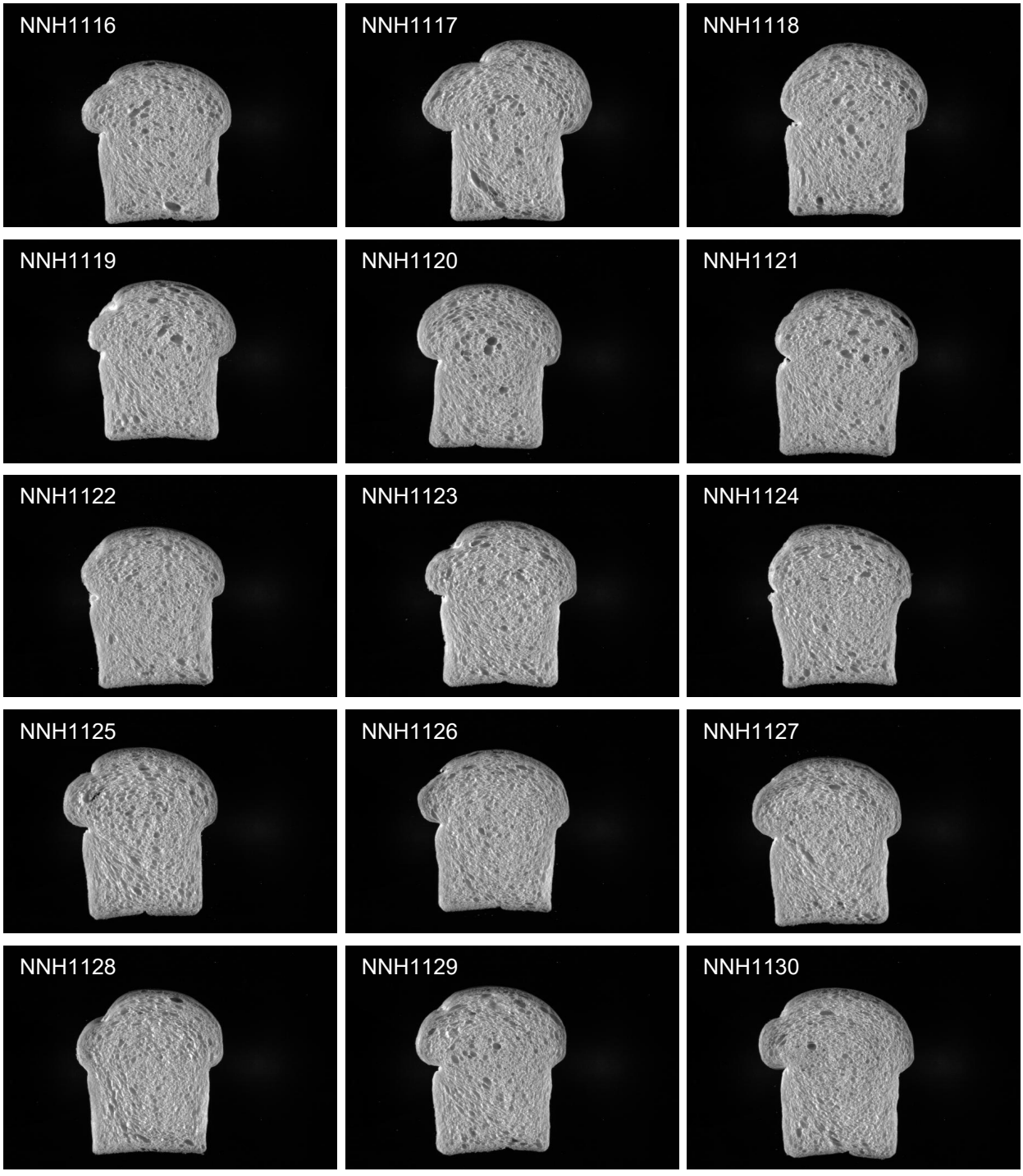
	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
Kharkof	13.7	67.0	5.50	5.50	176.2	7.7	4.0	1010	6.6	66
Overland	12.3	64.0	3.00	3.00	174.5	7.5	2.0	880	5.8	62
Wesley	13.7	68.1	8.50	8.50	177.6	7.5	5.0	1045	6.8	69
Jagalene	12.7	66.0	6.50	6.50	176.2	7.4	3.0	990	6.4	71
Jerry	12.8	65.9	5.38	5.38	176.1	7.3	4.0	950	6.2	66
NW13MD108-3	11.8	67.0	4.50	4.38	175.7	6.9	3.5	865	5.6	64
NW13MD109-1	12.5	66.1	8.25	8.25	175.6	6.8	4.5	940	6.2	68
CO15SFD061	11.6	65.3	5.25	5.01	175.9	7.2	3.5	890	5.8	68
CO15SFD092	12.0	66.1	7.25	7.23	175.8	7.0	4.0	885	5.8	65
CO15SFD095	12.8	66.3	6.25	6.25	176.3	6.9	4.0	925	6.0	64
CO15SFD107	12.0	65.0	6.00	6.00	174.7	7.2	4.0	950	6.4	72
AP-17CP020072	12.2	65.1	6.38	6.38	175.2	7.4	4.0	950	6.2	70
AP-17CP020137	12.3	62.2	6.00	6.00	171.6	7.2	3.5	950	6.4	70
AP-17CP020142	12.5	65.3	8.50	8.50	174.7	7.4	4.0	975	6.5	71
AP-17CP020143	11.8	64.3	7.13	6.92	174.2	7.5	4.0	985	6.5	78
AP-17CP020147	11.8	65.0	3.50	3.41	176.5	7.2	2.5	935	6.1	72
LCH14DH-21-1781	13.6	67.1	5.25	5.25	177.5	7.9	3.5	1140	7.3	79
LCH14-53	12.2	65.1	4.00	4.00	175.1	7.6	2.5	1010	6.6	77
DH12HRW-9-9	11.6	64.1	3.25	3.11	175.0	7.2	3.0	900	5.8	69
DH11HRW-58-9	12.7	68.1	5.50	5.50	176.8	7.1	3.5	965	6.2	68
16NORD-54	14.0	63.9	3.63	3.63	174.6	7.7	2.5	960	6.3	60
16NORD-58	12.5	65.1	5.63	5.63	174.8	7.4	3.5	935	6.1	67
16NORD-62	13.9	66.6	4.00	4.00	175.7	7.8	3.0	975	6.4	62
NHH144913-3	12.2	62.8	3.50	3.50	173.6	7.6	3.0	930	6.2	68
NE10478-1	12.7	66.0	4.25	4.25	176.5	7.6	2.0	980	6.5	70
NE14434	11.9	64.6	7.00	6.95	173.9	7.5	3.5	955	6.4	73
NE14538	11.8	66.1	7.50	7.29	175.0	7.6	4.0	980	6.5	77
NE14691	13.1	66.0	6.00	6.00	176.5	7.4	4.0	985	6.5	68
NE14696	12.6	66.1	7.00	7.00	175.7	7.3	3.5	975	6.4	70
NI14729	12.3	67.0	8.75	8.75	176.0	7.5	4.5	1010	6.7	76
NW15573	12.8	65.1	3.75	3.75	175.0	7.3	2.0	980	6.5	69
NE14421	12.3	66.1	6.50	6.50	176.3	7.3	3.5	945	6.1	70
NE15410	11.9	64.1	4.13	4.07	174.1	6.8	2.5	825	5.4	59
NW15404	13.4	66.4	4.50	4.50	176.8	7.8	3.0	1075	7.1	75
MT1547	12.6	66.1	6.50	6.50	175.5	7.8	3.5	1065	7.0	79
MT1563	12.0	65.9	9.00	8.99	175.3	7.5	3.0	1005	6.6	78
MT1564	12.7	66.1	10.63	10.63	175.1	7.4	3.5	1000	6.5	72
MTS1588	12.5	66.1	6.50	6.50	175.0	7.5	3.5	1050	6.8	79
SD12008-2	12.5	63.1	4.50	4.50	173.3	7.4	3.5	995	6.5	73
SD13062-2	11.8	64.0	3.00	2.94	174.3	7.5	2.0	910	5.9	69
SD13W064-7	11.1	60.8	2.50	2.23	170.3	7.0	2.0	830	5.5	65
SD14113-3	12.2	63.9	3.63	3.63	174.4	7.3	3.0	945	6.1	70
SD14115-5	12.1	64.9	4.50	4.50	174.3	7.4	3.0	975	6.4	74
CA9W09-903	11.2	63.3	5.00	4.54	174.3	7.2	3.5	980	6.5	82

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
FA4W11-6067	11.7	64.1	5.25	5.03	173.9	7.3	3.0	975	6.4	78

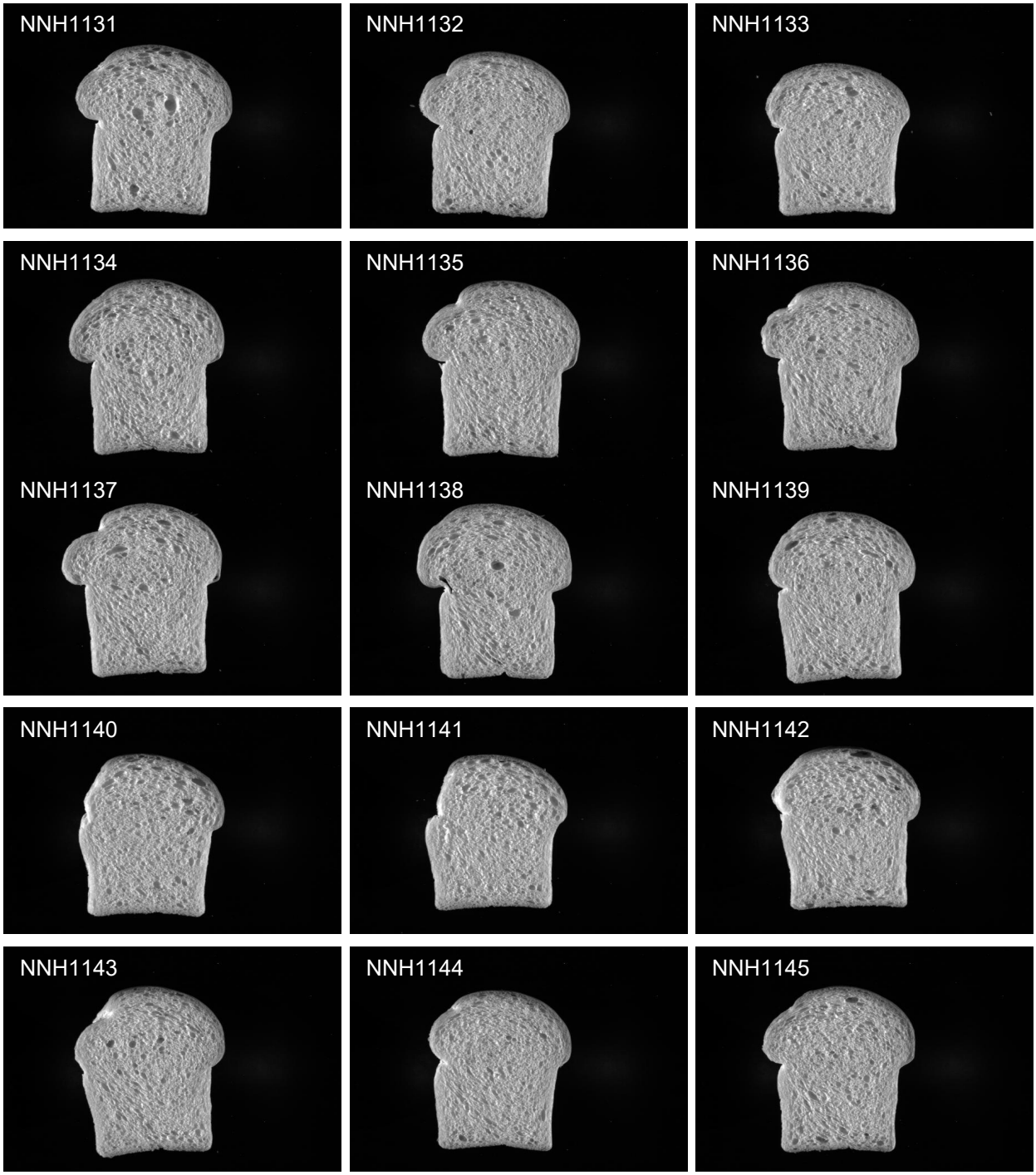
2018 NRPN Intraregional Production Zone
Northern High Plains



2018 NRPN Intraregional Production Zone
Northern High Plains



2018 NRPN Intraregional Production Zone
Northern High Plains



Hard Winter Wheat Quality Report

2018 NRPN-NP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	38.5	Very Poor	69.8	45.7	Poor	65.7		6,
Overland	42.4	Very Poor	76.9	40.1	Very Poor	57.6		12,16,
Wesley	46.9	Average	85.0	57.5	Good	82.6		3,5,14,15,
Jagalene	45.8	Average	83.0	41.6	Very Poor	59.8		9,
Jerry	49.3	Good	89.4	54.6	Good	78.5		
NW13MD108-3	44.0	Poor	79.7	66.2	Very Good	95.1		18,
NW13MD109-1	53.2	Very Good	96.4	52.7	Average	75.7		14,15,18,
CO15SFD061	47.6	Average	86.2	61.0	Very Good	87.7		
CO15SFD092	49.5	Very Good	89.6	47.0	Poor	67.5		2,18,
CO15SFD095	52.0	Very Good	94.2	41.8	Poor	60.1		15,
CO15SFD107	49.2	Good	89.1	60.7	Very Good	87.2		2,16,
AP-17CP020072	42.7	Very Poor	77.3	51.7	Average	74.3		10,16,
AP-17CP020137	47.6	Good	86.3	45.8	Poor	65.8		13,15,17,
AP-17CP020142	55.2	Very Good	100.0	48.6	Average	69.9		14,15,
AP-17CP020143	53.0	Very Good	96.0	56.6	Good	81.3		14,15,
AP-17CP020147	41.3	Very Poor	74.9	43.2	Poor	62.2		1,5,
LCH14DH-21-1781	47.7	Good	86.4	67.8	Very Good	97.4		
LCH14-53	42.6	Very Poor	77.1	47.5	Average	68.2		
DH12HRW-9-9	43.1	Poor	78.2	39.9	Very Poor	57.4		10,16,18,21,
DH11HRW-58-9	44.1	Poor	79.8	56.7	Good	81.5		11,
16NORD-54	43.1	Poor	78.0	45.8	Poor	65.8		1,16,20,21,
16NORD-58	39.4	Very Poor	71.4	52.0	Average	74.8		1,14,15,
16NORD-62	48.8	Good	88.4	45.6	Poor	65.6		16,20,
NHH144913-3	29.2	Very Poor	52.9	34.7	Very Poor	49.8		1,6,8,16,
NE10478-1	48.6	Good	88.0	69.6	Very Good	100.0		
NE14434	46.7	Average	84.7	52.4	Average	75.3		14,15,
NE14538	43.1	Poor	78.0	39.4	Very Poor	56.6		14,15,
NE14691	47.4	Average	85.8	46.0	Poor	66.1		
NE14696	44.9	Poor	81.3	58.2	Good	83.7		
NI14729	43.3	Poor	78.4	55.4	Good	79.7		14,15,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 NRPN-NP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
NW15573	47.3	Average	85.6	47.1	Average	67.6		16,21,
NE14421	45.1	Average	81.6	60.0	Very Good	86.2		
NE15410	44.6	Poor	80.8	32.0	Very Poor	46.1		3,5,12,16,17,
NW15404	47.6	Average	86.2	46.1	Poor	66.3		3,5,
MT1547	54.0	Very Good	97.9	56.2	Good	80.8		15,
MT1563	49.5	Very Good	89.6	35.2	Very Poor	50.6		14,15,
MT1564	54.4	Very Good	98.6	59.6	Very Good	85.7		14,15,
MTS1588	53.4	Very Good	96.7	62.7	Very Good	90.1		14,15,
SD12008-2	48.4	Good	87.6	58.2	Good	83.6		16,17,
SD13062-2	48.4	Good	87.6	34.6	Very Poor	49.8		9,16,19,20,21,
SD13W064-7	41.3	Very Poor	74.8	34.5	Very Poor	49.6		4,14,15,16,20,21,
SD14113-3	47.3	Average	85.6	52.2	Average	75.0		2,4,16,
SD14115-5	44.8	Poor	81.2	49.2	Average	70.7		11,13,16,
CA9W09-903	49.3	Good	89.3	52.7	Good	75.8		16,
FA4W11-6067	39.9	Very Poor	72.2	62.3	Very Good	89.6		11,

2018 NRPN Intraregional Production Zone

Northern Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	59.8	13.9	0.4	29.9	10.0	2.50	0.36	37	20	MIXED	43-29-13-15-03
Overland	58.5	13.8	0.5	28.6	10.5	2.43	0.39	64	20	HARD	06-16-17-61-01
Wesley	57.9	13.4	0.6	31.2	12.8	2.57	0.46	63	21	HARD	08-16-19-57-01
Jagalene	59.0	14.2	0.7	31.5	12.1	2.67	0.45	71	22	HARD	04-10-17-69-01
Jerry	59.7	14.2	0.7	32.4	11.5	2.64	0.40	68	20	HARD	05-10-21-64-01
NW13MD108-3	58.0	14.7	0.5	32.1	11.5	2.66	0.45	63	19	HARD	07-13-23-57-01
NW13MD109-1	58.8	14.5	0.5	33.5	11.0	2.70	0.42	63	19	HARD	08-12-22-58-01
CO15SFD061	60.6	14.4	0.5	32.4	11.9	2.57	0.44	63	23	MIXED	13-14-14-59-03
CO15SFD092	59.1	14.6	0.5	27.5	9.9	2.44	0.37	58	21	MIXED	12-17-22-49-03
CO15SFD095	61.8	14.2	0.6	28.2	11.5	2.44	0.40	73	21	HARD	03-08-20-69-01
CO15SFD107	59.6	14.1	0.5	27.1	9.5	2.49	0.37	62	22	MIXED	11-15-23-51-03
AP-17CP020072	59.2	13.8	0.7	31.0	10.6	2.62	0.41	66	19	HARD	04-17-16-63-01
AP-17CP020137	60.1	13.9	0.7	27.7	10.6	2.49	0.39	66	20	HARD	06-13-19-62-01
AP-17CP020142	61.2	13.8	0.7	32.2	11.0	2.63	0.43	61	19	HARD	08-17-24-51-01
AP-17CP020143	60.2	13.9	0.8	29.0	10.1	2.47	0.40	66	18	HARD	02-14-20-64-01
AP-17CP020147	57.1	15.5	0.6	29.4	12.0	2.49	0.48	61	20	HARD	10-14-24-52-01
LCH14DH-21-1781	59.7	15.1	0.5	30.2	9.9	2.55	0.36	64	18	HARD	05-11-23-61-01
LCH14-53	57.6	15.0	0.5	31.9	11.0	2.57	0.45	73	18	HARD	01-05-19-75-01
DH12HRW-9-9	60.3	15.0	0.5	31.1	10.9	2.56	0.43	75	20	HARD	02-08-12-78-01
DH11HRW-58-9	60.2	14.3	0.6	29.9	11.0	2.58	0.40	80	23	HARD	02-10-09-79-01
16NORD-54	57.0	14.5	0.5	32.8	10.4	2.65	0.37	61	19	HARD	08-17-19-56-01
16NORD-58	57.1	14.8	0.5	29.8	10.4	2.42	0.41	52	19	MIXED	16-25-26-33-03
16NORD-62	59.4	14.3	0.5	34.9	10.6	2.69	0.35	68	18	HARD	03-09-16-72-01
NHH144913-3	56.7	14.5	0.6	29.4	10.0	2.52	0.40	30	20	SOFT	56-21-16-07-04
NE10478-1	59.2	14.3	0.5	32.0	10.7	2.63	0.43	71	21	HARD	05-07-13-75-01
NE14434	58.5	15.0	0.6	31.0	10.6	2.57	0.41	55	19	MIXED	15-20-24-41-03
NE14538	59.5	14.6	0.6	33.3	11.9	2.61	0.44	59	19	HARD	10-16-26-48-01
NE14691	58.6	13.9	0.5	34.2	11.4	2.71	0.41	66	20	HARD	04-17-18-61-01
NE14696	59.1	14.0	0.5	29.8	10.2	2.47	0.38	67	19	HARD	04-12-19-65-01
NI14729	58.1	13.6	0.6	28.9	11.2	2.47	0.41	68	21	HARD	07-11-16-66-01
NW15573	58.5	14.5	0.6	30.3	11.7	2.57	0.45	66	20	HARD	06-13-21-60-01
NE14421	58.8	14.7	0.6	30.0	11.4	2.58	0.42	64	18	HARD	04-14-22-60-01
NE15410	57.9	14.8	0.6	33.8	13.1	2.68	0.47	53	19	MIXED	18-18-23-41-03
NW15404	59.7	14.4	0.6	31.5	12.5	2.63	0.47	67	21	HARD	05-13-18-64-01
MT1547	59.0	14.4	0.4	31.3	9.5	2.63	0.37	65	18	HARD	05-10-22-63-01
MT1563	59.1	13.7	0.6	32.8	10.6	2.66	0.42	72	21	HARD	03-10-18-69-01
MT1564	59.6	13.3	0.5	34.3	11.6	2.65	0.39	65	19	HARD	07-11-18-64-01
MTS1588	60.5	13.2	0.5	30.1	11.0	2.44	0.39	63	17	HARD	04-13-24-59-01
SD12008-2	60.7	13.7	0.6	29.9	10.2	2.58	0.40	68	19	HARD	04-10-20-66-01
SD13062-2	58.9	14.3	0.5	31.5	11.1	2.55	0.37	69	17	HARD	02-09-17-72-01
SD13W064-7	57.7	14.0	0.7	27.7	11.7	2.28	0.42	63	20	HARD	08-14-23-55-01
SD14113-3	59.6	13.8	0.6	25.5	10.6	2.32	0.43	67	18	HARD	01-13-22-64-01
SD14115-5	60.3	13.9	0.5	31.4	11.7	2.59	0.42	65	18	HARD	03-15-22-60-01
CA9W09-903	60.1	13.3	0.5	30.4	10.7	2.55	0.42	52	19	MIXED	15-22-25-38-03
FA4W11-6067	58.8	13.2	0.4	28.4	11.1	2.50	0.42	57	19	MIXED	13-19-26-42-03

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	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	14.5	64.9	0.43	12.9	0.466	78.14	-1.46	22.88	-8.38	1.31	1.73
Overland	13.1	67.2	0.48	11.6	0.445	77.91	-1.34	23.19	-7.63	1.17	0.37
Wesley	14.1	70.9	0.47	12.8	0.553	78.83	-1.11	22.64	-9.45	1.37	1.04
Jagalene	13.5	69.3	0.50	12.1	0.487	77.56	-1.28	23.87	-9.19	1.48	1.18
Jerry	13.4	69.1	0.46	11.7	0.412	77.94	-1.35	24.17	-8.85	1.30	2.18
NW13MD108-3	13.3	66.7	0.41	12.1	0.564	79.52	-1.33	22.76	-8.49	1.29	1.91
NW13MD109-1	13.5	70.1	0.39	12.1	0.640	79.27	-1.31	22.41	-8.83	1.29	2.89
CO15SFD061	13.2	69.3	0.41	11.8	0.547	78.49	-1.42	22.42	-10.96	1.42	2.83
CO15SFD092	13.2	70.9	0.44	11.6	0.581	78.13	-1.41	23.58	-9.91	1.32	2.18
CO15SFD095	14.3	70.1	0.41	12.7	0.519	77.78	-1.02	22.80	-8.63	1.05	2.73
CO15SFD107	13.6	70.2	0.44	12.2	0.510	78.83	-1.03	21.61	-8.99	1.10	2.73
AP-17CP020072	13.7	65.5	0.48	11.8	0.599	77.56	-0.75	21.88	-12.52	1.51	2.74
AP-17CP020137	13.9	68.2	0.41	12.4	0.561	78.15	-0.88	22.32	-10.77	1.16	2.83
AP-17CP020142	13.4	70.7	0.37	12.1	0.525	78.73	-0.78	20.47	-10.55	1.09	3.43
AP-17CP020143	13.4	69.4	0.39	12.0	0.450	78.18	-1.07	22.20	-9.17	1.08	2.35
AP-17CP020147	13.5	67.5	0.40	12.1	0.485	78.65	-1.25	22.48	-8.84	1.29	2.54
LCH14DH-21-1781	14.4	66.1	0.40	12.9	0.460	78.62	-1.45	23.45	-8.22	1.04	1.49
LCH14-53	14.4	64.9	0.43	12.7	0.564	77.05	-0.88	23.74	-8.39	1.29	1.51
DH12HRW-9-9	13.0	64.8	0.47	11.3	0.485	78.86	-1.83	25.14	-8.23	1.34	2.60
DH11HRW-58-9	12.7	66.2	0.46	11.1	0.541	79.54	-1.61	22.22	-10.30	1.59	2.79
16NORD-54	15.4	65.9	0.45	14.0	0.571	77.79	-1.97	28.01	-7.66	1.22	0.71
16NORD-58	13.7	66.1	0.43	12.4	0.558	79.15	-0.98	21.41	-8.51	1.28	1.88
16NORD-62	15.3	65.1	0.38	13.8	0.470	77.49	-0.63	21.52	-10.03	1.48	1.74
NHH144913-3	13.6	60.5	0.36	11.6	0.590	80.70	-1.75	22.55	-9.05	1.36	2.94
NE10478-1	14.4	68.2	0.44	13.1	0.459	77.72	-0.49	20.95	-10.09	1.16	2.15
NE14434	13.2	68.2	0.40	11.4	0.437	78.79	-1.20	21.80	-10.80	1.22	4.26
NE14538	14.3	65.9	0.43	12.3	0.459	77.90	-0.89	22.13	-10.36	1.21	4.19
NE14691	14.3	67.3	0.41	12.4	0.451	78.23	-0.82	20.20	-8.55	1.18	3.08
NE14696	14.0	67.0	0.49	12.5	0.462	77.01	-0.94	21.85	-10.04	1.42	1.76
NI14729	13.7	67.5	0.44	11.9	0.569	77.53	-0.87	21.49	-9.54	1.14	2.64
NW15573	13.9	69.6	0.44	12.3	0.507	77.74	-1.19	22.96	-8.80	1.46	1.35
NE14421	13.2	67.8	0.48	11.8	0.502	78.36	-1.33	21.89	-9.30	1.37	2.24
NE15410	12.5	68.4	0.42	11.2	0.531	79.76	-1.50	21.85	-7.63	1.32	1.78
NW15404	13.4	69.5	0.45	12.2	0.530	78.47	-1.14	22.30	-9.86	1.96	1.67
MT1547	13.5	69.8	0.42	12.4	0.491	78.77	-1.03	22.28	-9.10	1.68	2.75
MT1563	13.1	68.7	0.45	11.6	0.427	78.70	-1.02	22.92	-9.52	1.77	3.09
MT1564	14.1	70.6	0.41	12.8	0.542	79.00	-0.78	21.22	-9.71	1.64	2.25
MTS1588	15.0	70.9	0.46	13.7	0.556	76.70	-1.05	25.54	-9.85	1.11	0.45
SD12008-2	14.1	67.6	0.47	12.9	0.304	77.42	-1.30	26.41	-7.57	1.17	1.90
SD13062-2	14.0	68.3	0.49	12.3	0.469	76.66	-1.43	25.53	-8.61	1.71	0.17
SD13W064-7	13.6	68.5	0.47	12.4	0.514	77.65	-1.43	24.69	-9.94	1.79	0.63
SD14113-3	14.0	69.5	0.45	12.7	0.516	78.24	-1.29	23.65	-8.08	1.30	0.79

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
SD14115-5	11.9	66.5	0.48	10.6	0.467	78.79	-1.57	22.91	-9.25	1.41	2.16
CA9W09-903	13.2	69.4	0.40	11.6	0.529	77.83	-1.37	23.68	-8.62	1.27	1.65
FA4W11-6067	12.7	66.3	0.48	11.1	0.417	78.34	-1.34	23.30	-8.99	1.41	1.66

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		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	12.9	65.0	4.13	4.13	3
Overland	11.6	63.3	2.50	2.39	1
Wesley	12.8	66.8	6.25	6.25	5
Jagalene	12.1	65.2	5.50	5.50	4
Jerry	11.7	64.0	4.50	4.35	4
NW13MD108-3	12.1	67.0	4.50	4.50	3
NW13MD109-1	12.1	64.6	7.25	7.25	4
CO15SFD061	11.8	64.7	4.75	4.65	3
CO15SFD092	11.6	63.8	5.50	5.24	4
CO15SFD095	12.7	66.2	5.75	5.75	4
CO15SFD107	12.2	63.3	3.50	3.50	2
AP-17CP020072	11.8	63.1	4.50	4.40	2
AP-17CP020137	12.4	62.5	6.25	6.25	3
AP-17CP020142	12.1	64.0	8.00	8.00	4
AP-17CP020143	12.0	63.4	5.88	5.87	5
AP-17CP020147	12.1	63.6	3.13	3.13	3
LCH14DH-21-1781	12.9	65.5	5.38	5.38	5
LCH14-53	12.7	65.1	3.50	3.50	3
DH12HRW-9-9	11.3	62.8	3.50	3.21	2
DH11HRW-58-9	11.1	63.0	4.50	4.03	4
16NORD-54	14.0	64.8	3.50	3.50	1
16NORD-58	12.4	65.2	6.00	6.00	5
16NORD-62	13.8	66.5	3.50	3.50	2
NHH144913-3	11.6	63.2	2.50	2.38	1
NE10478-1	13.1	65.7	4.13	4.13	4
NE14434	11.4	63.5	6.63	6.14	4
NE14538	12.3	65.9	8.13	8.13	4
NE14691	12.4	65.1	4.50	4.50	4
NE14696	12.5	65.2	5.50	5.50	5
NI14729	11.9	65.3	7.63	7.56	6
NW15573	12.3	65.0	3.50	3.50	2
NE14421	11.8	64.2	4.88	4.77	4
NE15410	11.2	63.2	3.38	3.07	2
NW15404	12.2	64.8	3.50	3.50	3
MT1547	12.4	65.0	5.75	5.75	4
MT1563	11.6	63.7	8.50	8.10	6
MT1564	12.8	65.2	10.1	10.1	6
MTS1588	13.7	66.7	6.38	6.38	5
SD12008-2	12.9	63.8	4.25	4.25	2
SD13062-2	12.3	65.0	2.38	2.38	1
SD13W064-7	12.4	63.6	2.13	2.13	1
SD14113-3	12.7	65.6	3.25	3.25	1

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
SD14115-5	10.6	62.1	3.50	2.90	2
CA9W09-903	11.6	63.7	4.00	3.80	2
FA4W11-6067	11.1	62.9	4.25	3.79	3

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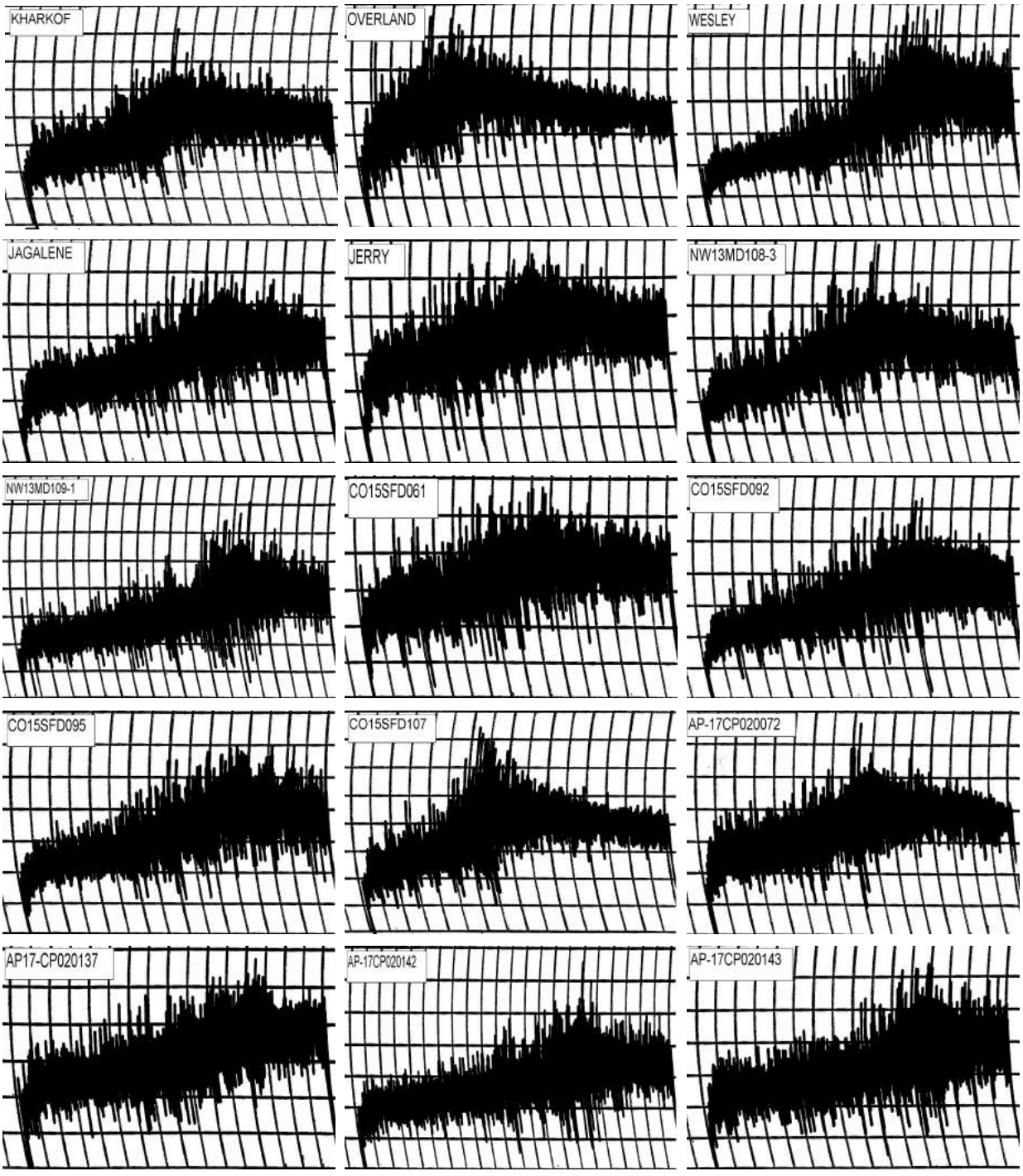
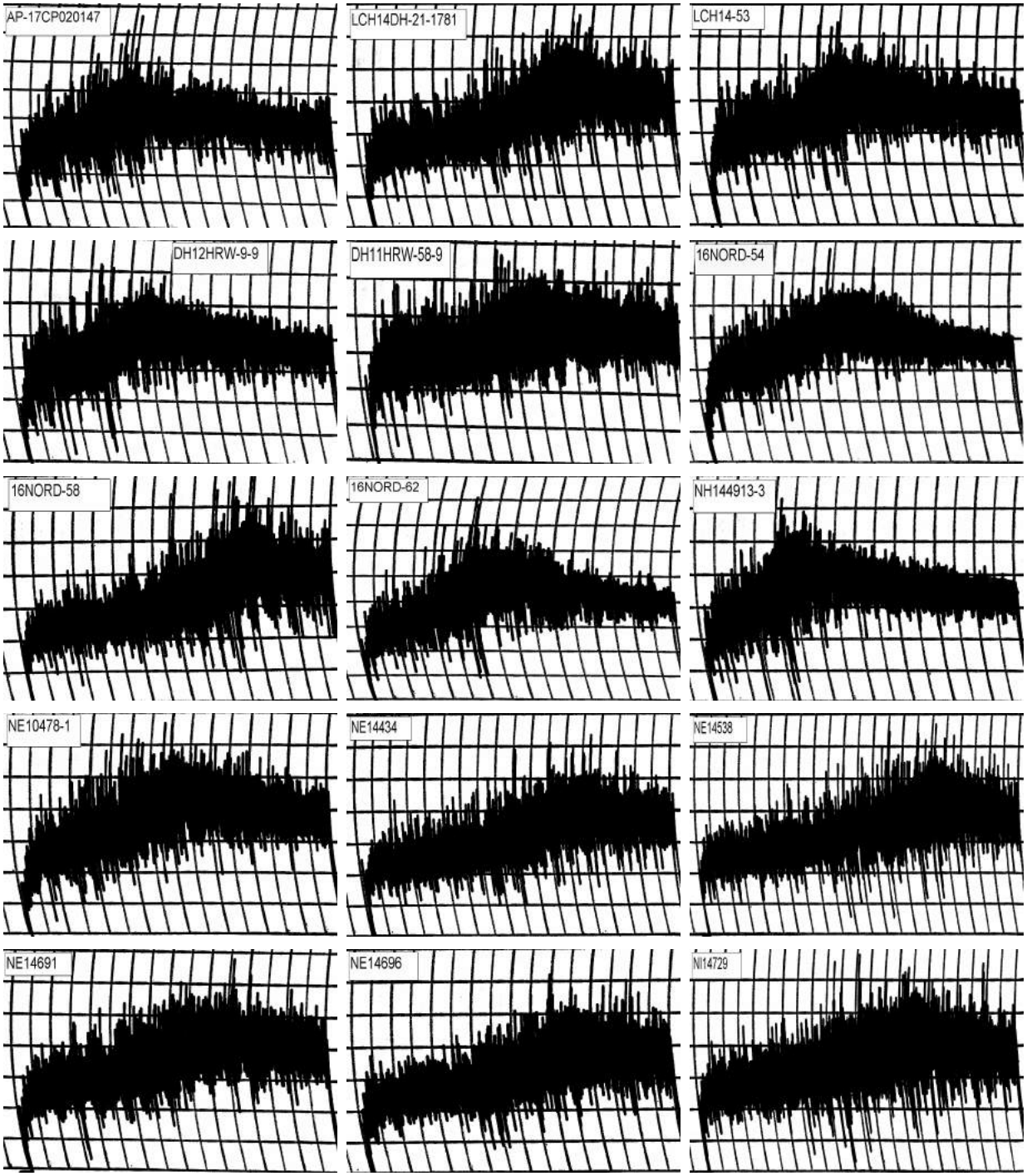
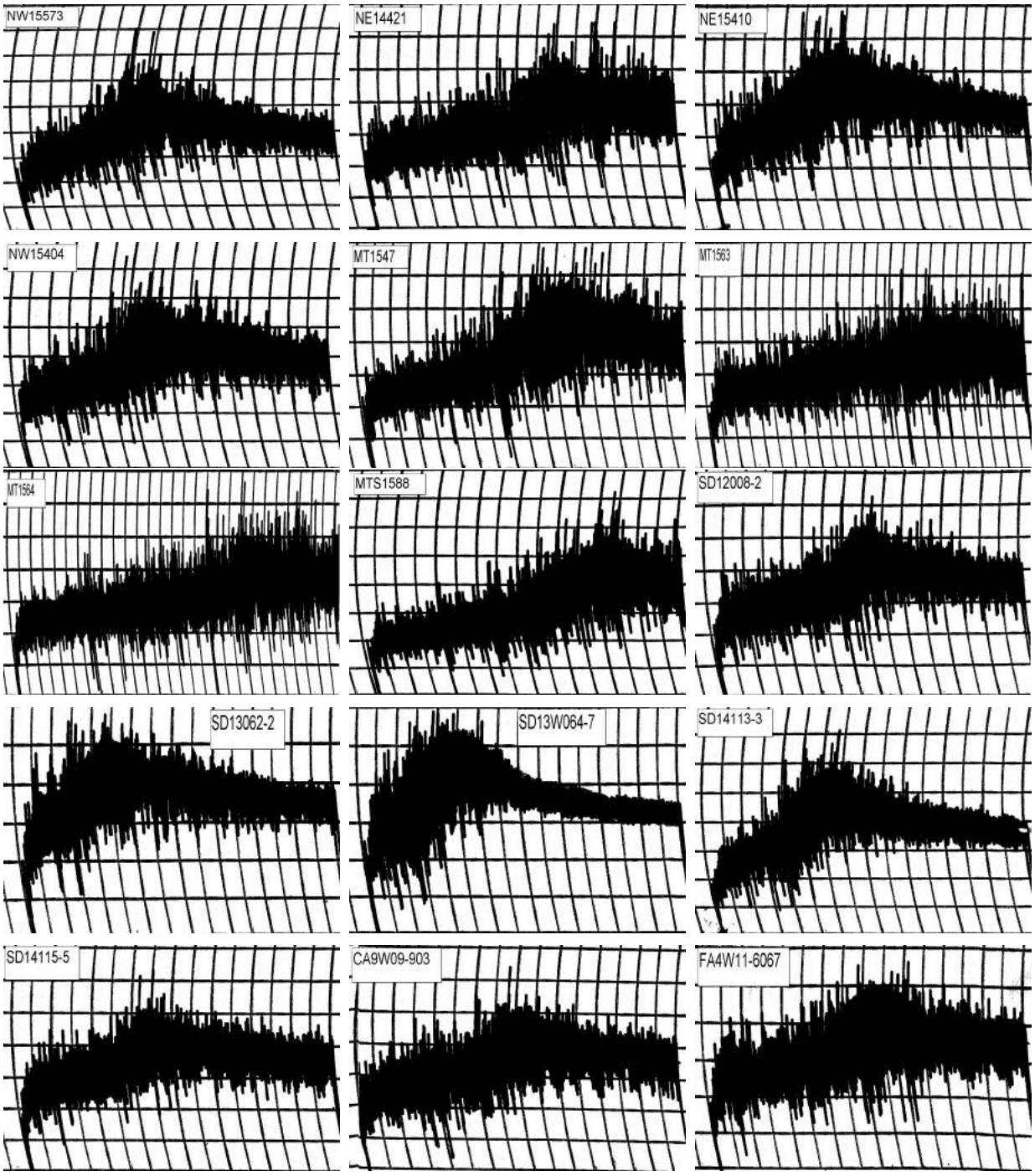


2018 NRPN Intraregional Production Zone
Northern Plains



2018 NRPN Intraregional Production Zone
Northern Plains



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	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	113.42	242.92	164.42	78.50	271.58	107.17	6.27
Overland	107.17	241.75	166.25	75.50	277.33	111.08	6.33
Wesley	125.00	225.17	142.67	82.50	257.92	115.25	6.07
Jagalene	100.58	235.67	151.17	84.50	263.25	112.08	6.13
Jerry	94.92	214.25	131.17	83.08	236.42	105.25	6.07
NW13MD108-3	107.00	229.58	147.33	82.25	270.17	122.83	6.07
NW13MD109-1	93.83	215.92	139.83	76.08	263.00	123.17	6.00
CO15SFD061	125.58	242.42	177.33	65.08	312.08	134.75	6.20
CO15SFD092	65.08	276.67	161.75	114.92	279.50	117.75	6.00
CO15SFD095	100.25	272.17	170.50	101.67	288.00	117.50	6.13
CO15SFD107	105.42	260.67	162.00	98.67	282.50	120.50	6.07
AP-17CP020072	134.25	260.83	189.08	71.75	300.17	111.08	6.47
AP-17CP020137	76.75	245.67	157.33	88.33	268.33	111.00	6.13
AP-17CP020142	102.00	236.17	143.08	93.08	258.50	115.42	5.93
AP-17CP020143	72.17	248.75	149.25	99.50	269.08	119.83	5.93
AP-17CP020147	73.58	280.00	149.50	130.50	244.33	94.83	6.13
LCH14DH-21-1781	110.75	266.42	185.42	81.00	297.58	112.17	6.40
LCH14-53	99.58	266.25	172.08	94.17	284.50	112.42	6.27
DH12HRW-9-9	110.67	245.00	160.42	84.58	274.67	114.25	6.20
DH11HRW-58-9	79.75	273.00	159.42	113.58	260.67	101.25	6.20
16NORD-54	136.33	237.42	172.33	65.08	284.83	112.50	6.47
16NORD-58	118.00	249.67	160.17	89.50	268.42	108.25	6.20
16NORD-62	132.00	233.25	154.08	79.17	255.92	101.83	6.33
NHH144913-3	111.50	243.25	151.17	92.08	265.08	113.92	6.07
NE10478-1	124.33	216.08	140.00	76.08	253.17	113.17	6.07
NE14434	116.17	266.00	171.83	94.17	291.00	119.17	6.13
NE14538	126.42	279.08	196.42	82.67	310.83	114.42	6.40
NE14691	105.42	231.75	157.00	74.75	268.33	111.33	6.20
NE14696	116.83	224.92	145.58	79.33	258.67	113.08	6.13
NI14729	116.25	246.08	152.42	93.67	263.92	111.50	6.13
NW15573	91.00	243.75	127.00	116.75	219.08	92.08	6.00
NE14421	123.00	245.83	154.33	91.50	264.17	109.83	6.13
NE15410	117.42	249.58	161.92	87.67	284.50	122.58	6.20
NW15404	79.58	254.50	136.17	118.33	230.42	94.25	6.07
MT1547	104.92	263.92	162.42	101.50	273.50	111.08	6.13
MT1563	121.83	262.08	164.83	97.25	278.92	114.08	6.13
MT1564	98.25	250.75	156.00	94.75	272.00	116.00	6.07
MTS1588	121.42	223.75	149.33	74.42	265.92	116.58	6.07
SD12008-2	107.58	252.33	158.42	93.92	274.58	116.17	6.13
SD13062-2	135.83	225.92	152.67	73.25	258.83	106.17	6.27
SD13W064-7	112.33	203.33	143.42	59.92	259.17	115.75	6.20
SD14113-3	91.50	222.92	139.83	83.08	253.42	113.58	6.00
SD14115-5	124.33	242.00	170.33	71.67	291.33	121.00	6.27
CA9W09-903	100.58	261.17	156.75	104.42	253.17	96.42	6.20
FA4W11-6067	93.00	273.25	186.67	86.58	296.08	109.42	6.33

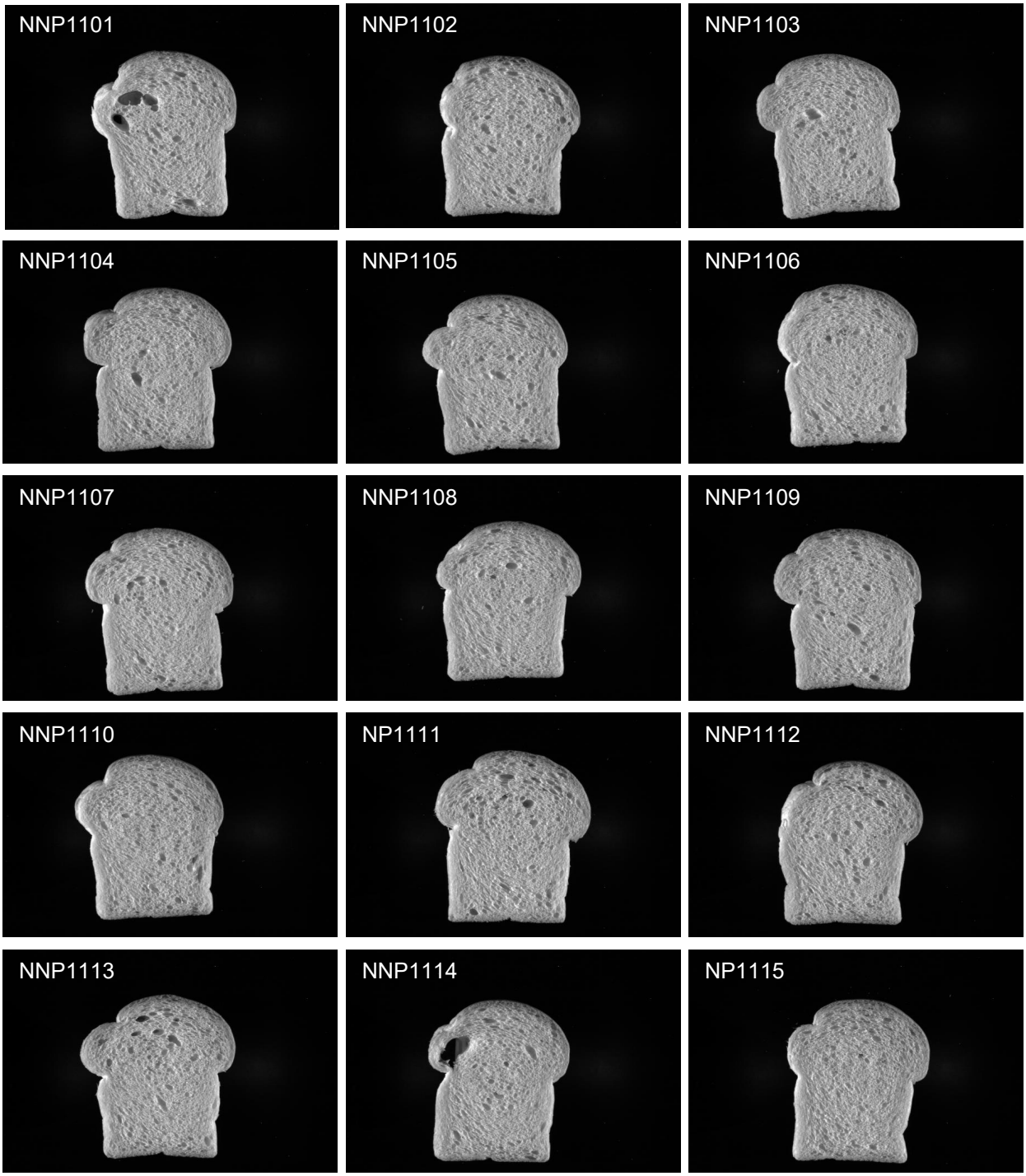
2018 NRPN Intraregional Production Zone

Northern Plains

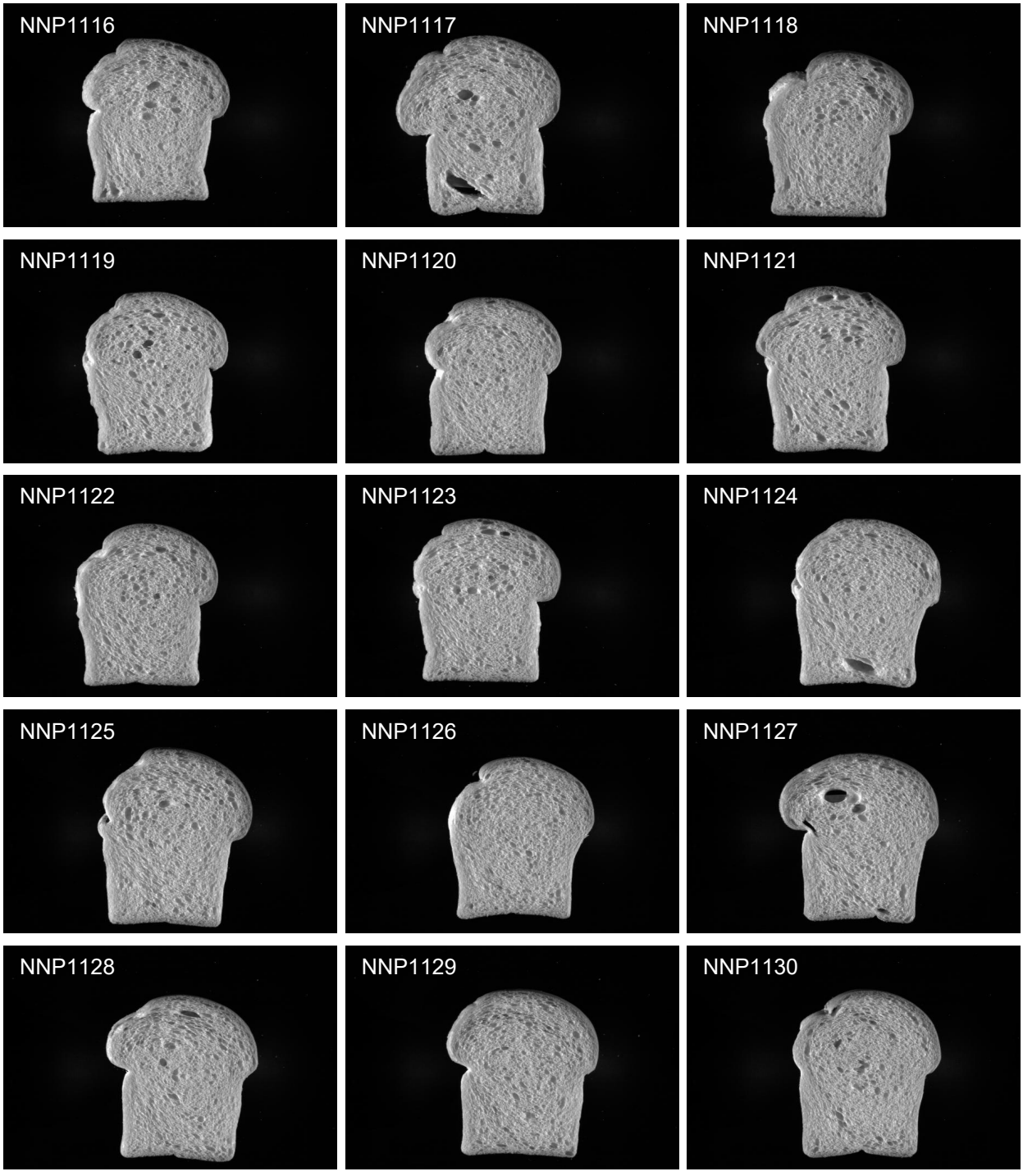
	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
Kharkof	12.9	65.4	5.50	5.50	173.7	7.4	4.5	930	6.2	63
Overland	11.6	61.9	3.00	2.86	174.1	7.3	3.0	880	5.9	67
Wesley	12.8	67.3	11.00	11.00	175.8	7.3	5.0	930	6.1	64
Jagalene	12.1	65.2	7.00	7.00	174.7	7.1	4.5	980	6.4	74
Jerry	11.7	63.8	5.75	5.56	172.4	7.0	4.0	870	5.8	65
NW13MD108-3	12.1	66.8	5.00	5.00	176.4	6.9	5.0	905	5.8	67
NW13MD109-1	12.1	64.5	8.75	8.75	173.7	6.9	5.0	935	6.1	70
CO15SFD061	11.8	64.6	5.25	5.14	174.5	7.2	5.0	880	5.8	66
CO15SFD092	11.6	63.5	6.50	6.19	173.2	6.9	3.0	915	6.1	71
CO15SFD095	12.7	66.4	6.38	6.38	175.6	7.0	4.5	935	6.1	65
CO15SFD107	12.2	62.2	4.75	4.75	171.8	7.4	4.0	1000	6.7	76
AP-17CP020072	11.8	62.6	5.63	5.51	171.9	7.4	3.0	955	6.4	74
AP-17CP020137	12.4	62.3	6.25	6.25	171.4	7.4	3.0	940	6.3	68
AP-17CP020142	12.1	64.3	9.00	9.00	173.5	7.3	4.0	950	6.3	72
AP-17CP020143	12.0	65.4	10.50	10.49	174.6	7.7	5.0	955	6.3	73
AP-17CP020147	12.1	63.5	4.00	4.00	174.1	7.4	2.5	975	6.4	74
LCH14DH-21-1781	12.9	66.0	6.75	6.75	174.9	7.6	4.0	1145	7.6	85
LCH14-53	12.7	64.8	4.00	4.00	174.3	7.4	2.5	1010	6.7	73
DH12HRW-9-9	11.3	62.4	3.88	3.56	172.2	6.8	2.0	875	5.8	69
DH11HRW-58-9	11.1	63.4	5.75	5.15	172.5	7.0	4.0	925	6.1	76
16NORD-54	14.0	63.9	3.50	3.50	173.2	7.6	2.0	950	6.3	59
16NORD-58	12.4	65.0	8.00	8.00	174.8	7.4	4.0	965	6.3	70
16NORD-62	13.8	65.6	3.75	3.75	175.1	7.5	4.5	975	6.3	62
NHH144913-3	11.6	62.5	3.25	3.09	172.0	7.2	4.5	935	6.3	74
NE10478-1	13.1	65.7	5.00	5.00	175.3	7.7	4.0	1030	6.8	73
NE14434	11.4	63.2	8.00	7.41	172.4	7.5	5.0	935	6.3	75
NE14538	12.3	66.2	9.63	9.63	175.2	7.6	3.5	1005	6.8	76
NE14691	12.4	65.2	6.00	6.00	174.7	7.1	4.5	965	6.3	70
NE14696	12.5	65.2	7.25	7.25	174.5	7.4	4.0	1000	6.6	74
NI14729	11.9	66.1	10.75	10.65	175.2	7.1	4.0	1000	6.6	78
NW15573	12.3	62.3	3.75	3.75	172.1	7.3	2.0	980	6.6	73
NE14421	11.8	64.4	7.00	6.84	174.2	7.1	5.0	950	6.3	74
NE15410	11.2	60.7	3.25	2.95	170.2	7.1	3.5	880	5.9	70
NW15404	12.2	64.4	5.63	5.63	174.1	7.2	3.5	975	6.4	73
MT1547	12.4	65.0	7.25	7.25	174.3	7.2	4.0	1005	6.6	75
MT1563	11.6	64.1	10.50	10.01	172.2	7.0	3.5	950	6.4	75
MT1564	12.8	66.1	15.00	15.00	173.9	7.3	5.0	980	6.5	70
MTS1588	13.7	67.2	9.38	9.38	175.8	7.4	5.0	1025	6.7	68
SD12008-2	12.9	62.2	4.50	4.50	171.3	7.8	3.0	1050	7.0	76
SD13062-2	12.3	64.2	2.88	2.88	173.9	7.1	2.0	820	5.3	56
SD13W064-7	12.4	63.2	2.50	2.50	173.1	7.4	2.0	870	5.7	61
SD14113-3	12.7	63.1	3.88	3.88	173.0	7.4	3.0	970	6.4	69
SD14115-5	10.6	62.2	4.25	3.52	172.5	7.0	3.0	925	6.1	82
CA9W09-903	11.6	63.3	4.63	4.40	172.5	7.3	3.0	925	6.1	73

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
FA4W11-6067	11.1	63.4	6.00	5.34	173.1	7.2	5.0	955	6.3	81

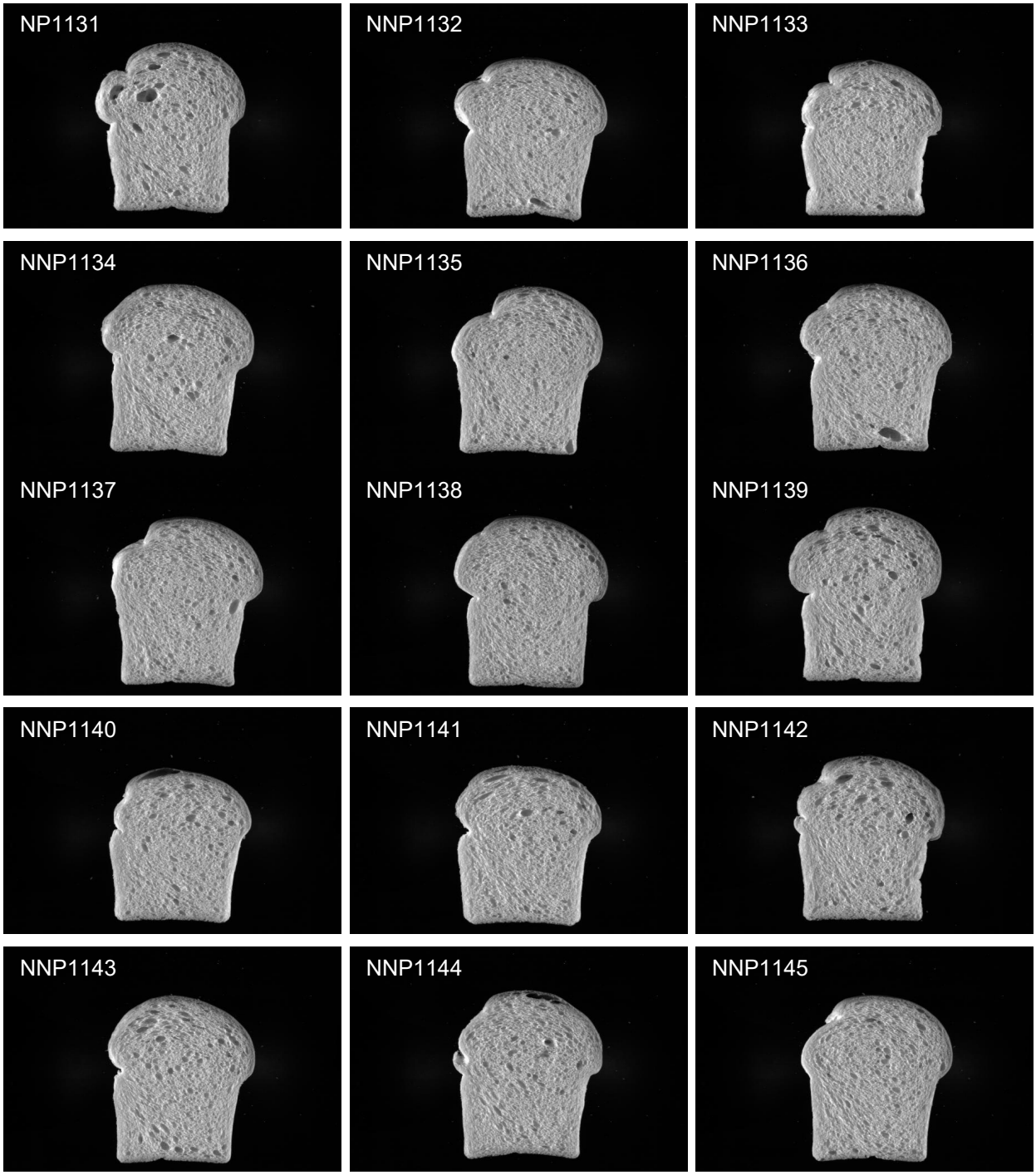
2018 NRPN Intraregional Production Zone
Northern Plains



2018 NRPN Intraregional Production Zone
Northern Plains



2018 NRPN Intraregional Production Zone
Northern Plains



Southern
Regional Performance Nursery

2018 SRPN Intraregional Production Zone

Entry	Selection No.	Pedigree	Source
1	Kharkof	Kharkof	check
2	Jagalene	Jagalene	check
3	KS13HW92-3	HV9W05-415W(G982048W/PLATTE//CO940607W)/FRED-2-18-2	KSU-Hays
4	KS14HW106-6-6	KS05HW122-5-2(KS99HW5016//STANTON/KS98HW423)//KS05HW15-2-2(	KSU-Hays
5	KS14H180-4-6	T151/KS08HW111-1(DANBY/KS03HW149-1(TREGO/CO960293))	KSU-Hays
6	KS15H79-4	KS07HW52-5(KS025580/KS02HW25)//BILL BROWN/KS08HW25-2CL(DAN	KSU-Hays
7	KS15H116-6	KS08HW112-6(DANBY/KS03HW149-1)//TX03A0148/DANBY TR	KSU-Hays
8	CO12D1770	Denali/Antero//Byrd	CSU
9	CO13D1783	CO08W218/Snowmass//Byrd	CSU
10	CO13D1299	CO07W722-F5/Snowmass//Brawl CL Plus	CSU
11	CO13D1383	CO07W722-F5/Snowmass//CO07W722-F5	CSU
12	CO13D1479	CO07W722-F5/Antero//Snowmass	CSU
13	OK12716	W99-194/OK02518W	OSU
14	OK12D22004-016	KS970093-8-9-#1-1/OK08328//OK09634	OSU
15	OCW05S616T-2	BABAX/LR42//BABAX/3/FANNIN /4/BULK SELN 00F5-11-2	OSU
16	OCW04S717T-6W	(ATTILA*2/ESDA//MASON)/(HBK0935-7-4/BETTY 'S')//KS91W047	OSU
17	OK12206-127206-2	Y98-912/OK00611W//OK03716W	OSU
18	AP-17CP020067	(KS970093-8-9-#1-1/PLATTE//SY WOLF)	Agripro
19	AP-17CP020068	(CDC FALCON/FULLER//00x0090-54)	Agripro
20	AP-17CP020073	[(JACKPOT/AP05T2529//AP02T4342)]	Agripro
21	AP-17CP020081	(SY WOLF/KS970093-8-9-#1//POSTROCK)	Agripro
22	AP-17CP020086	(JACKPOT/DUSTER)	Agripro
23	LCH14-52		LCS
24	LCH14-61		LCS
25	LCH14DH-21-1781		LCS
26	DH11HRW-51-9		LCS
27	DH11HRW-27-3		LCS
28	KS080099M-3	KS010525-1-3/KS020363WM~1	KSU-Manhattan
29	KS080093K-18	KS980554-12-~9/KS020363WM~1	KSU-Manhattan
30	KS090049K-8	Duster/KS06O3A~57	KSU-Manhattan
31	KS090387K-20	Winterhawk/KS011020-6//Hitch	KSU-Manhattan
32	TX12V7415	X05A650 [=ND 801/TX02D5813]/RonL	TAMU
33	TX13M5625	O3A-B7/HV9W96-1270R-1//KS980512-11-24	TAMU
34	TX14A001112	Duster/TX01V5134WC-2	TAMU
35	TX14A001185	X07A472S [X00A45 (=KS98U661/T-200)/TX04A001482]/Duster	TAMU
36	TX14A001249	TX01V5134WC-2/TX06A001236	TAMU
37	TX14A001035	OK03522/TX03A0563	TAMU
38	TX14A001215	TX04V075080/Jackpot	TAMU
39	TX14V70086	TX06A001145/Duster	TAMU
40	TX14M7061	TAM 113/TX03A0148	TAMU
41	TX14M7088	TAM 113/OK02522W	TAMU
42	NF97117	Tomahawk/Coker 9803//NF165	Noble Res. Inst.
43	NE10478-1	NI03418/Camelot (sel.)	UNL
44	NHH144913-3	SETTLER CL/NE07457//Brawl CL	UNL
45	NW15443	OR 2060108/NW03681//NW03666	UNL
46	NE15624	NE05537/KS05HW15-2	UNL

Entry	Selection No.	Pedigree	Source
47	H3N13-0253	KS98W0508-1--4//HV9W99-558/KS99011-1--21	WestBred
48	H4N13-0181	TUKURU-S/3/KS920750-A-13-1//KS89180-2-1-1/CMBW91M02959T/4/TX92	WestBred
49	Scout 66	Scout 66	check
50	TAM107	TAM107	check

List of SRPN Sample ID

Entry	Breeder ID	HWWQL ID			
		North Central Plains	Northern High Plains	South Central Plains	Southern High Plains
1	Kharkof	18-SNC1001	18-SNH1001	18-SSC1001	18-SSH1001
2	Jagalene	18-SNC1002	18-SNH1002	18-SSC1002	18-SSH1002
3	KS13HW92-3	18-SNC1003	18-SNH1003	18-SSC1003	18-SSH1003
4	KS14HW106-6-6	18-SNC1004	18-SNH1004	18-SSC1004	18-SSH1004
5	KS14H180-4-6	18-SNC1005	18-SNH1005	18-SSC1005	18-SSH1005
6	KS15H79-4	18-SNC1006	18-SNH1006	18-SSC1006	18-SSH1006
7	KS15H116-6	18-SNC1007	18-SNH1007	18-SSC1007	18-SSH1007
8	CO12D1770	18-SNC1008	18-SNH1008	18-SSC1008	18-SSH1008
9	CO13D1783	18-SNC1009	18-SNH1009	18-SSC1009	18-SSH1009
10	CO13D1299	18-SNC1010	18-SNH1010	18-SSC1010	18-SSH1010
11	CO13D1383	18-SNC1011	18-SNH1011	18-SSC1011	18-SSH1011
12	CO13D1479	18-SNC1012	18-SNH1012	18-SSC1012	18-SSH1012
13	OK12716	18-SNC1013	18-SNH1013	18-SSC1013	18-SSH1013
14	OK12D22004-016	18-SNC1014	18-SNH1014	18-SSC1014	18-SSH1014
15	OCW05S616T-2	18-SNC1015	18-SNH1015	18-SSC1015	18-SSH1015
16	OCW04S717T-6W	18-SNC1016	18-SNH1016	18-SSC1016	18-SSH1016
17	OK12206-127206-2	18-SNC1017	18-SNH1017	18-SSC1017	18-SSH1017
18	AP-17CP020067	18-SNC1018	18-SNH1018	18-SSC1018	18-SSH1018
19	AP-17CP020068	18-SNC1019	18-SNH1019	18-SSC1019	18-SSH1019
20	AP-17CP020073	18-SNC1020	18-SNH1020	18-SSC1020	18-SSH1020
21	AP-17CP020081	18-SNC1021	18-SNH1021	18-SSC1021	18-SSH1021
22	AP-17CP020086	18-SNC1022	18-SNH1022	18-SSC1022	18-SSH1022
23	LCH14-52	18-SNC1023	18-SNH1023	18-SSC1023	18-SSH1023
24	LCH14-61	18-SNC1024	18-SNH1024	18-SSC1024	18-SSH1024
25	LCH14DH-21-1781	18-SNC1025	18-SNH1025	18-SSC1025	18-SSH1025
26	DH11HRW-51-9	18-SNC1026	18-SNH1026	18-SSC1026	18-SSH1026
27	DH11HRW-27-3	18-SNC1027	18-SNH1027	18-SSC1027	18-SSH1027
28	KS080099M-3	18-SNC1028	18-SNH1028	18-SSC1028	18-SSH1028
29	KS080093K-18	18-SNC1029	18-SNH1029	18-SSC1029	18-SSH1029
30	KS090049K-8	18-SNC1030	18-SNH1030	18-SSC1030	18-SSH1030
31	KS090387K-20	18-SNC1031	18-SNH1031	18-SSC1031	18-SSH1031
32	TX12V7415	18-SNC1032	18-SNH1032	18-SSC1032	18-SSH1032
33	TX13M5625	18-SNC1033	18-SNH1033	18-SSC1033	18-SSH1033
34	TX14A001112	18-SNC1034	18-SNH1034	18-SSC1034	18-SSH1034
35	TX14A001185	18-SNC1035	18-SNH1035	18-SSC1035	18-SSH1035
36	TX14A001249	18-SNC1036	18-SNH1036	18-SSC1036	18-SSH1036
37	TX14A001035	18-SNC1037	18-SNH1037	18-SSC1037	18-SSH1037
38	TX14A001215	18-SNC1038	18-SNH1038	18-SSC1038	18-SSH1038
39	TX14V70086	18-SNC1039	18-SNH1039	18-SSC1039	18-SSH1039
40	TX14M7061	18-SNC1040	18-SNH1040	18-SSC1040	18-SSH1040
41	TX14M7088	18-SNC1041	18-SNH1041	18-SSC1041	18-SSH1041
42	NF97117	18-SNC1042	18-SNH1042	18-SSC1042	18-SSH1042
43	NE10478-1	18-SNC1043	18-SNH1043	18-SSC1043	18-SSH1043
44	NHH144913-3	18-SNC1044	18-SNH1044	18-SSC1044	18-SSH1044
45	NW15443	18-SNC1045	18-SNH1045	18-SSC1045	18-SSH1045
46	NE15624	18-SNC1046	18-SNH1046	18-SSC1046	18-SSH1046
47	H3N13-0253	18-SNC1047	18-SNH1047	18-SSC1047	18-SSH1047
48	H4N13-0181	18-SNC1048	18-SNH1048	18-SSC1048	18-SSH1048
49	Scout 66	18-SNC1049	18-SNH1049	18-SSC1049	18-SSH1049
50	TAM107	18-SNC1050	18-SNH1050	18-SSC1050	18-SSH1050

Hard Winter Wheat Quality Report

2018 SRPN-NCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	40.8	Very Poor	69.5	81.4	Very Good	100.0		6,8,10,
Jagalene	50.5	Average	86.1	71.5	Very Good	87.8		
KS Venada	54.1	Very Good	92.1	72.1	Very Good	88.5		
KS14HW106-6-6	54.9	Very Good	93.5	65.4	Good	80.3		3,5,
KS14H180-4-6	51.4	Average	87.7	46.9	Very Poor	57.6		4,11,12,13,14,15,17,18,
KS15H79-4	51.3	Average	87.5	51.0	Poor	62.6		
KS15H116-6	52.1	Good	88.9	51.5	Poor	63.2		3,5,14,15,
Canvas	56.6	Very Good	96.5	56.1	Average	68.9		2,4,14,15,18,
Whistler	49.7	Poor	84.8	53.9	Average	66.2		14,15,
Snowmass 2.0	54.4	Very Good	92.7	48.7	Very Poor	59.8		14,15,
Monarch	46.4	Very Poor	79.0	33.1	Very Poor	40.6		1,4,11,12,13,18,19,
CO13D1479	42.2	Very Poor	71.9	49.9	Poor	61.3		2,14,15,
Showdown	50.1	Poor	85.4	67.0	Very Good	82.3		
OK12D22004-016	56.5	Very Good	96.3	52.6	Poor	64.6		
OCW05S616T-2	58.7	Very Good	100.0	68.7	Very Good	84.4		
OCW04S717T-6W	48.1	Poor	81.9	74.9	Very Good	92.0		9,10,
OK12206-127206-2	50.2	Poor	85.6	48.3	Very Poor	59.3		15,
AP-17CP020067	54.5	Very Good	92.9	62.6	Good	76.9		12,13,17,
AP-17CP020068	47.0	Poor	80.2	53.6	Average	65.8		14,15,
AP-17CP020073	52.8	Good	90.0	63.2	Good	77.6		
AP-17CP020081	51.9	Good	88.4	53.2	Average	65.3		15,
AP-17CP020086	54.3	Very Good	92.5	59.5	Good	73.1		
LCH14-52	45.9	Very Poor	78.2	62.3	Good	76.5		3,
LCH14-61	51.0	Average	86.9	47.1	Very Poor	57.8		16,
LCH14DH-21-1781	48.9	Poor	83.4	74.2	Very Good	91.1		
DH11HRW-51-9	49.0	Poor	83.5	53.5	Average	65.7		16,
DH11HRW-27-3	52.2	Good	89.0	75.2	Very Good	92.3		2,
KS080099M-3	51.4	Average	87.6	67.5	Very Good	82.8		
KS080093K-18	51.3	Average	87.5	50.7	Poor	62.2		
KS090049K-8	50.4	Poor	85.9	53.7	Average	65.9		2,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 SRPN-NCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
KS090387K-20	51.0	Average	86.8	63.7	Good	78.2		15,
TAM 205	57.0	Very Good	97.2	41.4	Very Poor	50.8		14,15,
TX13M5625	57.5	Very Good	98.1	46.0	Very Poor	56.5		16,
TX14A001112	48.7	Poor	82.9	45.3	Very Poor	55.6		14,15,
TX14A001185	53.2	Good	90.6	55.3	Average	67.9		9,10,
TX14A001249	44.7	Very Poor	76.1	51.1	Poor	62.7		9,10,14,15,
TX14A001035	51.6	Average	88.0	62.2	Good	76.4		
TX14A001215	51.3	Average	87.5	67.2	Very Good	82.5		
TX14V70086	53.3	Good	90.9	52.8	Average	64.8		2,18,
TX14M7061	44.2	Very Poor	75.3	65.6	Good	80.6		1,3,
TX14M7088	52.8	Good	89.9	50.8	Poor	62.3		16,
NF97117	29.2	Very Poor	49.7	38.9	Very Poor	47.8		1,6,8,9,10,16,19,20,21,
NE10478-1	53.4	Good	91.0	61.2	Good	75.2		
NHH144913-3	42.0	Very Poor	71.6	50.7	Poor	62.3		1,6,14,16,
NW15443	52.4	Good	89.3	49.0	Poor	60.2		14,15,18,19,
NE15624	44.3	Very Poor	75.5	63.7	Good	78.2		2,4,14,15,
H4N13-0253	51.1	Average	87.1	47.4	Very Poor	58.2		12,16,17,21,
H4N13-0181	45.5	Very Poor	77.6	59.0	Average	72.5		2,8,
Scout 66	53.8	Good	91.6	50.3	Poor	61.8		16,20,
TAM 107	48.3	Poor	82.4	56.9	Average	69.8	1AL	

2018 SRPN Intraregional Production Zone

North Central Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	59.9	13.3	0.6	32.2	8.5	2.61	0.30	35	18	SOFT	46-31-14-09-04
Jagalene	59.5	13.0	0.5	33.2	11.3	2.68	0.38	68	19	HARD	05-08-17-70-01
KS13HW92-3	59.2	13.2	0.6	33.0	10.6	2.59	0.40	66	16	HARD	02-06-28-64-01
KS14HW106-6-6	60.2	12.8	0.7	34.9	12.5	2.65	0.44	52	17	MIXED	11-28-30-31-03
KS14H180-4-6	60.5	13.0	0.6	30.3	11.2	2.46	0.36	60	21	MIXED	12-17-19-52-03
KS15H79-4	60.1	12.8	0.5	31.7	10.1	2.63	0.39	68	18	HARD	03-09-19-69-01
KS15H116-6	60.2	12.5	0.4	36.4	13.8	2.64	0.48	60	18	HARD	05-18-28-49-01
CO12D1770	60.3	12.6	0.6	27.9	8.8	2.41	0.37	53	18	MIXED	14-24-27-35-03
CO13D1783	59.1	13.1	0.5	29.0	9.7	2.48	0.39	62	18	HARD	06-13-24-57-01
CO13D1299	59.2	12.7	0.6	32.9	9.2	2.63	0.35	68	17	HARD	02-09-21-68-01
CO13D1383	57.9	13.2	0.7	28.5	9.9	2.44	0.36	58	20	HARD	10-21-21-48-01
CO13D1479	58.6	12.7	0.6	28.2	11.4	2.53	0.40	64	19	HARD	05-15-21-59-01
OK12716	58.7	12.9	0.6	31.8	10.8	2.60	0.38	57	19	MIXED	11-16-25-48-03
OK12D22004-016	61.7	12.7	0.6	35.0	9.8	2.78	0.37	63	18	HARD	04-15-30-51-01
OCW05S616T-2	60.5	12.6	0.6	34.9	9.4	2.80	0.34	58	17	HARD	08-16-33-43-01
OCW04S717T-6W	59.7	12.9	0.6	33.9	9.7	2.69	0.37	76	18	HARD	01-03-14-82-01
OK12206-127206-2	58.1	13.4	0.6	32.3	9.8	2.56	0.32	62	17	HARD	05-14-27-54-01
AP-17CP020067	60.4	13.3	0.7	34.0	9.3	2.60	0.36	60	17	HARD	04-14-28-54-01
AP-17CP020068	58.4	13.0	0.5	31.8	9.5	2.64	0.37	63	19	HARD	04-14-26-56-01
AP-17CP020073	60.4	13.0	0.7	33.2	9.1	2.69	0.38	66	17	HARD	02-12-24-62-01
AP-17CP020081	59.1	13.0	0.6	29.5	9.0	2.62	0.36	67	18	HARD	03-10-22-65-01
AP-17CP020086	59.8	13.2	0.6	31.1	10.1	2.61	0.37	69	17	HARD	01-07-20-72-01
LCH14-52	59.5	13.3	0.5	34.4	12.0	2.61	0.38	71	17	HARD	01-06-17-76-01
LCH14-61	59.1	13.1	0.5	33.3	10.1	2.62	0.37	67	16	HARD	02-08-22-68-01
LCH14DH-21-1781	60.6	13.0	0.6	30.8	9.6	2.54	0.38	55	16	HARD	10-19-30-41-01
DH11HRW-51-9	58.2	13.2	0.6	30.8	10.1	2.58	0.39	69	17	HARD	02-06-23-69-01
DH11HRW-27-3	60.0	12.9	0.5	28.2	9.7	2.47	0.32	69	16	HARD	01-07-20-72-01
KS080099M-3	60.5	13.0	0.7	32.0	8.7	2.69	0.36	53	19	MIXED	13-23-27-37-03
KS080093K-18	59.1	13.3	0.5	34.5	9.1	2.76	0.36	68	17	HARD	02-07-25-66-01
KS090049K-8	60.0	13.3	0.6	28.5	9.9	2.52	0.37	71	18	HARD	02-05-20-73-01
KS090387K-20	60.3	12.9	0.6	31.7	9.7	2.59	0.38	49	16	MIXED	18-26-30-26-03
TX12V7415	60.6	13.0	0.6	35.2	10.4	2.70	0.36	63	16	HARD	03-10-29-58-01
TX13M5625	60.0	12.6	0.5	33.6	8.9	2.74	0.36	61	17	HARD	05-16-26-53-01
TX14A001112	59.4	12.8	0.5	29.9	10.2	2.54	0.40	66	19	HARD	04-12-22-62-01
TX14A001185	60.3	12.6	0.5	31.1	9.4	2.63	0.34	71	17	HARD	02-04-19-75-01
TX14A001249	59.5	12.2	0.5	31.0	11.2	2.52	0.40	73	20	HARD	03-06-17-74-01
TX14A001035	60.5	12.5	0.5	30.9	11.3	2.51	0.36	71	18	HARD	03-05-16-76-01
TX14A001215	59.5	12.6	0.4	33.6	9.8	2.68	0.31	68	16	HARD	01-09-21-69-01
TX14V70086	60.1	12.7	0.6	28.3	9.7	2.51	0.35	66	20	HARD	04-10-24-62-01
TX14M7061	58.0	12.7	0.6	32.4	11.7	2.55	0.36	54	18	MIXED	12-21-31-36-03
TX14M7088	59.8	12.9	0.5	33.2	10.7	2.69	0.38	65	17	HARD	03-10-27-60-01
NF97117	57.3	12.5	0.6	31.3	10.3	2.59	0.38	23	19	SOFT	74-15-06-05-05
NE10478-1	59.7	12.5	0.5	32.8	10.0	2.67	0.37	67	18	HARD	04-11-17-68-01
NHH144913-3	56.9	12.4	0.5	31.4	8.3	2.56	0.34	18	18	SOFT	81-13-04-02-05
NW15443	58.5	12.3	0.5	35.3	10.7	2.72	0.41	56	18	HARD	08-26-27-39-01

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
NE15624	59.0	11.9	0.5	28.0	10.8	2.43	0.37	62	18	HARD	07-12-23-58-01
H3N13-0253	60.0	12.3	0.5	31.0	10.0	2.48	0.39	51	18	MIXED	17-26-27-30-03
H4N13-0181	59.0	12.3	0.5	28.3	10.1	2.55	0.34	80	17	HARD	01-03-08-88-01
Scout 66	60.0	12.5	0.6	32.1	9.4	2.66	0.36	59	18	HARD	06-22-24-48-01
TAM107	58.5	12.2	0.5	32.6	8.9	2.61	0.38	56	17	HARD	09-22-30-39-01

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North Central Plains

	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	16.7	62.9	0.41	15.1	0.588	77.07	-0.80	22.17	-8.60	1.26	0.89
Jagalene	15.2	68.6	0.45	13.8	0.602	77.60	-0.90	23.12	-9.66	1.46	2.43
KS13HW92-3	15.1	69.0	0.40	13.6	0.253	78.14	-1.22	23.11	-7.02	1.26	3.46
KS14HW106-6-6	14.3	71.1	0.37	12.8	0.711	77.66	-0.04	20.89	-9.47	0.93	2.23
KS14H180-4-6	13.0	70.6	0.39	11.6	0.754	78.95	-1.47	22.52	-8.44	1.28	1.86
KS15H79-4	14.3	68.1	0.45	12.6	0.758	76.97	-1.08	22.92	-11.15	1.51	0.35
KS15H116-6	14.5	69.5	0.40	13.3	0.715	77.78	-0.58	22.59	-9.66	1.40	2.33
CO12D1770	13.9	71.8	0.35	12.6	0.688	80.19	-1.08	21.32	-9.35	1.15	3.69
CO13D1783	13.7	68.1	0.37	12.4	0.756	79.12	-1.12	23.44	-9.36	1.06	1.92
CO13D1299	13.9	67.6	0.38	12.2	0.274	79.02	-1.11	21.87	-7.16	1.04	3.89
CO13D1383	13.1	68.1	0.38	11.6	0.299	79.52	-1.35	21.30	-7.43	1.26	4.58
CO13D1479	13.9	66.6	0.44	12.2	0.425	79.15	-1.54	23.43	-10.00	1.47	2.64
OK12716	14.2	69.7	0.43	12.8	0.778	78.12	-1.15	23.70	-10.33	1.62	1.53
OK12D22004-016	14.0	68.4	0.38	12.5	0.220	78.39	-1.01	22.71	-7.02	1.13	2.07
OCW05S616T-2	14.3	69.8	0.39	13.0	0.678	78.54	-1.15	22.50	-8.50	1.22	1.15
OCW04S717T-6W	15.6	65.3	0.48	13.9	0.612	77.06	-0.71	23.65	-9.76	1.71	0.91
OK12206-127206-2	14.5	67.8	0.42	13.2	0.246	78.54	-0.67	21.42	-7.11	1.05	4.12
AP-17CP020067	14.4	68.7	0.43	12.9	0.849	78.28	-1.06	22.41	-10.28	1.22	1.75
AP-17CP020068	14.7	65.9	0.40	12.8	0.651	77.00	-0.88	22.38	-8.81	1.27	1.94
AP-17CP020073	14.4	66.5	0.38	12.6	0.266	77.72	-0.87	21.39	-7.19	1.19	3.67
AP-17CP020081	14.8	68.6	0.43	13.0	0.713	77.80	-0.80	22.19	-7.95	1.20	1.68
AP-17CP020086	14.3	68.8	0.41	12.8	0.597	78.16	-1.34	24.81	-7.22	1.30	0.50
LCH14-52	14.5	65.0	0.44	12.7	0.676	77.60	-0.98	23.94	-8.93	1.49	0.59
LCH14-61	14.5	67.2	0.44	12.8	0.680	77.84	-0.94	22.79	-9.42	1.49	1.10
LCH14DH-21-1781	15.4	66.3	0.39	13.8	0.666	78.67	-1.28	22.65	-8.25	1.10	1.45
DH11HRW-51-9	14.2	67.6	0.43	12.7	0.705	78.06	-1.38	23.05	-9.14	1.37	0.83
DH11HRW-27-3	14.2	67.8	0.41	12.4	0.725	77.62	-0.78	22.61	-9.17	1.42	1.46
KS080099M-3	14.8	67.7	0.40	13.2	0.792	78.80	-1.50	23.35	-11.01	1.38	1.70
KS080093K-18	14.7	66.4	0.45	12.7	0.212	76.64	-0.59	23.69	-7.66	1.29	1.98
KS090049K-8	14.6	68.0	0.44	12.9	0.673	76.94	-1.12	24.88	-7.86	1.33	1.33
KS090387K-20	16.0	67.7	0.38	14.4	0.839	78.51	-1.00	21.28	-10.39	1.40	1.75
TX12V7415	15.5	69.6	0.45	13.7	0.828	77.63	-1.49	23.73	-10.45	1.57	0.81
TX13M5625	15.6	69.8	0.41	14.0	0.548	77.41	-0.81	22.97	-7.96	1.43	0.00
TX14A001112	14.2	68.1	0.43	12.6	0.657	77.91	-0.55	22.99	-10.77	1.25	2.08
TX14A001185	14.9	68.7	0.51	13.2	0.688	75.68	-0.22	20.26	-11.10	1.76	2.47
TX14A001249	14.8	66.9	0.48	12.9	0.703	76.77	-0.63	22.28	-10.97	1.77	1.90
TX14A001035	14.4	68.6	0.42	12.8	0.590	78.67	-0.79	20.59	-11.46	1.50	1.81
TX14A001215	16.0	66.6	0.46	14.2	0.766	77.08	-0.65	22.91	-10.60	1.60	0.12
TX14V70086	13.6	70.6	0.43	12.2	0.595	78.38	-1.45	24.17	-8.16	1.42	1.73
TX14M7061	15.5	67.2	0.45	13.6	0.563	77.53	-0.89	24.18	-9.88	1.47	2.85
TX14M7088	14.9	68.8	0.45	13.1	0.617	77.06	-1.14	23.48	-9.55	1.52	0.78
NF97117	15.4	60.8	0.48	13.5	0.607	75.44	-0.91	21.18	-10.03	1.65	0.72

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
NE10478-1	15.1	69.1	0.44	13.4	0.705	76.24	-0.45	21.76	-10.10	1.38	0.64
NHH144913-3	14.6	65.0	0.37	12.8	0.811	78.81	-1.59	22.92	-10.69	1.90	2.36
NW15443	14.0	69.2	0.39	12.3	0.307	78.40	-0.86	22.72	-8.29	1.29	2.08
NE15624	14.8	66.8	0.44	13.1	0.669	79.01	-0.92	21.21	-9.46	1.40	2.92
H3N13-0253	13.5	69.0	0.37	12.1	0.651	79.82	-1.31	22.03	-7.26	1.17	1.65
H4N13-0181	14.3	64.5	0.44	12.6	0.476	76.58	-0.58	22.49	-9.54	1.47	1.76
Scout 66	15.1	69.0	0.40	13.6	0.771	78.48	-0.55	19.05	-12.12	1.65	3.78
TAM107	14.5	66.4	0.40	12.8	0.754	78.25	-0.90	22.55	-10.22	1.42	2.55

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North Central Plains

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	15.1	67.8	4.50	4.50	3
Jagalene	13.8	65.8	5.38	5.38	5
KS13HW92-3	13.6	67.5	4.13	4.13	3
KS14HW106-6-6	12.8	64.8	4.88	4.88	4
KS14H180-4-6	11.6	62.2	8.63	8.20	5
KS15H79-4	12.6	64.9	5.00	5.00	4
KS15H116-6	13.3	65.1	11.5	11.5	5
CO12D1770	12.6	63.9	7.50	7.50	5
CO13D1783	12.4	63.6	9.00	9.00	6
CO13D1299	12.2	63.8	11.0	11.0	5
CO13D1383	11.6	62.2	5.25	4.99	4
CO13D1479	12.2	63.3	9.50	9.50	5
OK12716	12.8	65.7	4.50	4.50	3
OK12D22004-016	12.5	65.4	4.38	4.38	3
OCW05S616T-2	13.0	65.2	4.50	4.50	4
OCW04S717T-6W	13.9	66.0	3.75	3.75	4
OK12206-127206-2	13.2	64.8	5.75	5.75	5
AP-17CP020067	12.9	62.5	4.63	4.63	4
AP-17CP020068	12.8	64.3	8.00	8.00	5
AP-17CP020073	12.6	64.0	3.13	3.13	3
AP-17CP020081	13.0	64.6	5.75	5.75	4
AP-17CP020086	12.8	64.7	4.75	4.75	4
LCH14-52	12.7	63.6	3.63	3.63	3
LCH14-61	12.8	64.3	3.50	3.50	2
LCH14DH-21-1781	13.8	66.0	4.38	4.38	4
DH11HRW-51-9	12.7	64.6	2.88	2.88	1
DH11HRW-27-3	12.4	64.1	4.25	4.25	4
KS080099M-3	13.2	65.4	5.00	5.00	5
KS080093K-18	12.7	64.7	3.50	3.50	3
KS090049K-8	12.9	65.0	4.00	4.00	4
KS090387K-20	14.4	67.0	5.63	5.63	4
TX12V7415	13.7	66.3	6.75	6.75	5
TX13M5625	14.0	66.3	3.13	3.13	1
TX14A001112	12.6	64.9	5.75	5.75	4
TX14A001185	13.2	65.5	3.75	3.75	4
TX14A001249	12.9	65.0	6.50	6.50	5
TX14A001035	12.8	65.2	3.63	3.63	3
TX14A001215	14.2	66.6	3.38	3.38	3
TX14V70086	12.2	63.8	5.25	5.25	3
TX14M7061	13.6	66.1	4.88	4.88	4
TX14M7088	13.1	65.2	3.75	3.75	2
NF97117	13.5	66.4	2.50	2.50	1

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
NE10478-1	13.4	65.8	3.38	3.38	3
NHH144913-3	12.8	64.8	2.25	2.25	1
NW15443	12.3	64.0	5.88	5.88	3
NE15624	13.1	65.2	6.25	6.25	5
H3N13-0253	12.1	63.6	3.88	3.88	2
H4N13-0181	12.6	64.4	4.00	4.00	4
Scout 66	13.6	66.1	2.50	2.50	2
TAM107	12.8	64.8	3.50	3.50	4

2018 SRPN Intraregional Production Zone
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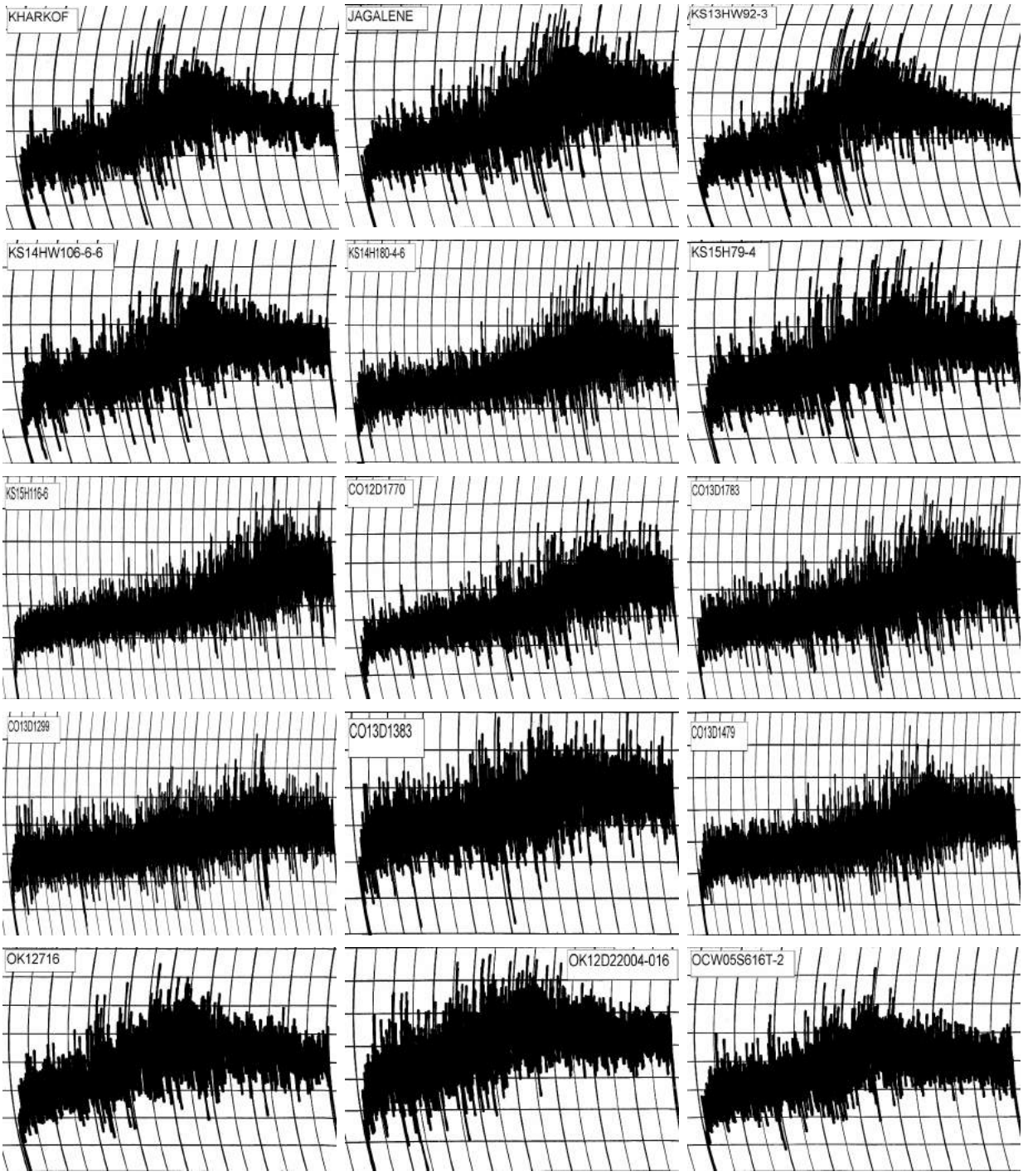
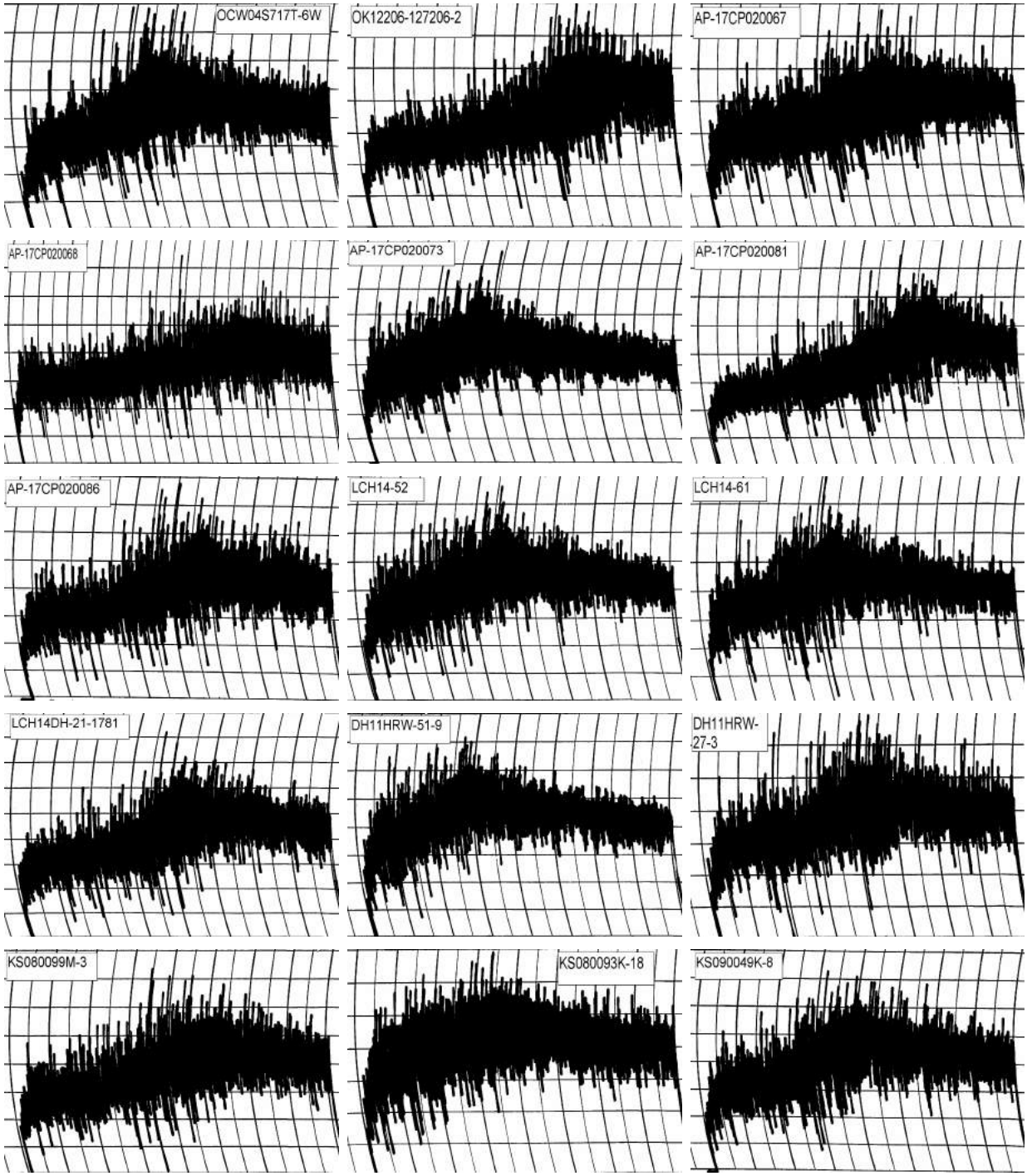
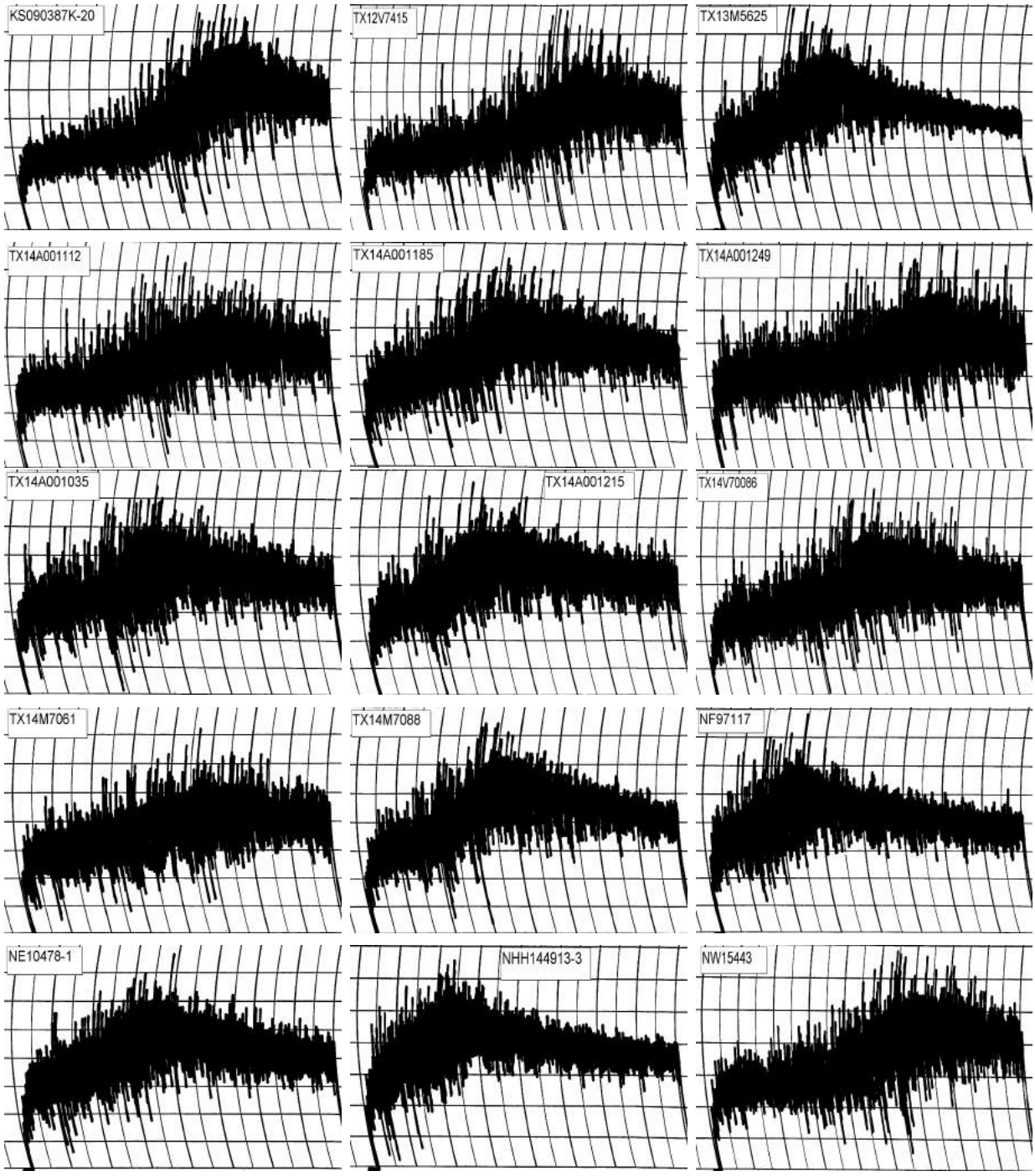


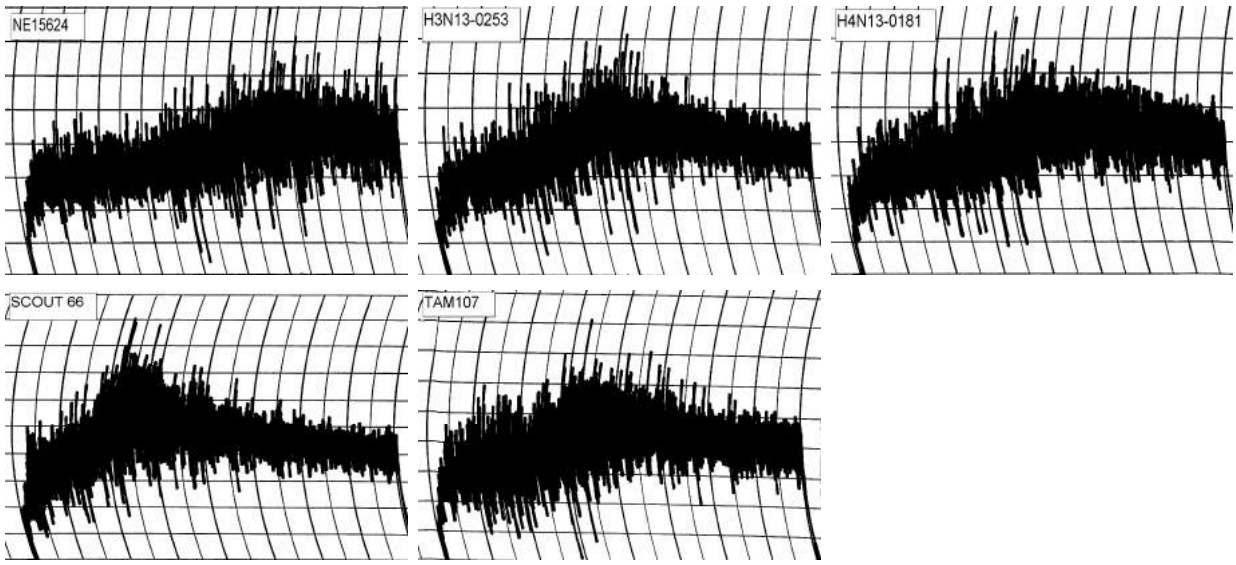
2018 SRPN Intraregional Production Zone
North Central Plains



2018 SRPN Intraregional Production Zone
North Central Plains



2018 SRPN Intraregional Production Zone
North Central Plains



2018 SRPN Intraregional Production Zone

North Central Plains

	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	136.25	202.00	128.75	73.25	220.17	91.42	6.20
Jagalene	115.00	208.50	145.08	63.42	248.33	103.25	6.33
KS13HW92-3	92.42	188.75	90.67	98.08	167.67	77.00	5.93
KS14HW106-6-6	80.42	159.92	53.50	106.42	107.17	53.67	5.47
KS14H180-4-6	88.25	252.33	152.42	99.92	258.42	106.00	6.13
KS15H79-4	96.00	281.50	168.58	112.92	265.00	96.42	6.27
KS15H116-6	129.33	275.50	157.25	118.25	245.50	88.25	6.27
CO12D1770	123.75	271.25	180.00	91.25	299.08	119.08	6.27
CO13D1783	127.92	265.42	178.67	86.75	298.42	119.75	6.27
CO13D1299	87.33	126.50	57.42	69.08	121.08	63.67	5.53
CO13D1383	67.42	117.58	41.67	75.92	91.25	49.58	5.20
CO13D1479	124.83	215.92	129.17	86.75	228.67	99.50	6.13
OK12716	78.50	133.58	55.25	78.33	118.33	63.08	5.47
OK12D22004-016	130.50	240.83	166.25	74.58	271.83	105.58	6.33
OCW05S616T-2	103.08	264.25	179.75	84.50	295.08	115.33	6.33
OCW04S717T-6W	131.08	171.33	106.83	64.50	192.67	85.83	6.07
OK12206-127206-2	50.42	84.50	19.58	64.92	45.33	25.75	4.87
AP-17CP020067	101.50	163.08	81.17	81.92	160.08	78.92	5.73
AP-17CP020068	140.58	237.08	152.50	84.58	257.42	104.92	6.27
AP-17CP020073	110.58	235.00	153.92	81.08	259.58	105.67	6.27
AP-17CP020081	121.75	240.67	149.25	91.42	246.92	97.67	6.20
AP-17CP020086	125.08	238.92	157.42	81.50	264.17	106.75	6.27
LCH14-52	107.33	225.17	137.75	87.42	237.42	99.67	6.20
LCH14-61	100.75	179.75	95.33	84.42	178.42	83.08	5.93
LCH14DH-21-1781	97.33	188.42	108.42	80.00	193.00	84.58	6.00
DH11HRW-51-9	123.50	219.00	146.25	72.75	254.08	107.83	6.20
DH11HRW-27-3	142.00	234.08	157.00	77.08	268.42	111.42	6.27
KS080099M-3	62.92	96.50	21.92	74.58	49.17	27.25	4.87
KS080093K-18	117.75	181.42	104.83	76.58	191.33	86.50	6.00
KS090049K-8	127.50	219.75	133.75	86.00	236.83	103.08	6.07
KS090387K-20	105.42	204.00	122.50	81.50	213.75	91.25	6.00
TX12V7415	84.00	117.75	40.33	77.42	88.42	48.08	5.27
TX13M5625	123.17	237.42	157.33	80.08	258.08	100.75	6.33
TX14A001112	116.92	254.50	147.25	107.25	237.50	90.25	6.20
TX14A001185	103.25	220.42	119.00	101.42	195.58	76.58	6.07
TX14A001249	130.33	227.17	141.17	86.00	242.42	101.25	6.20
TX14A001035	93.58	194.50	116.92	77.58	217.42	100.50	6.00
TX14A001215	131.92	253.58	160.67	92.92	254.42	93.75	6.33
TX14V70086	124.67	220.42	129.50	90.92	233.58	104.08	6.00
TX14M7061	98.58	174.67	97.42	77.25	183.42	86.00	5.93
TX14M7088	113.67	205.00	130.50	74.50	234.33	103.83	6.07
NF97117	100.83	195.17	115.75	79.42	201.42	85.67	6.07
NE10478-1	116.92	182.17	114.33	67.83	206.00	91.67	6.00
NHH144913-3	107.33	220.58	138.00	82.58	236.58	98.58	6.13
NW15443	70.50	124.75	55.42	69.33	118.00	62.58	5.47

	RVA						
	Stirring Number	Peak Viscosity	Trough Viscosity	Breakdown	Final Viscosity	Set back	Peak Time
Line	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(min)
NE15624	109.33	202.33	123.08	79.25	221.83	98.75	6.07
H3N13-0253	100.08	210.92	125.25	85.67	222.83	97.58	6.00
H4N13-0181	118.75	191.50	118.00	73.50	213.67	95.67	6.00
Scout 66	78.75	138.75	62.92	75.83	128.17	65.25	5.60
TAM107	121.58	241.67	157.33	84.33	259.75	102.42	6.33

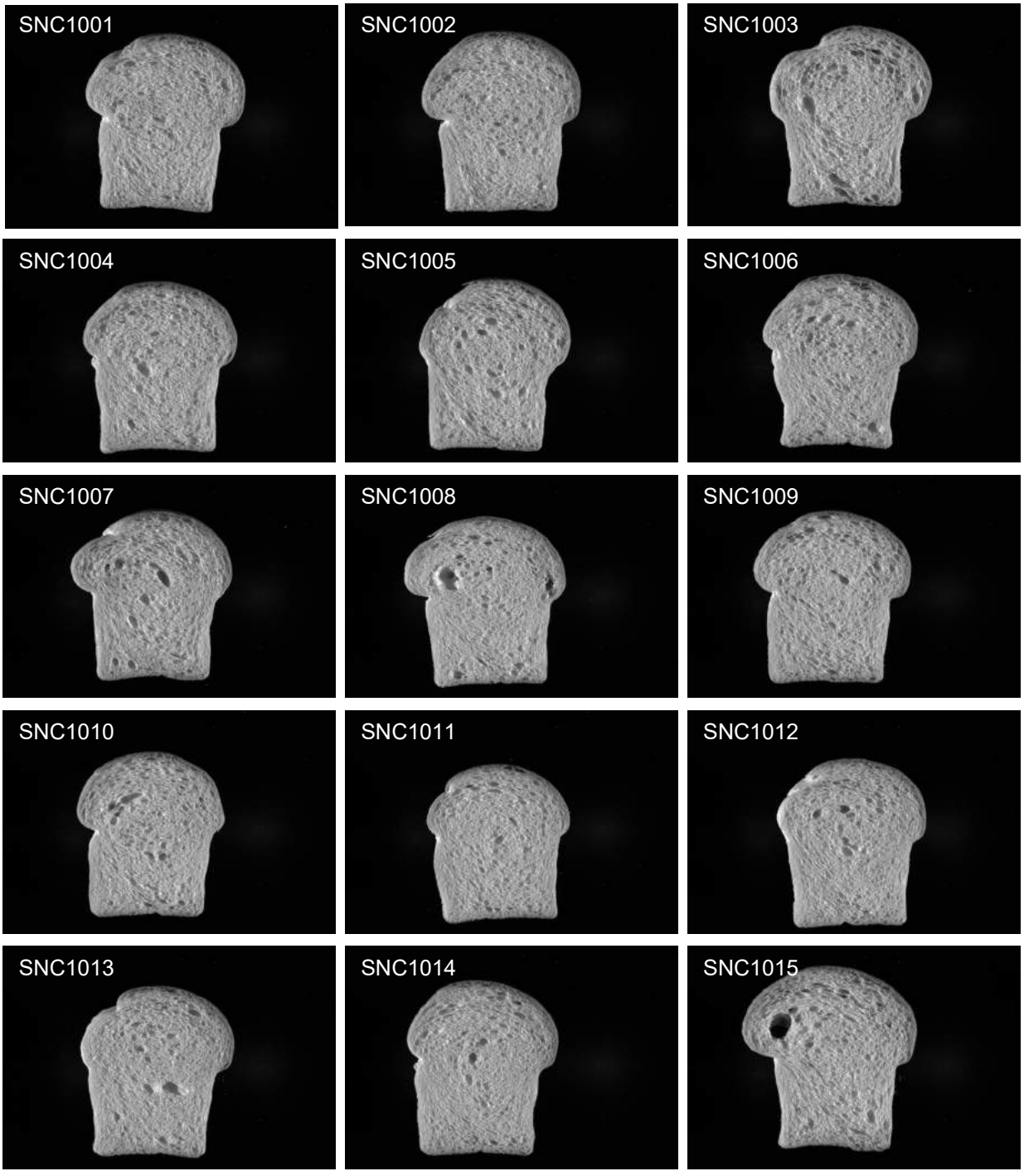
2018 SRPN Intraregional Production Zone

North Central Plains

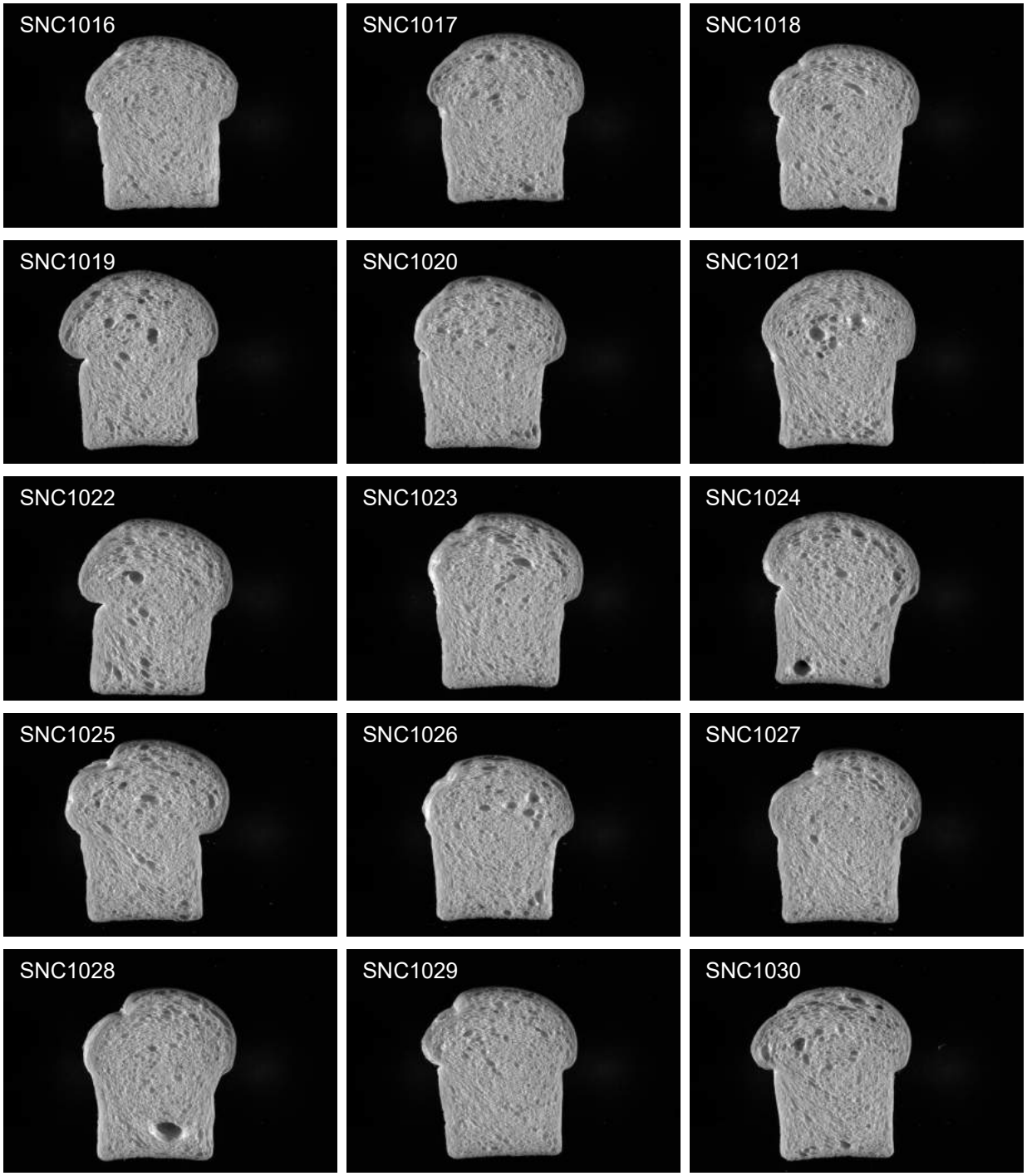
	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
Kharkof	15.1	67.3	5.00	5.00	176.4	8.1	5.0	1140	7.6	69
Jagalene	13.8	66.2	7.13	7.13	176.2	8.0	5.0	1110	7.4	75
KS13HW92-3	13.6	67.3	5.00	5.00	177.1	8.1	3.0	1170	7.8	82
KS14HW106-6-6	12.8	64.8	5.50	5.50	175.4	7.7	4.0	1035	6.9	75
KS14H180-4-6	11.6	62.3	10.00	9.50	170.9	7.3	3.0	1040	7.1	86
KS15H79-4	12.6	64.8	5.38	5.38	174.2	7.7	4.5	1035	6.9	76
KS15H116-6	13.3	65.2	12.50	12.50	174.3	7.4	3.0	1050	7.0	73
CO12D1770	12.6	64.3	9.00	9.00	174.1	7.2	5.0	980	6.6	71
CO13D1783	12.4	63.3	10.00	10.00	172.7	7.4	4.0	1030	6.9	78
CO13D1299	12.2	63.9	12.00	12.00	172.8	7.5	4.0	940	6.4	69
CO13D1383	11.6	62.3	6.75	6.42	172.9	7.2	4.5	870	5.8	66
CO13D1479	12.2	63.4	10.75	10.75	172.6	7.5	4.0	975	6.6	73
OK12716	12.8	65.3	5.00	5.00	175.1	7.7	4.0	1025	6.8	74
OK12D22004-016	12.5	65.3	5.00	5.00	174.4	8.0	4.5	1030	6.9	77
OCW05S616T-2	13.0	65.3	5.25	5.25	175.1	8.1	3.0	1160	7.8	86
OCW04S717T-6W	13.9	66.6	4.50	4.50	175.6	7.8	5.0	1040	6.8	68
OK12206-127206-2	13.2	65.2	6.25	6.25	174.2	8.0	4.5	1040	7.0	73
AP-17CP020067	12.9	62.3	5.00	5.00	172.0	7.6	4.0	1005	6.8	71
AP-17CP020068	12.8	65.3	8.00	8.00	174.9	7.6	3.0	1080	7.2	80
AP-17CP020073	12.6	65.4	3.50	3.50	175.1	7.9	4.0	1050	6.9	78
AP-17CP020081	13.0	64.2	7.00	7.00	174.3	7.7	3.0	1030	6.8	73
AP-17CP020086	12.8	64.3	6.00	6.00	173.9	7.5	3.0	1055	7.1	77
LCH14-52	12.7	63.2	3.75	3.75	173.0	7.6	4.0	1040	7.0	76
LCH14-61	12.8	64.1	4.00	4.00	174.1	7.5	3.5	1025	6.9	74
LCH14DH-21-1781	13.8	66.4	5.63	5.63	176.2	8.0	4.0	1180	7.8	81
DH11HRW-51-9	12.7	64.2	3.00	3.00	173.6	7.7	4.0	950	6.3	67
DH11HRW-27-3	12.4	64.3	5.00	5.00	173.9	7.7	5.0	1085	7.3	84
KS080099M-3	13.2	65.4	6.00	6.00	175.5	8.0	4.0	1070	7.1	76
KS080093K-18	12.7	64.3	4.50	4.50	174.3	7.7	4.5	1040	6.9	76
KS090049K-8	12.9	65.4	5.25	5.25	174.7	7.8	4.5	1035	6.9	74
KS090387K-20	14.4	67.3	7.00	7.00	176.5	8.0	3.0	1170	7.9	76
TX12V7415	13.7	66.3	8.75	8.75	176.0	7.7	3.5	1015	6.8	67
TX13M5625	14.0	64.4	3.25	3.25	173.9	7.8	3.5	1050	6.9	68
TX14A001112	12.6	65.2	7.75	7.75	174.8	7.9	4.5	1090	7.3	83
TX14A001185	13.2	65.4	4.75	4.75	175.3	7.7	3.5	1060	7.1	74
TX14A001249	12.9	65.1	7.50	7.50	174.8	7.6	3.0	1000	6.6	71
TX14A001035	12.8	65.2	4.13	4.13	174.1	7.9	3.0	1060	7.1	78
TX14A001215	14.2	66.6	4.25	4.25	176.9	7.9	4.0	1020	6.7	64
TX14V70086	12.2	63.8	7.00	7.00	173.2	7.0	4.0	955	6.4	71
TX14M7061	13.6	66.2	5.25	5.25	175.9	7.5	4.0	990	6.5	65
TX14M7088	13.1	65.2	4.50	4.50	175.1	7.9	4.5	1025	6.8	72
NF97117	13.5	66.0	3.00	3.00	176.2	7.5	2.0	830	5.4	51
NE10478-1	13.4	65.8	5.00	5.00	175.7	7.7	3.0	985	6.5	66
NHH144913-3	12.8	62.9	2.50	2.50	172.9	7.6	4.0	970	6.6	68

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
NW15443	12.3	64.3	7.50	7.50	174.0	7.2	4.0	925	6.2	67
NE15624	13.1	65.2	7.50	7.50	174.6	7.7	4.0	1140	7.6	83
H3N13-0253	12.1	61.3	4.00	4.00	170.6	7.6	2.0	980	6.7	75
H4N13-0181	12.6	64.3	4.63	4.63	174.3	7.7	3.0	975	6.4	71
Scout 66	13.6	63.3	3.50	3.50	173.4	7.7	3.0	965	6.4	63
TAM107	12.8	67.4	5.00	5.00	177.3	7.7	3.5	1060	7.0	78

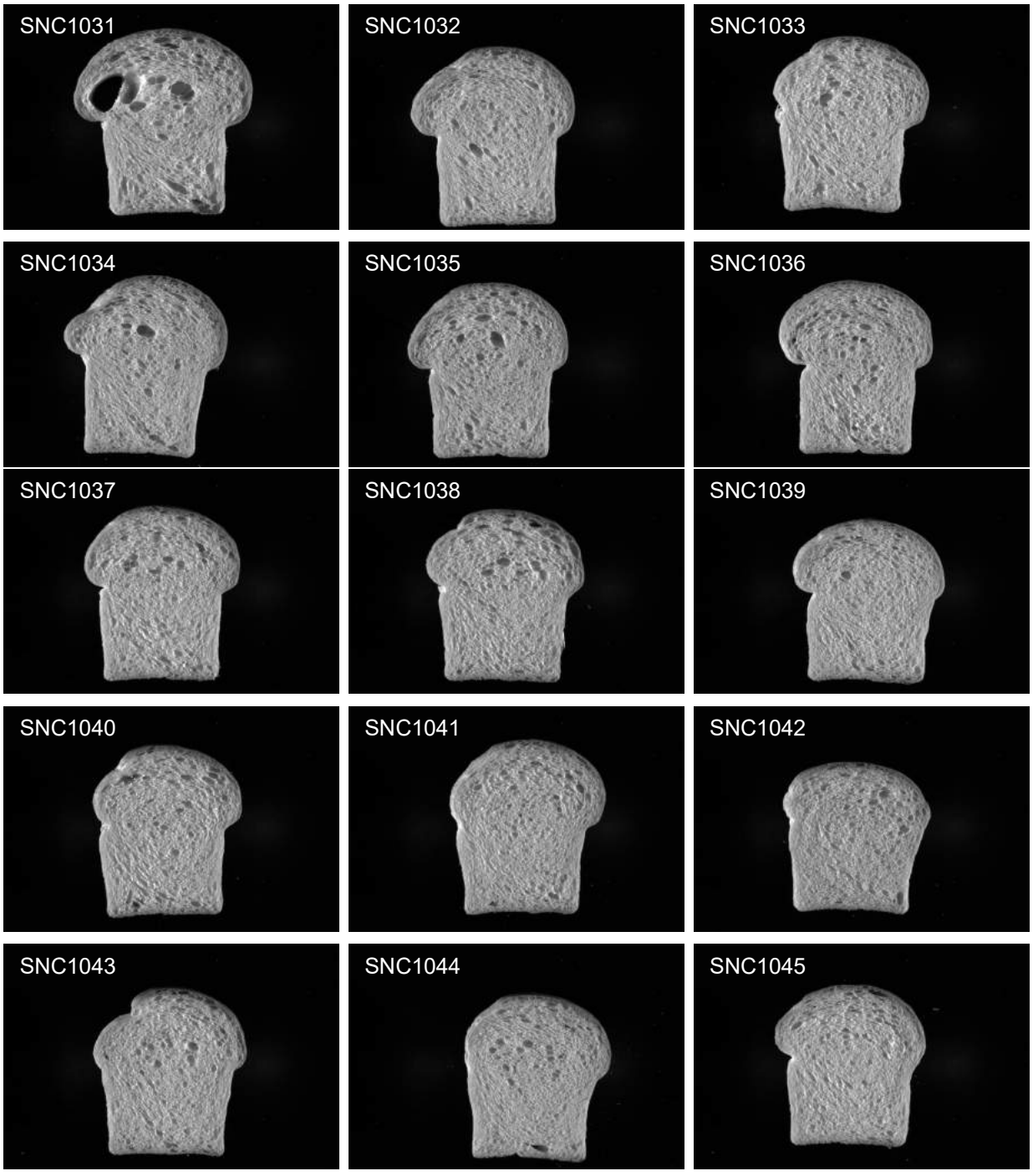
2018 SRPN Intraregional Production Zone
North Central Plains



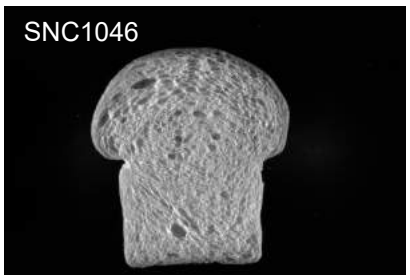
2018 SRPN Intraregional Production Zone
North Central Plains

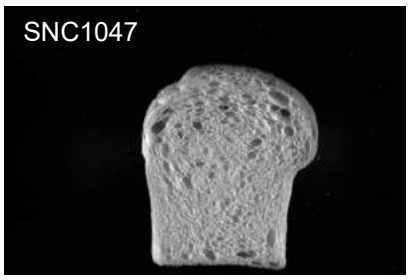


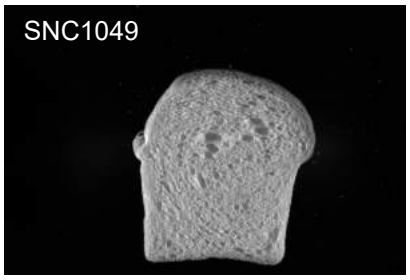
2018 SRPN Intraregional Production Zone
North Central Plains

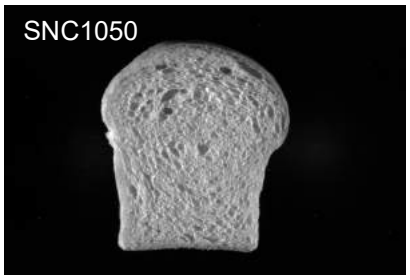


2018 SRPN Intraregional Production Zone
North Central Plains









Hard Winter Wheat Quality Report

2018 SRPN-NHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	36.6	Very Poor	64.6	48.2	Good	68.6		4,8,
Jagalene	49.1	Average	86.6	49.5	Good	70.4		
KS Venada	49.0	Average	86.5	52.0	Good	73.9		
KS14HW106-6-6	54.9	Very Good	96.9	53.2	Good	75.7		
KS14H180-4-6	51.7	Good	91.2	38.0	Poor	54.0		11,12,13,14,15,17,
KS15H79-4	46.8	Poor	82.7	42.5	Average	60.4		5,
KS15H116-6	48.9	Average	86.3	28.4	Very Poor	40.4		3,5,14,15,
Canvas	53.6	Very Good	94.6	31.2	Very Poor	44.4		14,15,19,20,
Whistler	48.7	Average	85.9	28.2	Very Poor	40.1		12,13,14,15,17,
Snowmass 2.0	54.1	Very Good	95.5	21.7	Very Poor	30.9		14,15,18,19,20,
Monarch	49.8	Average	87.8	27.2	Very Poor	38.7		11,12,13,15,17,19,
CO13D1479	46.0	Poor	81.2	33.0	Very Poor	46.9		11,12,13,14,15,17,19,
Showdown	48.1	Poor	84.9	40.2	Poor	57.3		
OK12D22004-016	53.3	Very Good	94.1	61.6	Very Good	87.6		
OCW05S616T-2	49.6	Average	87.5	46.7	Good	66.5		
OCW04S717T-6W	47.1	Poor	83.1	62.4	Very Good	88.8		9,10,
OK12206-127206-2	45.7	Very Poor	80.7	52.8	Good	75.1		
AP-17CP020067	48.2	Poor	85.1	54.5	Good	77.6		13,16,
AP-17CP020068	49.0	Average	86.5	39.2	Poor	55.8		
AP-17CP020073	51.8	Good	91.4	59.4	Very Good	84.4		
AP-17CP020081	49.1	Average	86.7	43.6	Average	62.0		
AP-17CP020086	50.4	Good	88.9	59.2	Very Good	84.3		
LCH14-52	45.7	Very Poor	80.6	39.1	Poor	55.6		16,
LCH14-61	49.5	Average	87.3	46.3	Average	65.9		9,16,
LCH14DH-21-1781	51.0	Good	90.0	70.3	Very Good	100.0		
DH11HRW-51-9	44.3	Very Poor	78.3	39.8	Poor	56.7		1,12,16,
DH11HRW-27-3	52.9	Very Good	93.3	43.2	Average	61.4		
KS080099M-3	50.8	Good	89.6	57.4	Very Good	81.7		
KS080093K-18	47.9	Poor	84.5	46.0	Average	65.5		10,
KS090049K-8	45.0	Very Poor	79.5	56.7	Good	80.6		9,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 SRPN-NHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
KS090387K-20	50.5	Good	89.1	48.6	Good	69.1		
TAM 205	52.5	Very Good	92.6	46.2	Average	65.8		3,14,15,20,
TX13M5625	56.7	Very Good	100.0	35.2	Very Poor	50.1		16,
TX14A001112	47.9	Poor	84.5	45.2	Average	64.3		
TX14A001185	46.1	Poor	81.3	44.3	Average	63.0		
TX14A001249	39.9	Very Poor	70.5	33.0	Very Poor	47.0		8,10,20,
TX14A001035	54.1	Very Good	95.5	48.2	Good	68.5		
TX14A001215	48.8	Average	86.1	41.9	Poor	59.6		16,21,
TX14V70086	51.0	Good	90.0	46.3	Average	65.9		2,15,18,19,20,
TX14M7061	41.8	Very Poor	73.7	39.8	Poor	56.6		1,3,
TX14M7088	51.4	Good	90.8	40.7	Poor	57.9		16,
NF97117	29.0	Very Poor	51.1	41.1	Poor	58.5		1,4,6,8,10,
NE10478-1	51.6	Good	91.0	58.8	Very Good	83.7		
NHH144913-3	33.0	Very Poor	58.2	33.5	Very Poor	47.6		1,6,8,16,
NW15443	52.9	Very Good	93.4	32.0	Very Poor	45.5		5,14,15,
NE15624	47.6	Poor	84.0	58.8	Very Good	83.6		4,15,
H4N13-0253	51.6	Good	91.1	42.3	Average	60.2		16,21,
H4N13-0181	44.8	Very Poor	79.1	40.5	Poor	57.7		2,
Scout 66	56.2	Very Good	99.2	62.1	Very Good	88.4		
TAM 107	47.8	Poor	84.3	61.2	Very Good	87.0	1AL	16,

2018 SRPN Intraregional Production Zone

Northern High Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	59.4	14.3	0.5	28.3	10.2	2.39	0.33	42	17	MIXED	27-33-26-14-03
Jagalene	60.4	13.4	0.3	29.7	10.3	2.57	0.41	71	18	HARD	03-05-16-76-01
KS13HW92-3	59.2	14.8	0.4	32.7	10.8	2.53	0.37	70	16	HARD	02-06-18-74-01
KS14HW106-6-6	60.6	14.6	0.4	32.6	10.8	2.60	0.41	62	16	HARD	04-12-28-56-01
KS14H180-4-6	60.7	15.0	0.4	31.4	11.0	2.52	0.40	67	19	HARD	03-11-21-65-01
KS15H79-4	60.2	14.9	0.5	31.7	10.5	2.59	0.43	75	19	HARD	03-02-14-81-01
KS15H116-6	59.0	15.1	0.6	35.0	12.2	2.59	0.47	70	16	HARD	01-06-19-74-01
CO12D1770	60.2	14.4	0.4	28.3	10.2	2.42	0.39	63	19	HARD	06-12-24-58-01
CO13D1783	59.1	14.4	0.4	29.5	10.3	2.49	0.40	69	17	HARD	03-06-17-74-01
CO13D1299	60.1	14.3	0.3	32.1	9.4	2.59	0.36	77	15	HARD	00-02-10-88-01
CO13D1383	58.9	14.3	0.4	30.5	10.1	2.50	0.40	67	17	HARD	03-08-23-66-01
CO13D1479	59.1	13.6	0.4	28.7	8.5	2.56	0.38	63	17	HARD	04-12-26-58-01
OK12716	59.0	13.9	0.4	31.4	10.6	2.58	0.42	59	17	HARD	07-14-29-50-01
OK12D22004-016	61.5	13.4	0.4	32.8	10.4	2.68	0.41	62	17	HARD	05-13-24-58-01
OCW05S616T-2	59.7	13.8	0.4	31.2	10.2	2.65	0.37	56	17	HARD	08-19-29-44-01
OCW04S717T-6W	58.8	14.1	0.4	32.5	9.2	2.67	0.38	83	15	HARD	01-01-04-94-01
OK12206-127206-2	58.1	14.6	0.4	29.9	9.8	2.48	0.37	66	18	HARD	03-12-21-64-01
AP-17CP020067	60.3	14.4	0.5	30.1	10.4	2.47	0.42	67	17	HARD	03-07-22-68-01
AP-17CP020068	58.5	14.0	0.4	32.5	9.3	2.68	0.34	67	17	HARD	03-09-22-66-01
AP-17CP020073	60.1	14.5	0.4	35.1	10.1	2.76	0.36	67	16	HARD	02-09-18-71-01
AP-17CP020081	58.8	14.6	0.4	28.9	9.3	2.57	0.37	66	17	HARD	03-08-21-68-01
AP-17CP020086	58.7	14.6	0.4	29.5	10.6	2.51	0.39	75	16	HARD	01-03-14-82-01
LCH14-52	59.8	14.6	0.5	32.1	10.9	2.53	0.41	74	18	HARD	02-03-13-82-01
LCH14-61	58.6	14.3	0.6	33.5	10.9	2.58	0.36	72	17	HARD	01-04-14-81-01
LCH14DH-21-1781	60.9	13.5	0.3	30.1	8.9	2.55	0.37	57	17	HARD	05-20-33-42-01
DH11HRW-51-9	57.1	14.1	0.4	29.4	10.0	2.55	0.41	65	18	HARD	04-09-24-63-01
DH11HRW-27-3	60.5	14.2	0.4	27.4	8.3	2.46	0.32	79	18	HARD	02-02-10-86-01
KS080099M-3	60.8	14.0	0.3	29.5	9.2	2.58	0.38	59	18	HARD	06-15-30-49-01
KS080093K-18	58.6	13.9	0.4	32.9	9.6	2.66	0.38	74	17	HARD	01-06-13-80-01
KS090049K-8	59.0	13.6	0.4	27.4	9.3	2.49	0.38	71	18	HARD	02-07-17-74-01
KS090387K-20	60.0	14.2	0.4	30.0	8.7	2.51	0.37	55	16	HARD	07-26-27-40-01
TX12V7415	62.0	13.5	0.4	34.9	11.6	2.68	0.39	66	19	HARD	04-11-20-65-01
TX13M5625	60.1	13.0	0.3	33.6	8.3	2.74	0.35	63	15	HARD	03-10-28-59-01
TX14A001112	59.5	13.4	0.3	30.8	10.2	2.57	0.36	67	17	HARD	02-08-21-69-01
TX14A001185	59.3	13.4	0.4	30.5	10.1	2.59	0.38	72	16	HARD	02-04-15-79-01
TX14A001249	60.0	13.8	0.4	29.7	9.5	2.51	0.40	75	19	HARD	02-06-11-81-01
TX14A001035	60.6	14.2	0.4	30.4	9.0	2.55	0.37	65	17	HARD	02-12-24-62-01
TX14A001215	59.5	14.6	0.4	33.4	10.5	2.67	0.33	65	17	HARD	04-09-20-67-01
TX14V70086	59.6	14.9	0.4	26.7	9.0	2.42	0.35	70	19	HARD	02-09-20-69-01
TX14M7061	57.7	14.4	0.5	29.2	11.8	2.41	0.38	60	18	HARD	07-15-24-54-01
TX14M7088	60.2	14.1	0.4	34.7	9.7	2.70	0.39	66	17	HARD	03-12-22-63-01
NF97117	56.9	14.2	0.5	27.6	8.3	2.40	0.36	32	19	SOFT	55-27-11-07-04
NE10478-1	60.4	13.9	0.4	32.3	8.7	2.62	0.37	69	19	HARD	03-09-20-68-01
NHH144913-3	56.3	14.4	0.5	28.9	9.5	2.42	0.36	28	16	SOFT	64-23-08-05-05
NW15443	58.3	14.3	0.5	36.0	10.3	2.73	0.44	59	17	HARD	07-16-30-47-01

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
NE15624	59.4	14.0	0.4	27.6	9.0	2.40	0.39	65	18	HARD	04-10-26-60-01
H3N13-0253	59.6	14.0	0.4	29.7	8.8	2.42	0.37	51	16	MIXED	14-24-31-31-03
H4N13-0181	58.1	14.1	0.5	26.4	8.7	2.44	0.36	81	18	HARD	00-02-09-89-01
Scout 66	60.2	14.2	0.5	33.6	10.1	2.63	0.36	59	15	HARD	05-13-31-51-01
TAM107	59.1	14.1	0.5	32.3	9.9	2.59	0.41	63	19	HARD	08-11-20-61-01

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	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	14.7	62.1	0.39	12.8	0.454	78.27	-1.61	24.55	-8.19	1.37	0.68
Jagalene	13.8	67.1	0.43	12.4	0.452	78.40	-1.40	25.82	-7.89	1.58	0.01
KS13HW92-3	13.5	66.1	0.40	12.0	0.209	80.59	-2.06	24.84	-6.38	1.18	2.89
KS14HW106-6-6	12.9	68.7	0.35	11.5	0.541	79.75	-1.38	22.53	-8.10	1.55	2.40
KS14H180-4-6	12.1	68.2	0.37	10.3	0.545	80.61	-1.98	24.38	-7.05	1.29	1.03
KS15H79-4	12.3	65.3	0.41	10.7	0.534	79.28	-1.62	23.74	-9.79	1.51	1.01
KS15H116-6	13.2	66.7	0.38	11.9	0.532	79.37	-1.34	23.91	-10.12	1.68	2.48
CO12D1770	12.3	69.7	0.32	10.9	0.460	79.47	-1.77	24.70	-7.41	1.37	1.54
CO13D1783	12.1	66.8	0.37	10.6	0.489	80.48	-1.84	25.24	-9.95	1.85	2.09
CO13D1299	12.6	66.3	0.39	11.1	0.187	81.11	-1.91	23.65	-6.95	1.09	3.38
CO13D1383	11.8	67.4	0.39	10.0	0.196	80.39	-2.09	25.20	-6.09	1.20	1.86
CO13D1479	12.2	65.7	0.44	10.4	0.322	80.91	-2.22	25.40	-8.87	1.56	0.78
OK12716	12.6	67.6	0.40	11.1	0.468	79.54	-1.77	24.51	-8.54	1.72	1.64
OK12D22004-016	12.8	67.2	0.36	11.1	0.148	79.88	-1.60	24.00	-7.06	1.19	2.29
OCW05S616T-2	12.9	67.0	0.39	11.7	0.417	80.29	-1.83	23.28	-8.51	1.30	1.21
OCW04S717T-6W	14.3	63.3	0.47	12.5	0.421	78.88	-1.24	24.79	-8.91	1.85	1.93
OK12206-127206-2	12.7	66.3	0.43	11.6	0.169	80.60	-1.44	23.62	-6.04	1.24	2.62
AP-17CP020067	13.0	66.4	0.40	11.5	0.587	79.82	-1.64	25.22	-10.27	1.65	1.19
AP-17CP020068	13.0	65.1	0.38	11.2	0.518	79.04	-1.42	24.20	-8.58	1.69	1.71
AP-17CP020073	12.8	65.3	0.39	11.1	0.175	79.61	-1.30	24.03	-5.94	1.18	2.00
AP-17CP020081	13.3	66.8	0.40	11.7	0.486	79.53	-1.50	23.90	-7.19	1.58	0.96
AP-17CP020086	13.0	67.8	0.42	11.2	0.397	78.51	-1.62	26.61	-6.99	1.63	0.32
LCH14-52	13.4	65.2	0.44	11.6	0.451	78.75	-1.35	25.01	-8.56	1.77	1.17
LCH14-61	13.4	67.0	0.45	11.7	0.455	81.06	-1.79	23.27	-10.81	1.50	2.28
LCH14DH-21-1781	13.9	66.8	0.39	12.4	0.482	78.46	-1.09	24.09	-8.63	1.69	1.37
DH11HRW-51-9	12.7	66.5	0.42	11.2	0.528	78.85	-1.59	24.97	-9.37	1.79	0.65
DH11HRW-27-3	13.3	67.0	0.40	11.3	0.417	78.31	-1.24	24.19	-7.46	1.48	1.02
KS080099M-3	13.1	67.6	0.41	11.7	0.544	80.16	-2.25	26.74	-8.87	1.47	1.23
KS080093K-18	13.8	65.3	0.44	11.8	0.170	78.19	-1.02	24.91	-7.71	1.37	2.84
KS090049K-8	13.2	65.8	0.45	11.7	0.395	78.58	-1.50	25.68	-8.12	1.59	2.80
KS090387K-20	14.1	66.7	0.37	12.7	0.535	79.53	-1.61	24.52	-9.10	1.63	0.60
TX12V7415	13.5	68.0	0.41	11.7	0.579	80.67	-1.85	23.14	-10.33	1.38	3.22
TX13M5625	14.3	67.5	0.38	12.8	0.411	78.52	-1.14	23.38	-8.35	1.59	1.29
TX14A001112	13.0	65.7	0.41	11.3	0.426	79.33	-1.22	23.38	-9.54	1.49	2.93
TX14A001185	13.8	64.2	0.41	12.0	0.479	78.74	-1.13	24.05	-8.40	1.81	1.80
TX14A001249	13.4	61.5	0.43	11.4	0.518	79.12	-1.40	24.67	-8.63	1.67	1.97
TX14A001035	13.2	68.1	0.39	11.4	0.389	79.12	-1.25	22.50	-9.47	1.45	1.33
TX14A001215	14.3	65.6	0.42	12.7	0.535	78.95	-1.41	23.49	-9.18	1.69	0.13
TX14V70086	12.7	68.6	0.41	11.1	0.438	79.47	-1.87	25.43	-7.08	1.36	1.72
TX14M7061	13.1	66.1	0.41	11.7	0.390	78.96	-1.22	26.91	-7.76	0.75	2.49
TX14M7088	13.0	66.5	0.41	11.4	0.409	78.70	-1.55	24.46	-9.03	1.62	1.18
NF97117	13.2	55.8	0.35	11.4	0.411	80.52	-1.76	23.73	-8.29	1.25	1.06

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
NE10478-1	13.2	66.9	0.41	11.6	0.490	79.69	-1.02	21.39	-9.07	1.26	2.60
NHH144913-3	13.0	60.9	0.35	11.2	0.585	80.51	-2.02	24.27	-7.59	1.19	2.91
NW15443	12.9	69.3	0.43	11.2	0.239	80.69	-1.67	23.83	-7.88	1.28	3.42
NE15624	13.4	67.4	0.43	11.9	0.450	79.94	-1.50	23.79	-7.94	1.37	3.02
H3N13-0253	12.3	68.6	0.38	10.9	0.458	80.83	-1.85	23.53	-8.00	1.25	2.09
H4N13-0181	12.9	64.6	0.43	11.2	0.422	78.02	-1.18	23.91	-9.76	1.74	2.03
Scout 66	13.8	68.8	0.38	12.3	0.547	79.93	-1.47	22.70	-8.80	1.43	1.72
TAM107	13.3	66.4	0.37	11.6	0.540	78.42	-1.63	25.34	-8.41	1.51	1.13

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		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	12.8	64.8	4.13	4.13	4
Jagalene	12.4	64.0	4.38	4.38	4
KS13HW92-3	12.0	64.9	4.63	4.61	4
KS14HW106-6-6	11.5	62.6	4.88	4.59	4
KS14H180-4-6	10.3	60.5	8.88	7.03	4
KS15H79-4	10.7	61.8	4.75	4.03	3
KS15H116-6	11.9	62.6	10.0	9.82	3
CO12D1770	10.9	61.1	6.88	5.98	4
CO13D1783	10.6	60.6	6.88	5.75	4
CO13D1299	11.1	61.4	10.8	9.54	4
CO13D1383	10.0	60.0	5.75	4.34	4
CO13D1479	10.4	60.3	8.13	6.61	5
OK12716	11.1	62.9	3.38	3.00	3
OK12D22004-016	11.1	63.0	4.00	3.59	4
OCW05S616T-2	11.7	62.9	3.88	3.72	4
OCW04S717T-6W	12.5	64.4	3.88	3.88	4
OK12206-127206-2	11.6	62.9	5.50	5.26	4
AP-17CP020067	11.5	60.7	4.25	4.02	2
AP-17CP020068	11.2	62.0	5.50	4.96	5
AP-17CP020073	11.1	62.0	3.50	3.13	4
AP-17CP020081	11.7	62.0	4.63	4.46	3
AP-17CP020086	11.2	62.1	4.13	3.73	4
LCH14-52	11.6	62.4	3.25	3.11	2
LCH14-61	11.7	62.9	3.13	3.01	2
LCH14DH-21-1781	12.4	64.5	4.50	4.50	3
DH11HRW-51-9	11.2	62.6	2.38	2.15	1
DH11HRW-27-3	11.3	62.8	4.25	3.91	3
KS080099M-3	11.7	63.4	4.50	4.33	4
KS080093K-18	11.8	63.6	3.75	3.66	4
KS090049K-8	11.7	63.4	3.50	3.36	4
KS090387K-20	12.7	64.8	4.50	4.50	3
TX12V7415	11.7	62.9	6.00	5.77	6
TX13M5625	12.8	63.8	2.50	2.50	0
TX14A001112	11.3	62.7	5.00	4.56	4
TX14A001185	12.0	63.9	4.00	3.99	4
TX14A001249	11.4	62.9	5.50	5.10	4
TX14A001035	11.4	64.1	3.63	3.39	4
TX14A001215	12.7	65.1	3.38	3.38	2
TX14V70086	11.1	62.9	5.88	5.22	5
TX14M7061	11.7	63.4	4.63	4.45	4
TX14M7088	11.4	62.9	3.13	2.90	2
NF97117	11.4	63.0	3.13	2.92	3

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
NE10478-1	11.6	62.3	4.00	3.79	4
NHH144913-3	11.2	62.0	2.88	2.59	2
NW15443	11.2	62.7	5.75	5.23	5
NE15624	11.9	63.7	5.63	5.56	5
H3N13-0253	10.9	61.6	3.38	2.92	2
H4N13-0181	11.2	62.6	4.50	4.05	3
Scout 66	12.3	64.4	3.00	3.00	3
TAM107	11.6	63.2	3.63	3.45	2

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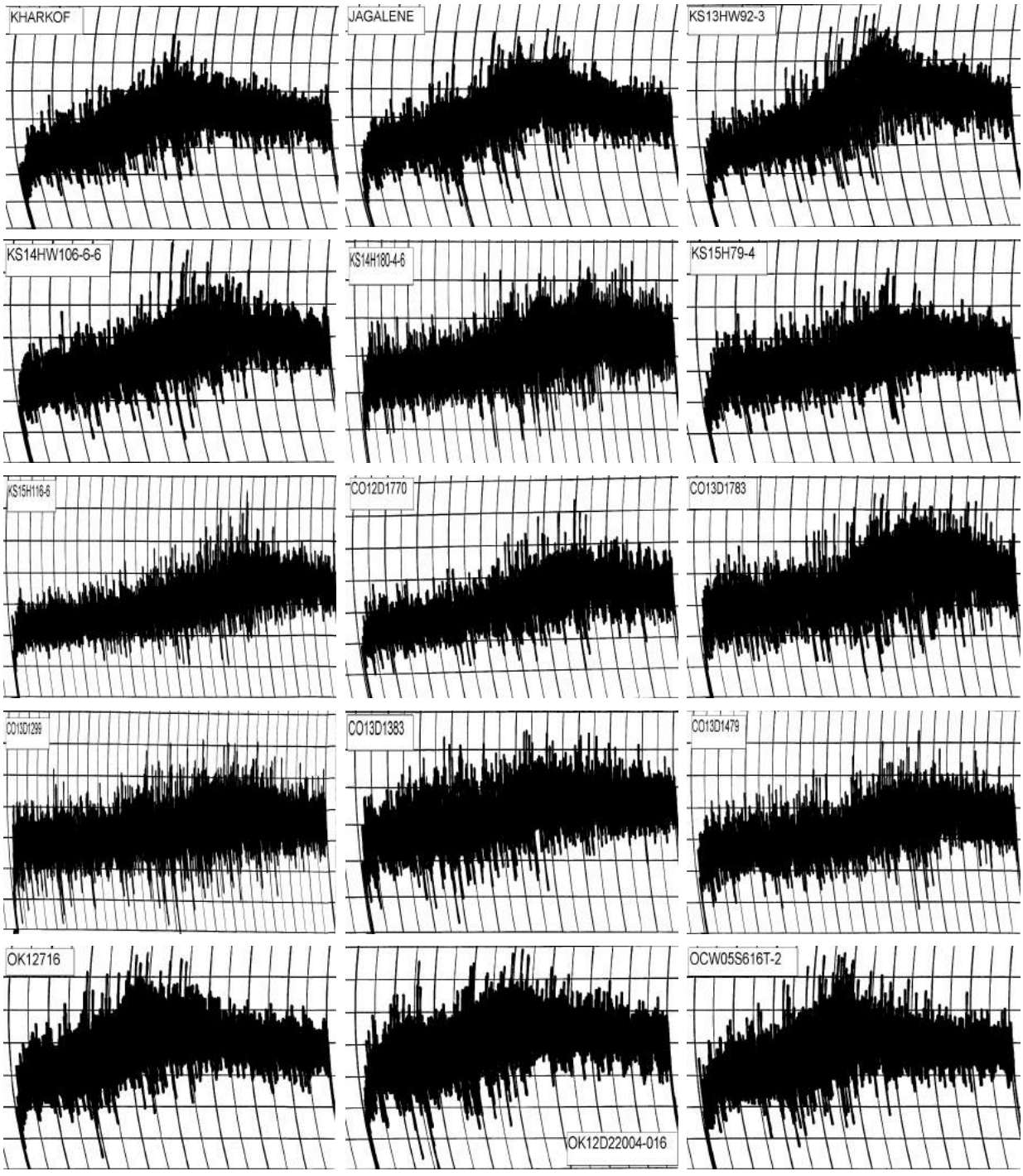
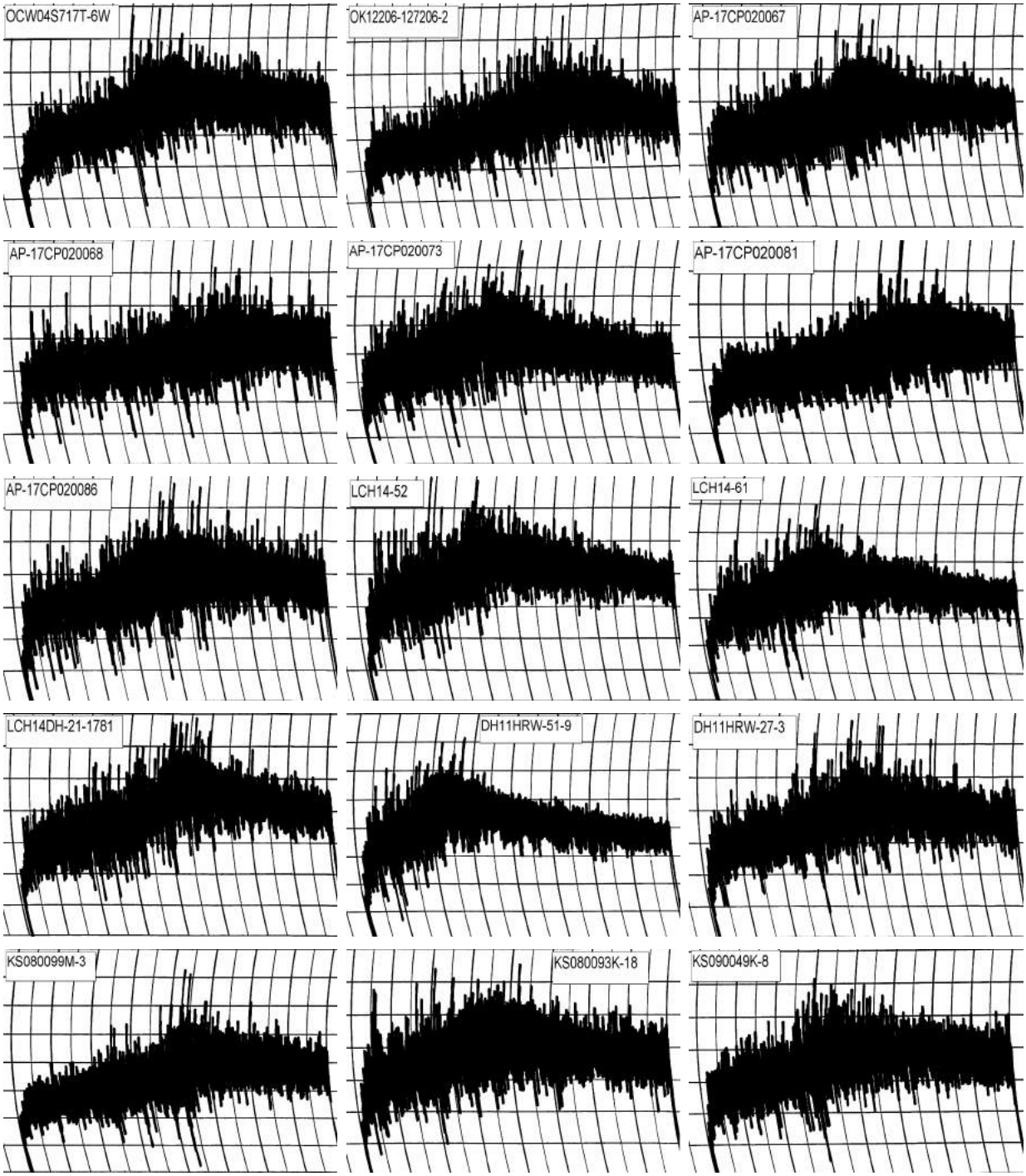
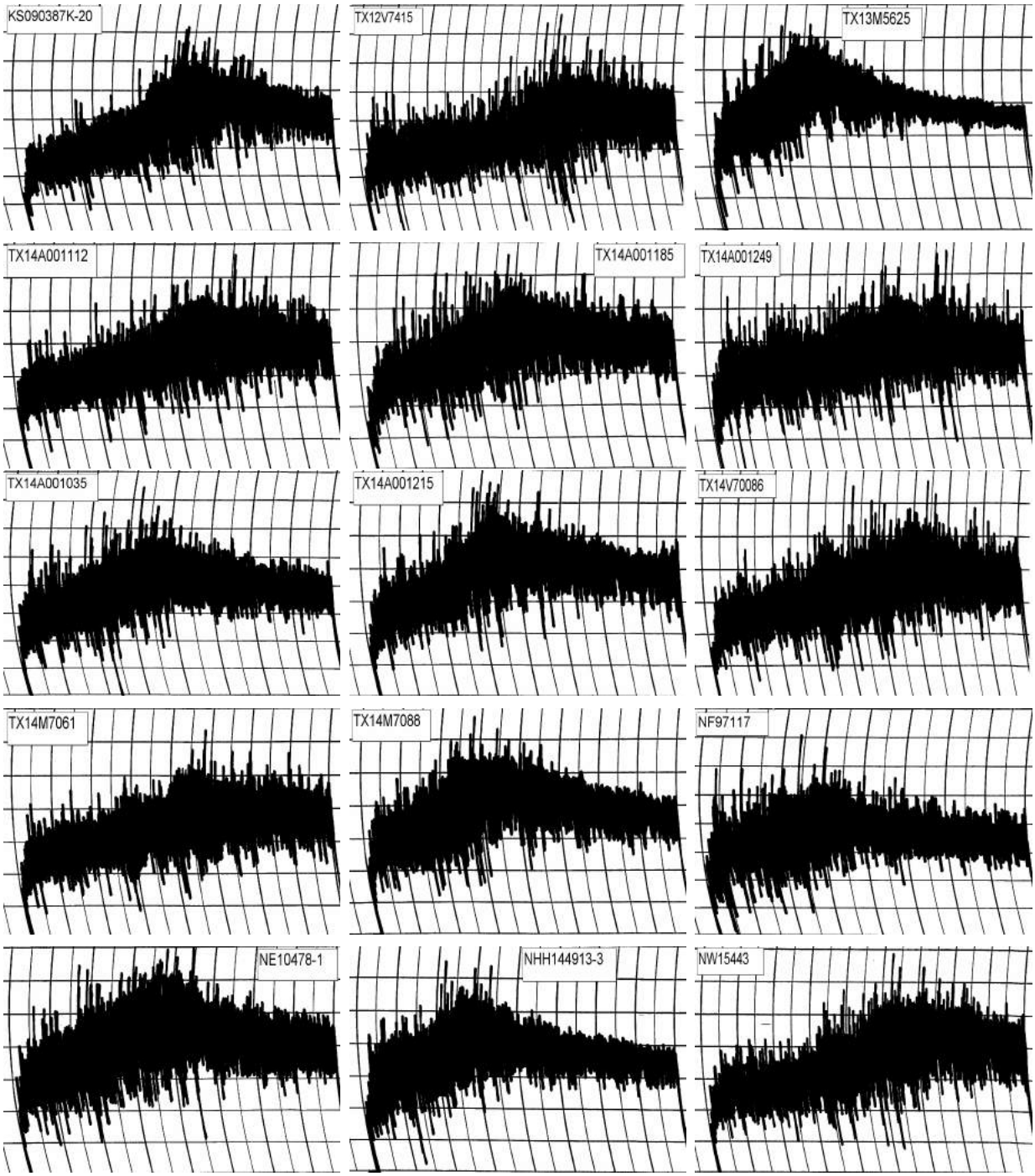


2018 SRPN Intraregional Production Zone
Northern High Plains



2018 SRPN Intraregional Production Zone
Northern High Plains



2018 SRPN Intraregional Production Zone
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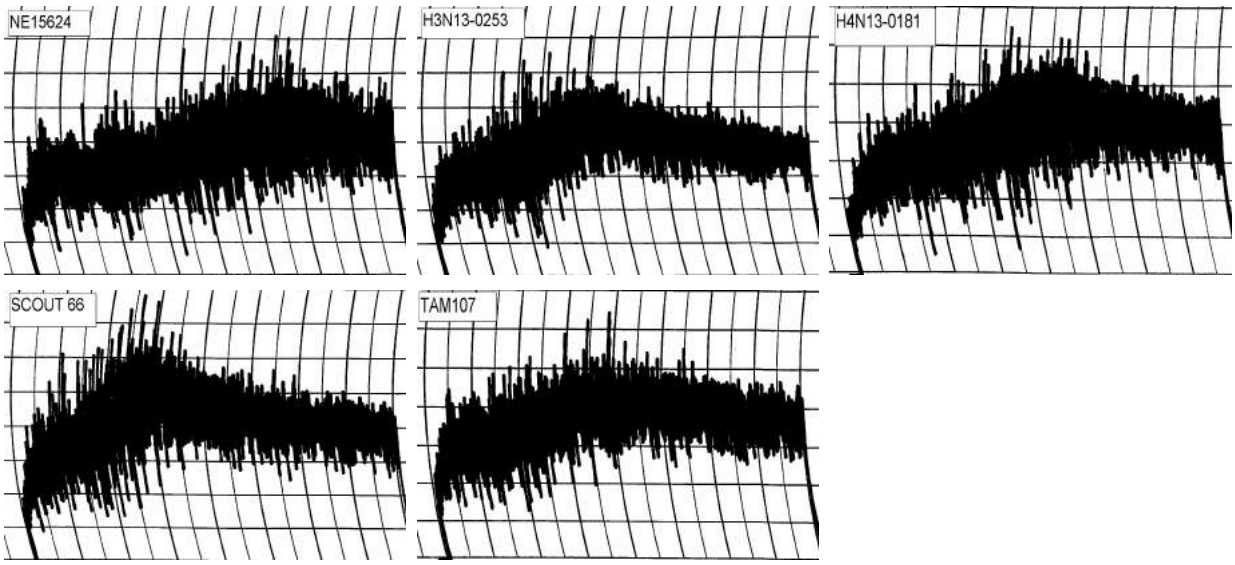

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	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	153.42	252.58	183.58	69.00	291.08	107.50	6.40
Jagalene	125.17	227.42	150.58	76.83	266.25	115.67	6.07
KS13HW92-3	116.92	287.92	188.42	99.50	286.42	98.00	6.47
KS14HW106-6-6	112.83	285.08	166.83	118.25	258.08	91.25	6.20
KS14H180-4-6	123.00	273.08	177.92	95.17	293.42	115.50	6.20
KS15H79-4	107.17	293.08	185.42	107.67	281.83	96.42	6.33
KS15H116-6	135.92	277.25	165.42	111.83	253.17	87.75	6.27
CO12D1770	110.33	274.17	186.33	87.83	302.42	116.08	6.27
CO13D1783	131.42	263.33	181.08	82.25	304.08	123.00	6.27
CO13D1299	152.08	253.92	189.92	64.00	304.83	114.92	6.47
CO13D1383	147.58	242.08	167.17	74.92	283.92	116.75	6.20
CO13D1479	113.42	239.75	161.67	78.08	271.08	109.42	6.20
OK12716	93.92	201.92	120.83	81.08	216.67	95.83	6.00
OK12D22004-016	141.83	262.17	191.92	70.25	306.33	114.42	6.40
OCW05S616T-2	131.00	276.42	195.67	80.75	319.25	123.58	6.33
OCW04S717T-6W	121.50	212.92	156.42	56.50	253.83	97.42	6.33
OK12206-127206-2	89.92	226.33	153.67	72.67	261.83	108.17	6.20
AP-17CP020067	103.50	181.08	103.50	77.58	189.50	86.00	5.93
AP-17CP020068	142.58	267.75	190.42	77.33	305.83	115.42	6.33
AP-17CP020073	111.42	275.08	195.00	80.08	314.00	119.00	6.33
AP-17CP020081	103.00	243.67	160.50	83.17	260.08	99.58	6.27
AP-17CP020086	131.42	236.83	161.67	75.17	269.33	107.67	6.33
LCH14-52	115.58	247.25	167.00	80.25	272.08	105.08	6.27
LCH14-61	116.42	243.50	164.25	79.25	272.25	108.00	6.27
LCH14DH-21-1781	139.58	265.42	192.67	72.75	305.92	113.25	6.40
DH11HRW-51-9	115.58	218.75	147.08	71.67	252.58	105.50	6.20
DH11HRW-27-3	125.25	237.25	166.08	71.17	275.42	109.33	6.33
KS080099M-3	117.33	257.92	167.17	90.75	266.50	99.33	6.27
KS080093K-18	126.83	239.58	166.67	72.92	277.75	111.08	6.33
KS090049K-8	96.00	230.08	146.08	84.00	255.42	109.33	6.13
KS090387K-20	110.92	237.00	153.25	83.75	261.17	107.92	6.13
TX12V7415	73.75	113.25	39.67	73.58	88.00	48.33	5.27
TX13M5625	140.00	234.00	158.75	75.25	257.92	99.17	6.33
TX14A001112	104.42	269.08	157.67	111.42	249.42	91.75	6.20
TX14A001185	120.25	232.75	134.17	98.58	217.08	82.92	6.13
TX14A001249	129.25	235.00	156.33	78.67	259.42	103.08	6.27
TX14A001035	121.08	231.42	158.42	73.00	275.75	117.33	6.20
TX14A001215	134.50	273.25	185.58	87.67	285.25	99.67	6.40
TX14V70086	125.17	244.25	159.08	85.17	273.33	114.25	6.20
TX14M7061	144.50	246.92	172.92	74.00	286.33	113.42	6.40
TX14M7088	134.42	236.83	165.92	70.92	280.75	114.83	6.27
NF97117	112.33	212.58	120.58	92.00	213.42	92.83	6.00
NE10478-1	127.83	213.83	146.17	67.67	259.00	112.83	6.13
NHH144913-3	141.50	249.75	163.58	86.17	275.42	111.83	6.20
NW15443	96.33	181.17	107.67	73.50	199.42	91.75	5.93

	RVA						
	Stirring Number	Peak Viscosity	Trough Viscosity	Breakdown	Final Viscosity	Set back	Peak Time
Line	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(min)
NE15624	120.25	251.17	173.08	78.08	291.58	118.50	6.27
H3N13-0253	107.58	246.08	163.08	83.00	279.42	116.33	6.13
H4N13-0181	107.17	220.33	145.17	75.17	255.00	109.83	6.13
Scout 66	115.67	239.50	161.92	77.58	274.33	112.42	6.20
TAM107	122.92	273.92	190.25	83.67	303.58	113.33	6.33

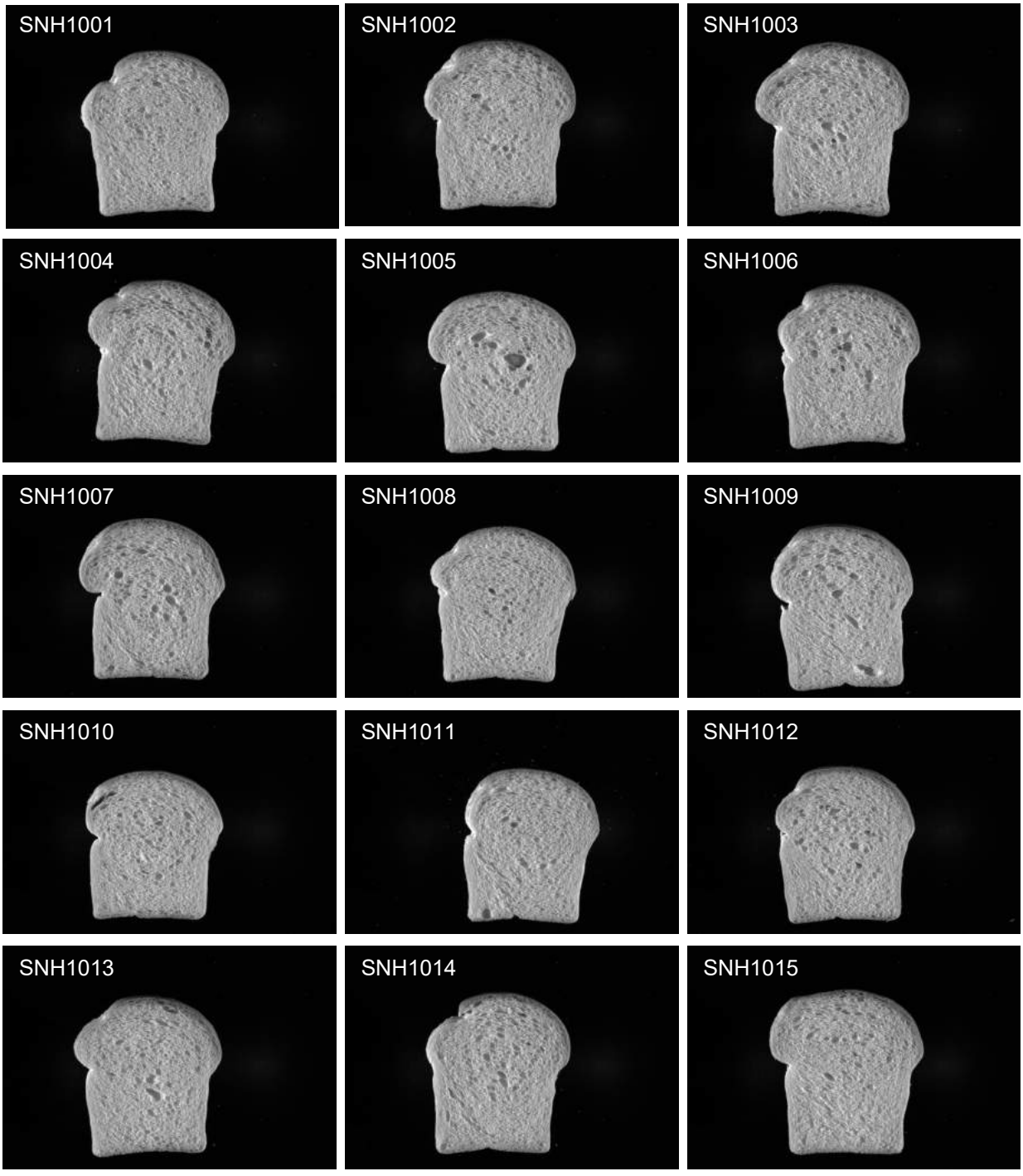
2018 SRPN Intraregional Production Zone

Northern High Plains

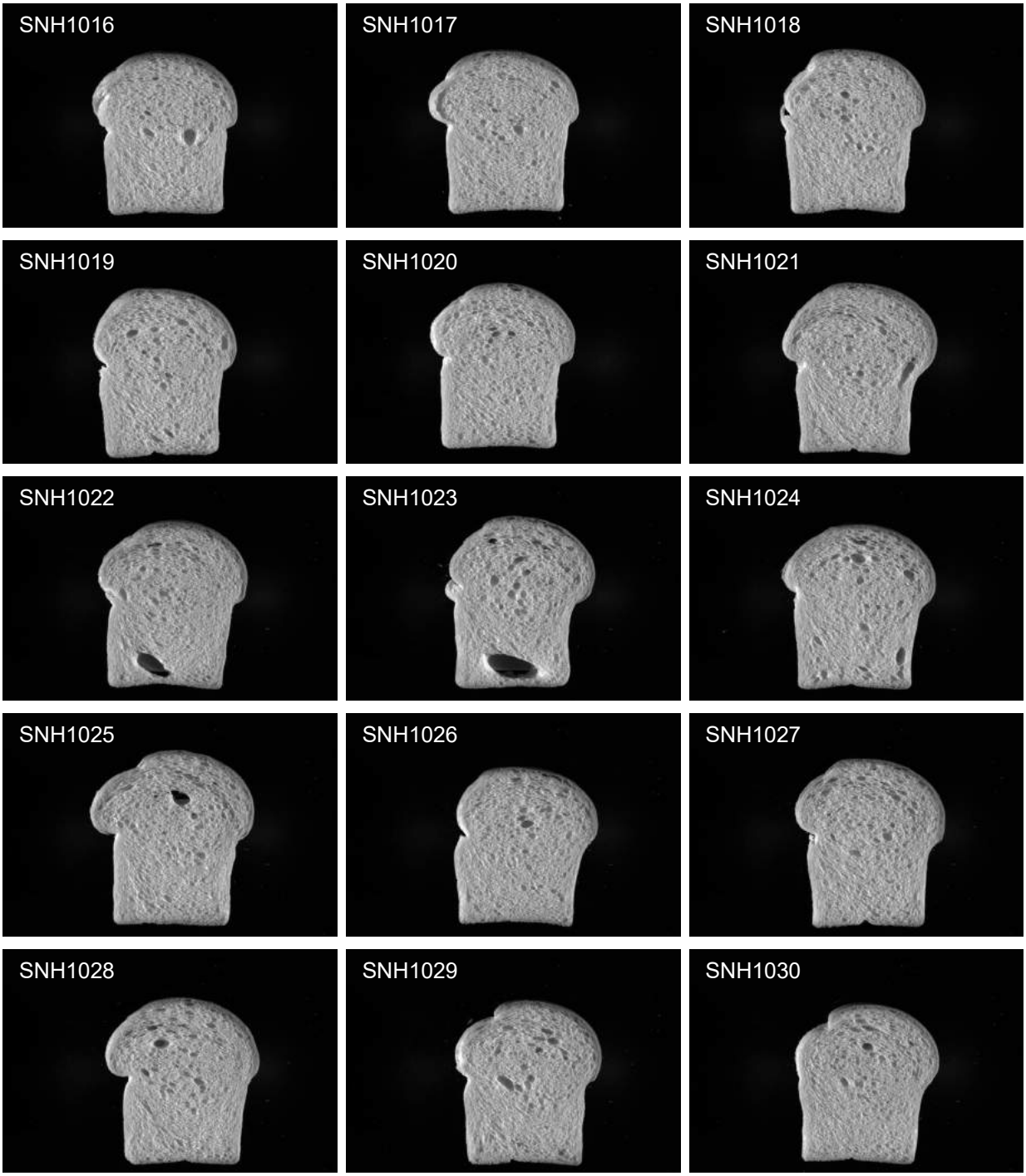
	Flour		Mix Time		Dough					
Line	Protein (%)	Water Abs. (%)	As-is (min)	Corrected (min)	Weight (g)	Proof Height (cm)	Crumb Grain	As-Rec'd. (cc)	Specific Volume (cc/g)	Loaf Volume Potential (cc/%)
Kharkof	12.8	63.2	4.75	4.75	172.7	7.8	4.5	970	6.4	68
Jagalene	12.4	63.3	5.25	5.25	173.1	7.8	3.5	1015	6.8	76
KS13HW92-3	12.0	64.8	5.38	5.35	174.9	7.8	3.5	1055	7.1	84
KS14HW106-6-6	11.5	62.5	5.25	4.94	171.7	7.2	3.0	955	6.5	77
KS14H180-4-6	10.3	60.9	9.75	7.71	169.9	7.0	4.0	855	5.8	75
KS15H79-4	10.7	62.7	5.13	4.35	172.4	7.4	3.5	950	6.4	83
KS15H116-6	11.9	62.8	9.75	9.57	171.8	7.1	2.5	920	6.2	70
CO12D1770	10.9	61.2	8.75	7.61	170.3	7.0	3.0	810	5.5	64
CO13D1783	10.6	60.5	8.88	7.42	169.9	7.5	3.5	940	6.3	83
CO13D1299	11.1	61.5	11.75	10.42	170.3	6.9	3.5	810	5.4	63
CO13D1383	10.0	59.5	6.38	4.81	168.5	7.2	3.5	830	5.6	75
CO13D1479	10.4	60.5	10.00	8.13	169.7	7.2	3.0	835	5.7	71
OK12716	11.1	62.6	4.63	4.11	172.2	7.3	3.5	900	6.0	74
OK12D22004-016	11.1	64.5	5.13	4.60	174.3	7.5	4.0	935	6.2	78
OCW05S616T-2	11.7	63.4	5.75	5.52	173.4	7.8	4.5	980	6.6	78
OCW04S717T-6W	12.5	64.2	5.00	5.00	173.5	7.3	4.0	930	6.1	66
OK12206-127206-2	11.6	62.9	6.38	6.10	172.9	7.7	4.0	925	6.2	72
AP-17CP020067	11.5	60.9	5.25	4.96	170.3	7.4	4.0	935	6.3	74
AP-17CP020068	11.2	62.4	6.13	5.53	171.7	7.3	3.5	940	6.3	78
AP-17CP020073	11.1	63.8	4.00	3.58	174.2	7.3	4.0	975	6.4	83
AP-17CP020081	11.7	62.2	5.25	5.06	171.8	7.7	5.5	975	6.5	77
AP-17CP020086	11.2	62.3	5.25	4.75	171.5	7.3	4.0	955	6.4	80
LCH14-52	11.6	61.9	3.88	3.71	171.6	7.5	3.5	960	6.5	76
LCH14-61	11.7	62.5	3.25	3.12	172.6	7.1	3.0	935	6.3	73
LCH14DH-21-1781	12.4	63.9	5.50	5.50	173.3	7.8	5.0	1055	7.1	81
DH11HRW-51-9	11.2	60.4	3.00	2.70	170.5	7.5	3.0	900	6.1	73
DH11HRW-27-3	11.3	62.5	4.50	4.14	171.8	7.3	3.5	955	6.5	78
KS080099M-3	11.7	62.5	5.75	5.54	171.7	7.4	4.0	945	6.4	74
KS080093K-18	11.8	63.5	4.63	4.51	172.7	7.3	3.5	950	6.4	74
KS090049K-8	11.7	63.4	5.75	5.52	172.5	7.1	4.0	910	6.1	70
KS090387K-20	12.7	63.8	4.63	4.63	171.7	7.4	4.5	1015	6.8	74
TX12V7415	11.7	63.4	7.75	7.45	172.5	7.1	4.0	865	5.8	65
TX13M5625	12.8	62.8	2.75	2.75	173.0	7.6	2.5	960	6.4	67
TX14A001112	11.3	62.8	7.38	6.72	172.7	7.4	3.0	920	6.2	75
TX14A001185	12.0	63.9	4.50	4.49	173.7	7.1	3.5	925	6.2	70
TX14A001249	11.4	65.3	6.88	6.38	174.8	7.1	2.5	850	5.6	65
TX14A001035	11.4	64.9	4.50	4.20	174.4	7.7	4.5	975	6.5	80
TX14A001215	12.7	63.9	3.75	3.75	173.7	7.5	1.5	960	6.5	68
TX14V70086	11.1	64.9	7.13	6.33	173.8	6.8	4.0	835	5.6	66
TX14M7061	11.7	62.4	6.00	5.76	171.7	7.5	3.5	915	6.2	71
TX14M7088	11.4	63.4	4.00	3.71	173.0	7.5	3.5	950	6.5	77
NF97117	11.4	64.9	4.00	3.73	175.1	7.4	4.5	915	6.0	73
NE10478-1	11.6	63.4	4.75	4.50	173.2	7.4	4.0	910	6.1	71
NHH144913-3	11.2	62.4	3.63	3.26	171.8	7.0	2.5	880	5.9	71

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
NW15443	11.2	63.5	8.50	7.72	172.9	7.4	4.5	910	6.0	74
NE15624	11.9	64.4	7.38	7.28	176.1	7.3	5.0	960	6.3	74
H3N13-0253	10.9	62.5	4.00	3.45	172.2	7.2	2.0	910	6.0	77
H4N13-0181	11.2	62.8	4.75	4.27	173.1	7.4	3.5	895	5.9	73
Scout 66	12.3	63.5	3.63	3.63	173.7	7.7	5.0	970	6.3	72
TAM107	11.6	61.4	4.13	3.93	171.3	7.1	5.0	970	6.5	78

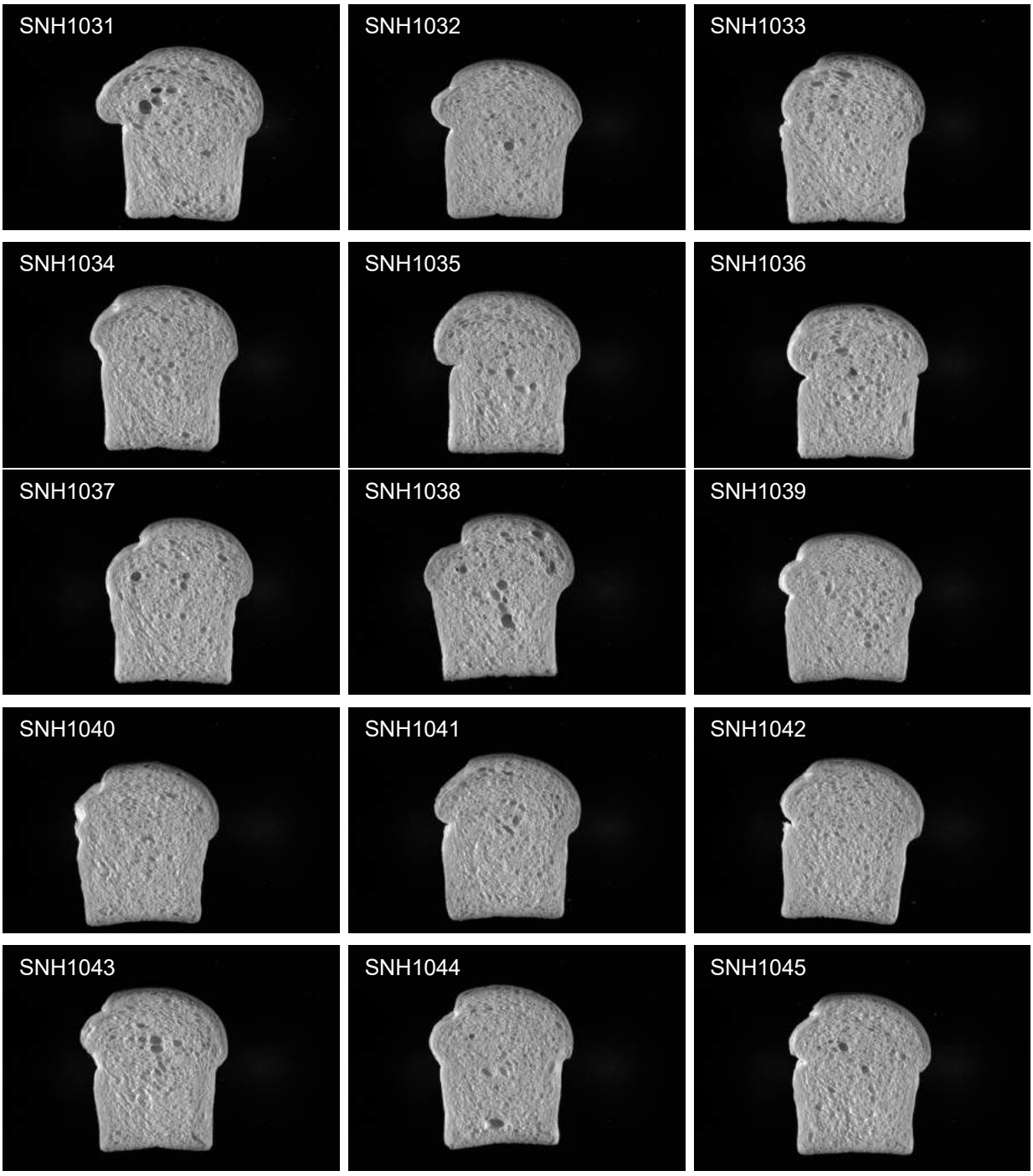
2018 SRPN Intraregional Production Zone
Northern High Plains



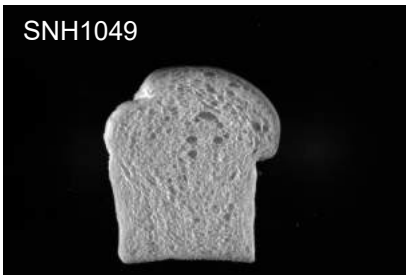
2018 SRPN Intraregional Production Zone
Northern High Plains



2018 SRPN Intraregional Production Zone
Northern High Plains



2018 SRPN Intraregional Production Zone
Northern High Plains



Hard Winter Wheat Quality Report

2018 SRPN-SCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	34.4	Very Poor	63.3	46.5	Average	69.7		8,10,20,
Jagalene	48.5	Good	89.1	43.2	Poor	64.7		
KS Venada	48.4	Good	89.0	66.8	Very Good	100.0		
KS14HW106-6-6	50.6	Very Good	93.0	55.9	Good	83.7		3,15,
KS14H180-4-6	46.7	Average	85.9	43.8	Poor	65.6		5,11,13,14,15,17,18,
KS15H79-4	44.0	Poor	81.0	44.6	Poor	66.8		10,
KS15H116-6	49.9	Very Good	91.8	39.0	Very Poor	58.4		3,13,14,15,18,
Canvas	52.8	Very Good	97.1	47.7	Average	71.5		15,
Whistler	43.8	Poor	80.6	35.8	Very Poor	53.6		1,14,15,
Snowmass 2.0	48.9	Good	90.0	46.6	Average	69.7		14,15,
Monarch	39.9	Very Poor	73.4	33.7	Very Poor	50.5		11,13,15,
CO13D1479	43.4	Very Poor	79.8	28.0	Very Poor	41.9		2,9,10,11,12,13,14,15,17,
Showdown	50.7	Very Good	93.3	64.9	Very Good	97.2		
OK12D22004-016	54.4	Very Good	100.0	56.3	Good	84.3		15,
OCW05S616T-2	48.5	Good	89.2	46.3	Average	69.3		
OCW04S717T-6W	44.4	Poor	81.7	54.4	Good	81.4		6,9,10,
OK12206-127206-2	47.3	Average	87.0	39.6	Poor	59.3		15,
AP-17CP020067	52.2	Very Good	96.0	49.8	Good	74.6		13,
AP-17CP020068	46.8	Average	86.2	32.9	Very Poor	49.2		12,15,17,
AP-17CP020073	49.7	Good	91.4	50.9	Good	76.3		
AP-17CP020081	49.9	Good	91.7	55.4	Good	82.9		15,
AP-17CP020086	51.5	Very Good	94.7	40.3	Poor	60.4		18,
LCH14-52	43.1	Very Poor	79.3	38.7	Very Poor	58.0		16,
LCH14-61	47.9	Good	88.1	46.9	Average	70.2		12,16,17,
LCH14DH-21-1781	44.3	Poor	81.5	42.5	Poor	63.7		15,
DH11HRW-51-9	39.7	Very Poor	73.0	42.3	Poor	63.3		1,16,19,
DH11HRW-27-3	49.8	Good	91.6	61.2	Very Good	91.6		2,
KS080099M-3	46.0	Average	84.6	38.3	Very Poor	57.4		15,20,
KS080093K-18	46.4	Average	85.3	49.3	Good	73.8		10,
KS090049K-8	45.7	Average	84.1	45.7	Average	68.4		16,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 SRPN-SCP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
KS090387K-20	44.6	Poor	82.1	61.5	Very Good	92.1		
TAM 205	48.9	Good	90.0	58.6	Very Good	87.7		3,14,15,
TX13M5625	48.2	Good	88.7	37.0	Very Poor	55.4		16,20,
TX14A001112	45.9	Average	84.4	49.2	Good	73.7		14,15,
TX14A001185	47.1	Average	86.7	48.8	Average	73.0		
TX14A001249	42.5	Very Poor	78.1	47.3	Average	70.8		15,
TX14A001035	52.3	Very Good	96.2	63.2	Very Good	94.7		
TX14A001215	45.8	Average	84.3	61.8	Very Good	92.6		9,
TX14V70086	54.3	Very Good	99.9	46.2	Average	69.1		14,15,19,
TX14M7061	43.8	Poor	80.5	39.2	Very Poor	58.7		3,15,
TX14M7088	45.0	Poor	82.8	63.8	Very Good	95.5		5,
NF97117	28.4	Very Poor	52.2	45.9	Average	68.8		1,2,4,6,8,19,21,
NE10478-1	45.6	Poor	84.0	61.7	Very Good	92.5		
NHH144913-3	32.4	Very Poor	59.6	37.7	Very Poor	56.5		1,6,16,
NW15443	43.8	Poor	80.6	56.2	Good	84.1		1,5,14,15,
NE15624	39.9	Very Poor	73.4	66.4	Very Good	99.4		2,4,9,10,14,15,
H4N13-0253	44.4	Poor	81.6	40.9	Poor	61.2		2,4,16,
H4N13-0181	42.5	Very Poor	78.1	43.9	Poor	65.7		2,6,
Scout 66	50.3	Very Good	92.5	44.0	Poor	65.9		
TAM 107	47.1	Average	86.6	56.0	Good	83.8	1AL	16,

2018 SRPN Intraregional Production Zone

South Central Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	59.2	14.7	0.6	26.5	8.9	2.33	0.32	51	19	MIXED	17-26-28-29-03
Jagalene	59.9	14.3	0.5	29.8	9.9	2.55	0.36	75	21	HARD	03-07-13-77-01
KS13HW92-3	59.5	14.3	0.5	28.2	9.8	2.41	0.36	73	19	HARD	02-08-14-76-01
KS14HW106-6-6	60.3	14.4	0.5	30.9	11.6	2.53	0.39	63	19	HARD	06-14-24-56-01
KS14H180-4-6	59.8	14.5	0.7	28.3	10.3	2.42	0.42	69	23	HARD	05-11-20-64-01
KS15H79-4	59.5	13.6	0.4	29.1	9.5	2.54	0.38	68	19	HARD	02-11-20-67-01
KS15H116-6	59.2	14.5	0.5	36.4	12.4	2.65	0.39	70	17	HARD	02-06-20-72-01
CO12D1770	59.0	14.1	0.5	26.1	8.4	2.31	0.34	63	19	HARD	05-14-26-55-01
CO13D1783	57.0	14.0	0.5	25.7	9.2	2.32	0.34	72	19	HARD	03-09-14-74-01
CO13D1299	59.2	14.2	0.4	28.8	9.4	2.48	0.32	82	19	HARD	01-02-10-87-01
CO13D1383	57.7	14.2	0.5	28.2	10.9	2.40	0.36	74	23	HARD	05-08-14-73-01
CO13D1479	58.6	14.3	0.5	24.5	8.3	2.41	0.35	76	21	HARD	02-06-14-78-01
OK12716	59.4	14.1	0.4	27.7	8.9	2.47	0.35	73	19	HARD	01-08-17-74-01
OK12D22004-016	61.6	13.9	0.4	32.3	10.1	2.67	0.38	72	21	HARD	02-10-18-70-01
OCW05S616T-2	60.0	13.8	0.5	29.9	10.4	2.61	0.34	66	22	HARD	08-10-22-60-01
OCW04S717T-6W	59.2	13.8	0.6	28.6	10.4	2.48	0.37	87	20	HARD	01-03-07-89-01
OK12206-127206-2	58.8	13.7	0.4	27.3	8.8	2.45	0.36	69	21	HARD	06-07-20-67-01
AP-17CP020067	60.0	13.9	0.5	30.6	8.7	2.51	0.36	66	19	HARD	03-13-21-63-01
AP-17CP020068	58.8	13.6	0.4	31.7	9.4	2.65	0.37	69	21	HARD	04-13-16-67-01
AP-17CP020073	59.8	13.9	0.5	31.1	10.4	2.62	0.36	71	19	HARD	01-08-18-73-01
AP-17CP020081	59.1	14.5	0.4	28.5	9.0	2.53	0.33	69	19	HARD	03-10-20-67-01
AP-17CP020086	59.6	14.3	0.4	27.9	9.8	2.44	0.34	80	18	HARD	00-03-09-88-01
LCH14-52	59.3	14.5	0.4	29.8	10.6	2.46	0.37	78	20	HARD	01-05-11-83-01
LCH14-61	59.2	14.1	0.4	31.8	10.0	2.54	0.33	74	19	HARD	02-05-13-80-01
LCH14DH-21-1781	60.0	14.0	0.4	26.7	10.5	2.39	0.40	68	20	HARD	03-12-22-63-01
DH11HRW-51-9	57.2	14.2	0.5	27.8	9.5	2.47	0.37	71	23	HARD	04-10-20-66-01
DH11HRW-27-3	60.5	14.1	0.4	24.4	8.7	2.33	0.33	81	19	HARD	01-02-11-86-01
KS080099M-3	60.4	14.0	0.5	28.4	9.4	2.50	0.36	63	22	HARD	10-15-19-56-01
KS080093K-18	60.2	14.0	0.4	30.9	9.5	2.61	0.38	81	19	HARD	00-03-10-87-01
KS090049K-8	58.8	14.1	0.4	26.2	8.1	2.45	0.36	77	20	HARD	01-06-14-79-01
KS090387K-20	60.0	14.2	0.5	28.0	9.9	2.43	0.39	64	17	HARD	04-10-24-62-01
TX12V7415	60.6	14.1	0.4	33.1	11.5	2.61	0.36	73	20	HARD	02-07-17-74-01
TX13M5625	59.4	14.2	0.5	30.0	9.4	2.58	0.37	75	18	HARD	01-05-16-78-01
TX14A001112	59.9	14.4	0.5	29.1	10.6	2.49	0.39	71	19	HARD	02-09-19-70-01
TX14A001185	59.9	14.0	0.5	29.9	9.9	2.51	0.39	77	19	HARD	02-03-10-85-01
TX14A001249	60.1	14.3	0.5	29.0	10.6	2.45	0.39	81	20	HARD	01-04-10-85-01
TX14A001035	60.3	14.5	0.5	29.1	10.9	2.47	0.37	75	19	HARD	01-06-14-79-01
TX14A001215	58.4	14.5	0.4	28.8	9.6	2.48	0.34	77	18	HARD	02-02-13-83-01
TX14V70086	60.2	14.1	0.5	26.4	8.4	2.43	0.34	74	20	HARD	01-08-16-75-01
TX14M7061	58.7	14.3	0.5	29.0	11.4	2.42	0.38	61	20	HARD	09-14-25-52-01
TX14M7088	60.0	14.4	0.5	28.3	10.4	2.47	0.41	74	22	HARD	02-08-15-75-01
NF97117	56.9	14.4	0.5	24.7	8.4	2.26	0.35	38	20	MIXED	44-23-18-15-03
NE10478-1	59.3	14.0	0.5	29.3	11.1	2.47	0.36	75	21	HARD	03-07-11-79-01
NHH144913-3	55.0	14.4	0.5	27.2	9.9	2.39	0.38	35	20	MIXED	49-25-15-11-03
NW15443	57.5	14.1	0.5	28.7	9.8	2.47	0.43	66	20	HARD	05-12-21-62-01

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
NE15624	58.2	14.3	0.5	24.1	8.7	2.19	0.35	67	20	HARD	05-11-16-68-01
H3N13-0253	59.1	14.3	0.5	24.8	8.8	2.28	0.40	63	20	HARD	08-12-21-59-01
H4N13-0181	58.4	14.1	0.6	23.9	8.5	2.36	0.36	90	22	HARD	02-01-05-92-01
Scout 66	59.9	14.0	0.5	29.0	10.1	2.48	0.37	72	20	HARD	03-08-14-75-01
TAM107	58.7	13.9	0.4	28.7	10.1	2.48	0.36	69	21	HARD	04-12-18-66-01

2018 SRPN Intraregional Production Zone

South Central Plains

	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	15.6	61.2	0.42	13.6	0.621	78.58	-1.33	23.34	-8.26	1.11	-0.29
Jagalene	13.9	67.1	0.44	12.5	0.586	77.92	-1.34	25.29	-7.86	1.46	0.09
KS13HW92-3	14.1	66.9	0.40	12.6	0.259	80.24	-1.90	25.03	-6.56	1.12	2.87
KS14HW106-6-6	13.7	69.1	0.38	12.3	0.685	79.25	-1.41	22.23	-8.44	1.60	1.60
KS14H180-4-6	12.7	68.5	0.39	11.1	0.673	79.25	-1.83	23.75	-7.94	1.36	1.13
KS15H79-4	13.4	65.0	0.45	11.5	0.692	77.99	-1.67	24.01	-10.53	1.63	-0.50
KS15H116-6	13.5	67.2	0.42	12.0	0.662	78.92	-1.25	22.60	-9.39	1.58	2.45
CO12D1770	13.0	69.8	0.37	11.7	0.595	79.14	-1.45	23.57	-8.27	1.23	1.61
CO13D1783	13.2	66.3	0.40	11.7	0.662	79.16	-1.58	24.56	-9.96	1.33	1.91
CO13D1299	12.9	66.0	0.42	11.5	0.305	80.11	-1.77	24.03	-7.27	1.07	2.71
CO13D1383	12.7	66.1	0.47	10.9	0.370	79.68	-1.71	23.33	-8.51	1.51	3.14
CO13D1479	12.9	66.3	0.48	11.0	0.411	80.54	-2.04	24.15	-10.36	1.57	1.34
OK12716	12.9	68.6	0.44	11.7	0.653	78.82	-1.57	24.48	-9.75	1.78	0.82
OK12D22004-016	13.1	68.4	0.38	11.5	0.172	79.40	-1.31	22.70	-7.59	1.17	3.30
OCW05S616T-2	13.1	67.9	0.41	11.7	0.552	79.34	-1.82	23.15	-8.53	1.46	0.55
OCW04S717T-6W	14.6	65.6	0.49	12.9	0.545	78.63	-1.13	24.30	-10.43	2.18	1.77
OK12206-127206-2	13.2	68.0	0.43	12.1	0.205	79.24	-0.95	23.02	-7.44	1.22	3.31
AP-17CP020067	13.2	68.7	0.42	11.9	0.719	78.83	-1.63	24.64	-10.33	1.59	0.64
AP-17CP020068	12.7	66.2	0.42	11.2	0.550	78.71	-1.33	24.05	-9.90	1.62	1.27
AP-17CP020073	13.3	66.4	0.38	11.7	0.209	78.98	-1.20	23.48	-6.60	1.10	2.44
AP-17CP020081	14.0	67.8	0.44	12.2	0.602	78.87	-1.45	23.69	-8.48	1.43	0.17
AP-17CP020086	13.1	67.8	0.42	11.8	0.489	78.31	-1.39	24.95	-8.44	1.60	1.72
LCH14-52	13.6	64.8	0.45	11.8	0.600	78.00	-1.37	24.48	-9.02	1.65	0.78
LCH14-61	13.6	66.2	0.45	12.2	0.572	78.52	-1.23	23.96	-8.32	1.26	0.12
LCH14DH-21-1781	14.2	66.7	0.42	12.6	0.603	78.99	-1.60	24.34	-9.46	1.48	1.28
DH11HRW-51-9	13.3	65.0	0.42	11.7	0.599	78.38	-1.68	24.62	-9.21	1.52	-0.49
DH11HRW-27-3	13.2	66.8	0.39	11.6	0.580	78.30	-1.22	23.74	-8.02	1.44	0.37
KS080099M-3	13.7	66.8	0.41	12.4	0.649	79.50	-2.15	26.05	-9.41	1.52	0.25
KS080093K-18	14.2	63.8	0.43	12.3	0.173	78.55	-0.78	23.40	-8.00	1.12	3.35
KS090049K-8	13.4	65.4	0.41	12.2	0.555	78.67	-1.51	24.87	-8.01	1.33	1.47
KS090387K-20	14.6	64.6	0.38	13.2	0.680	79.35	-1.37	22.57	-9.20	1.36	1.44
TX12V7415	13.7	66.9	0.44	12.0	0.684	79.81	-1.81	23.44	-10.52	1.41	1.67
TX13M5625	14.8	65.6	0.41	13.0	0.557	78.61	-0.96	21.97	-9.89	1.73	2.07
TX14A001112	13.2	65.9	0.41	11.6	0.561	79.50	-1.18	22.27	-10.81	1.41	3.01
TX14A001185	13.9	66.1	0.46	12.3	0.600	78.78	-0.91	22.34	-12.15	2.02	2.37
TX14A001249	13.8	64.3	0.47	12.3	0.632	78.32	-1.17	23.90	-10.95	1.67	1.55
TX14A001035	13.6	69.2	0.41	12.1	0.494	78.07	-1.19	22.15	-10.71	1.49	0.15
TX14A001215	15.0	65.9	0.47	13.7	0.637	77.62	-0.86	23.37	-10.66	1.47	0.08
TX14V70086	12.9	70.0	0.42	11.6	0.509	78.15	-1.43	24.12	-8.08	1.24	2.23
TX14M7061	13.7	67.4	0.41	12.2	0.488	78.50	-1.69	26.75	-8.25	1.26	1.45
TX14M7088	14.1	67.2	0.46	12.4	0.567	77.61	-1.35	23.96	-9.80	1.66	0.70
NF97117	13.6	60.6	0.39	11.7	0.560	79.15	-1.74	22.21	-9.63	1.68	1.08

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
NE10478-1	14.1	66.9	0.43	12.7	0.628	77.65	-0.90	22.40	-9.42	1.39	-0.60
NHH144913-3	13.9	64.5	0.39	12.3	0.720	78.34	-1.67	25.20	-10.43	1.76	0.63
NW15443	13.7	67.1	0.43	12.0	0.273	79.35	-1.41	24.83	-8.40	1.20	1.64
NE15624	14.4	65.9	0.48	12.6	0.628	78.21	-1.21	24.63	-8.71	1.46	0.62
H3N13-0253	12.8	67.6	0.42	11.6	0.529	79.86	-1.65	23.75	-7.88	1.36	1.08
H4N13-0181	13.3	64.8	0.45	11.9	0.508	77.17	-0.93	24.38	-9.20	1.58	0.69
Scout 66	13.5	68.7	0.43	12.1	0.569	78.31	-1.24	23.04	-8.94	1.55	0.96
TAM107	13.3	67.6	0.40	11.9	0.602	77.56	-1.34	25.04	-9.39	1.68	0.42

2018 SRPN Intraregional Production Zone

South Central Plains

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	13.6	64.7	4.50	4.50	3
Jagalene	12.5	63.2	5.38	5.38	4
KS13HW92-3	12.6	66.0	5.50	5.50	5
KS14HW106-6-6	12.3	62.9	6.00	6.00	4
KS14H180-4-6	11.1	60.3	10.9	9.64	4
KS15H79-4	11.5	63.6	4.88	4.58	4
KS15H116-6	12.0	61.4	9.50	9.47	4
CO12D1770	11.7	62.5	7.50	7.24	4
CO13D1783	11.7	62.9	9.63	9.25	4
CO13D1299	11.5	62.6	12.0	11.3	5
CO13D1383	10.9	61.1	5.88	5.10	3
CO13D1479	11.0	61.3	9.63	8.45	4
OK12716	11.7	63.9	4.13	3.97	4
OK12D22004-016	11.5	63.6	5.75	5.38	4
OCW05S616T-2	11.7	63.0	5.00	4.84	4
OCW04S717T-6W	12.9	64.8	4.88	4.88	4
OK12206-127206-2	12.1	62.7	6.50	6.50	4
AP-17CP020067	11.9	61.2	4.88	4.81	4
AP-17CP020068	11.2	62.1	7.38	6.69	4
AP-17CP020073	11.7	63.9	3.88	3.74	3
AP-17CP020081	12.2	62.8	6.13	6.13	4
AP-17CP020086	11.8	63.5	5.38	5.22	4
LCH14-52	11.8	62.6	3.88	3.80	2
LCH14-61	12.2	63.3	3.38	3.38	2
LCH14DH-21-1781	12.6	63.9	6.38	6.38	4
DH11HRW-51-9	11.7	62.8	2.63	2.52	1
DH11HRW-27-3	11.6	62.8	4.25	4.06	4
KS080099M-3	12.4	64.1	5.63	5.63	5
KS080093K-18	12.3	64.0	4.13	4.13	4
KS090049K-8	12.2	64.2	4.63	4.63	2
KS090387K-20	13.2	64.9	5.00	5.00	4
TX12V7415	12.0	62.9	7.38	7.38	5
TX13M5625	13.0	64.6	3.25	3.25	1
TX14A001112	11.6	62.8	6.13	5.83	5
TX14A001185	12.3	64.0	4.63	4.63	4
TX14A001249	12.3	64.0	7.00	7.00	4
TX14A001035	12.1	64.6	4.38	4.38	3
TX14A001215	13.7	65.7	4.50	4.50	3
TX14V70086	11.6	63.3	5.63	5.39	4
TX14M7061	12.2	63.8	6.00	6.00	4
TX14M7088	12.4	64.2	4.50	4.50	3
NF97117	11.7	62.9	3.50	3.37	3

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
NE10478-1	12.7	64.6	4.38	4.38	4
NHH144913-3	12.3	63.4	2.75	2.75	1
NW15443	12.0	63.4	6.88	6.86	4
NE15624	12.6	64.5	6.63	6.63	4
H3N13-0253	11.6	62.3	4.00	3.81	2
H4N13-0181	11.9	63.2	5.00	4.93	3
Scout 66	12.1	63.7	3.63	3.63	3
TAM107	11.9	63.2	3.38	3.32	2

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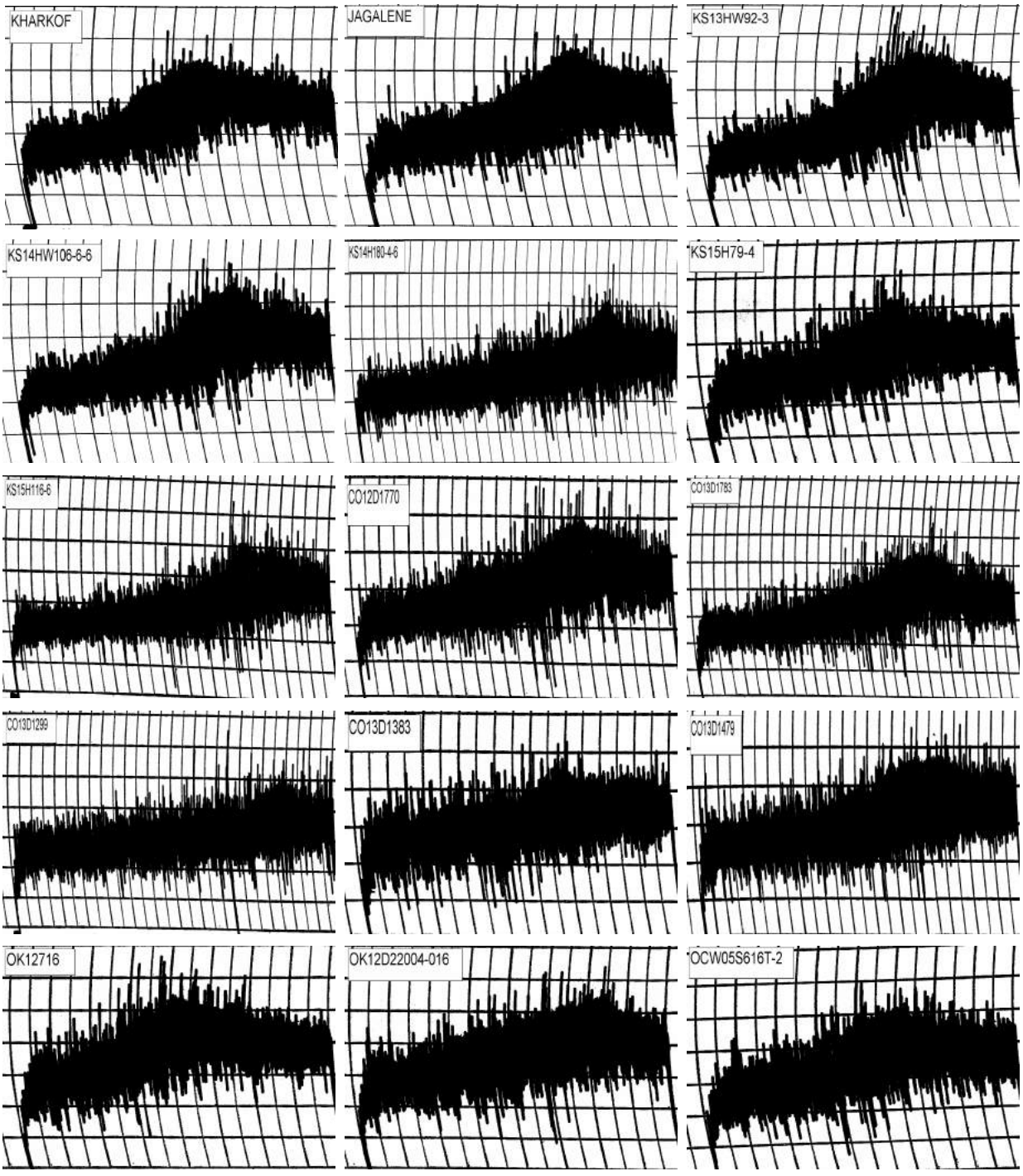
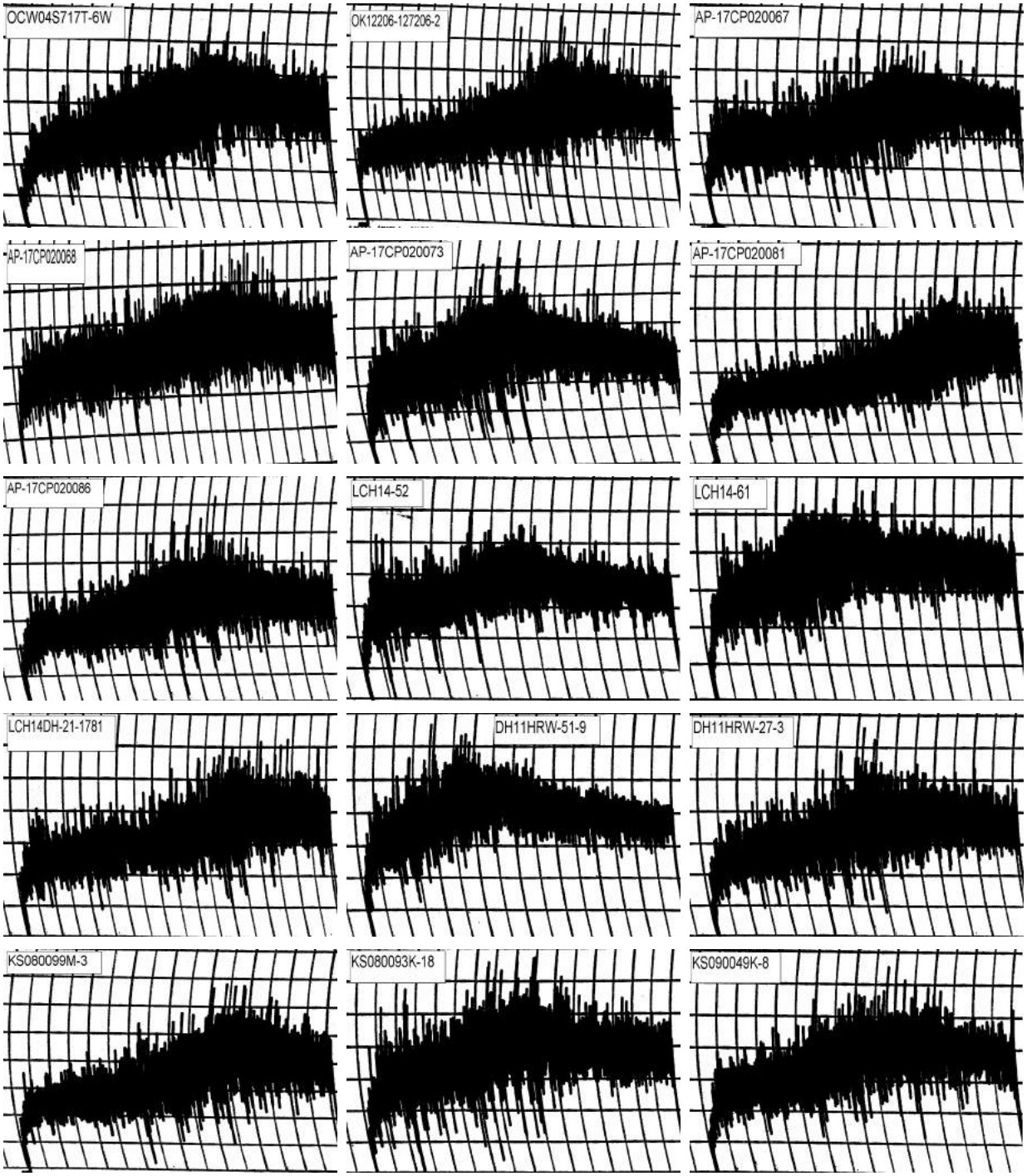
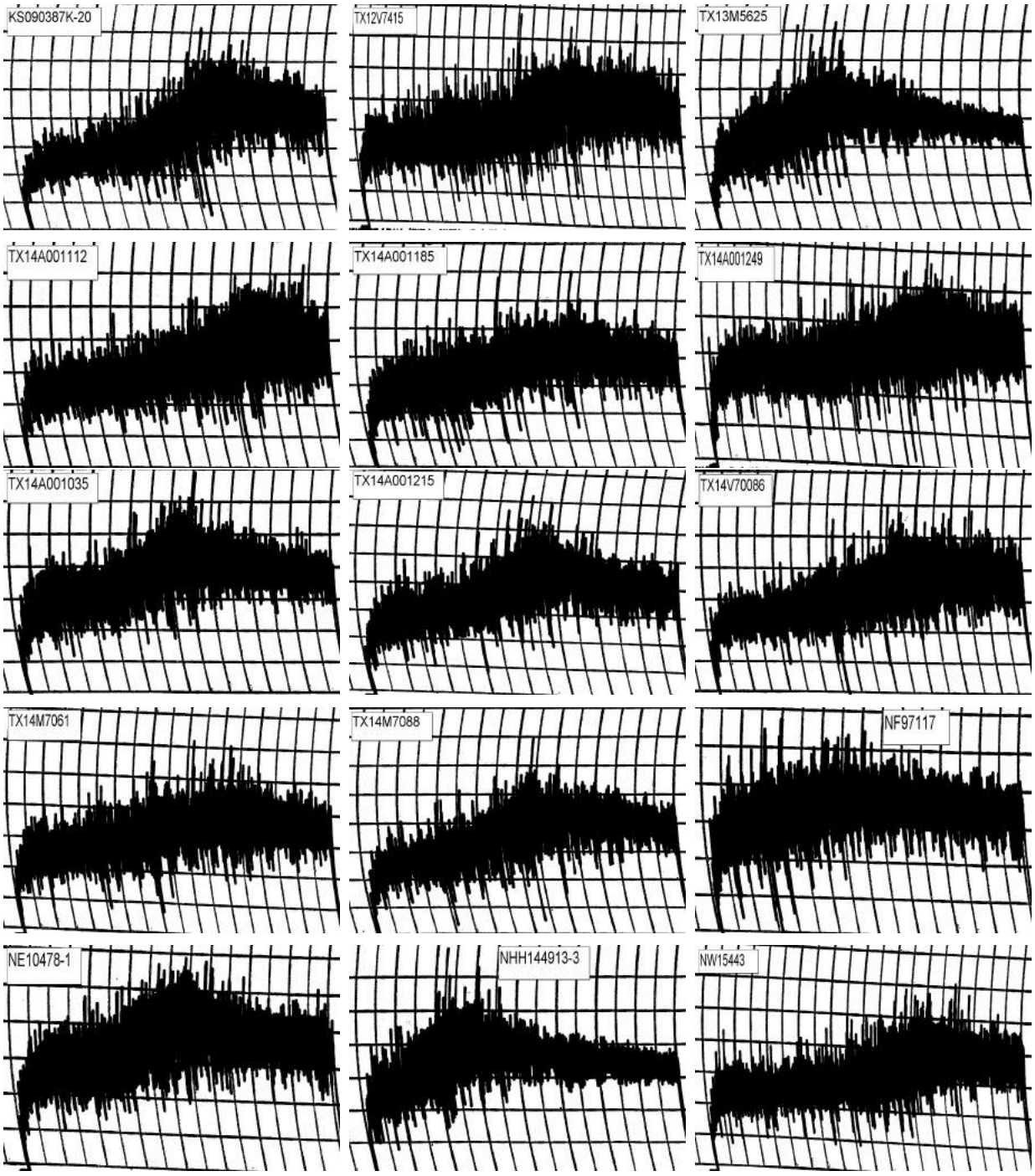


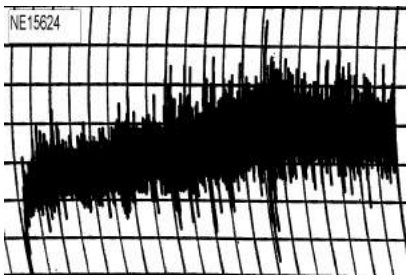
2018 SRPN Intraregional Production Zone
South Central Plains

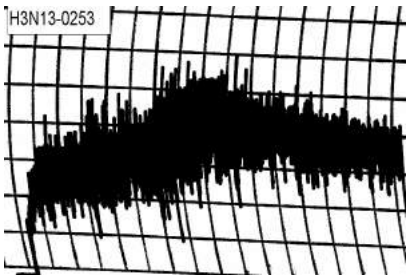


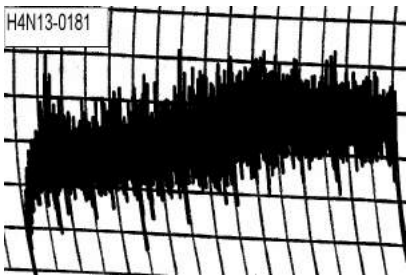
2018 SRPN Intraregional Production Zone
South Central Plains

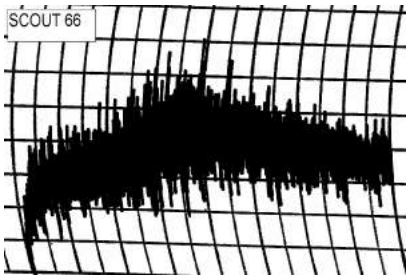


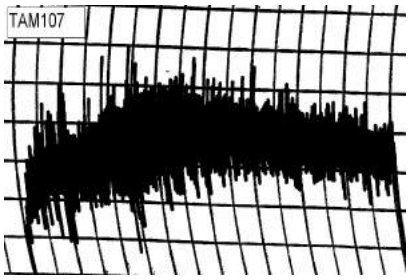
2018 SRPN Intraregional Production Zone
South Central Plains











2018 SRPN Intraregional Production Zone

Southern Central Plains

	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	162.08	249.17	180.58	68.58	293.17	112.58	6.33
Jagalene	113.42	229.75	158.58	71.17	274.75	116.17	6.13
KS13HW92-3	103.58	268.58	168.67	99.92	266.08	97.42	6.27
KS14HW106-6-6	93.17	258.67	141.25	117.42	231.08	89.83	6.00
KS14H180-4-6	74.83	266.50	171.42	95.08	288.92	117.50	6.13
KS15H79-4	118.42	288.33	173.58	114.75	277.08	103.50	6.20
KS15H116-6	120.42	287.33	173.08	114.25	269.50	96.42	6.20
CO12D1770	121.92	259.67	178.33	81.33	297.42	119.08	6.20
CO13D1783	130.00	256.25	184.67	71.58	308.00	123.33	6.27
CO13D1299	153.83	253.25	188.58	64.67	308.42	119.83	6.33
CO13D1383	143.00	237.67	176.00	61.67	299.17	123.17	6.27
CO13D1479	117.42	232.33	158.50	73.83	272.92	114.42	6.20
OK12716	113.33	239.33	161.92	77.42	278.08	116.17	6.20
OK12D22004-016	143.83	257.58	193.25	64.33	307.08	113.83	6.47
OCW05S616T-2	79.83	269.00	194.42	74.58	316.83	122.42	6.40
OCW04S717T-6W	145.67	220.25	156.42	63.83	261.92	105.50	6.27
OK12206-127206-2	86.08	241.08	170.75	70.33	285.08	114.33	6.27
AP-17CP020067	89.00	232.67	156.00	76.67	271.25	115.25	6.13
AP-17CP020068	116.00	265.17	191.17	74.00	307.17	116.00	6.40
AP-17CP020073	100.83	264.67	193.75	70.92	311.92	118.17	6.40
AP-17CP020081	105.25	193.08	105.33	87.75	190.42	85.08	5.93
AP-17CP020086	138.25	236.00	159.83	76.17	273.50	113.67	6.20
LCH14-52	107.42	250.50	172.25	78.25	285.08	112.83	6.20
LCH14-61	93.33	247.92	170.17	77.75	280.92	110.75	6.27
LCH14DH-21-1781	114.25	255.08	189.42	65.67	299.58	110.17	6.40
DH11HRW-51-9	99.50	231.25	168.17	63.08	284.25	116.08	6.27
DH11HRW-27-3	134.00	236.67	166.17	70.50	279.50	113.33	6.27
KS080099M-3	128.08	261.42	172.17	89.25	277.08	104.92	6.27
KS080093K-18	138.08	243.25	174.00	69.25	285.83	111.83	6.27
KS090049K-8	115.17	190.42	106.50	83.92	197.58	91.08	5.93
KS090387K-20	115.50	233.00	163.83	69.17	278.00	114.17	6.20
TX12V7415	135.92	255.33	173.58	81.75	294.50	120.92	6.20
TX13M5625	133.83	249.17	178.25	70.92	287.75	109.50	6.40
TX14A001112	126.50	281.58	168.50	113.08	269.50	101.00	6.20
TX14A001185	81.75	249.00	148.50	100.50	238.83	90.33	6.20
TX14A001249	136.75	245.00	168.42	76.58	283.17	114.75	6.20
TX14A001035	100.83	221.17	156.25	64.92	284.00	127.75	6.07
TX14A001215	121.33	264.67	170.17	94.50	277.67	107.50	6.20
TX14V70086	115.92	231.50	147.75	83.75	264.92	117.17	6.07
TX14M7061	87.08	134.50	60.17	74.33	128.17	68.00	5.53
TX14M7088	115.33	214.83	148.00	66.83	261.75	113.75	6.13
NF97117	121.08	260.33	176.58	83.75	283.58	107.00	6.27
NE10478-1	113.17	215.08	154.67	60.42	270.42	115.75	6.20
NHH144913-3	115.33	229.33	158.50	70.83	264.83	106.33	6.20
NW15443	128.58	225.58	165.00	60.58	283.50	118.50	6.27

	RVA						
	Stirring Number	Peak Viscosity	Trough Viscosity	Breakdown	Final Viscosity	Set back	Peak Time
Line	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(min)
NE15624	134.83	240.83	173.58	67.25	294.92	121.33	6.27
H3N13-0253	75.83	240.17	166.33	73.83	286.25	119.92	6.13
H4N13-0181	106.50	221.00	154.00	67.00	268.75	114.75	6.20
Scout 66	111.67	240.92	166.75	74.17	281.83	115.08	6.20
TAM107	126.92	262.08	182.92	79.17	296.08	113.17	6.33

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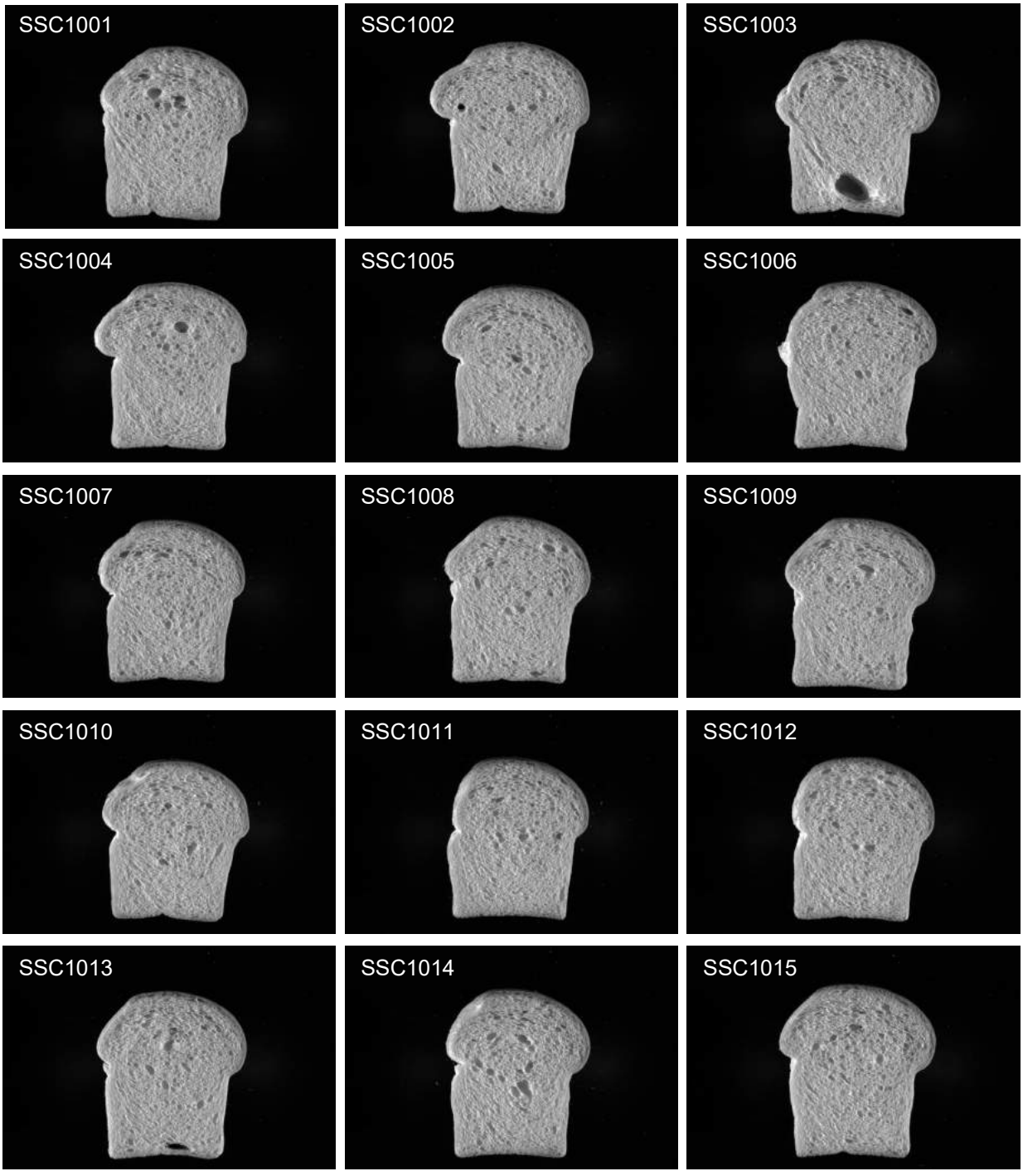
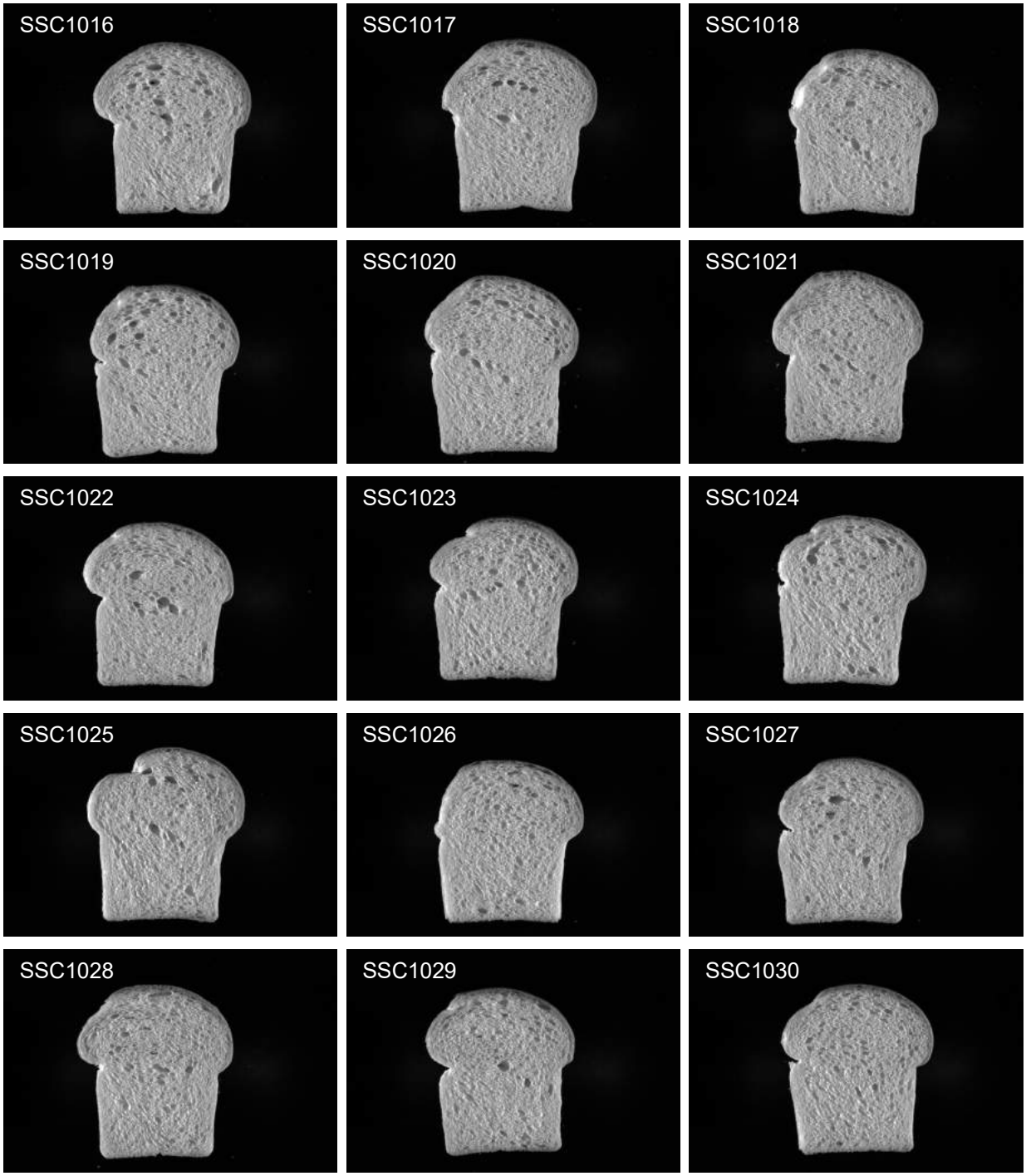
	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
Kharkof	13.6	64.3	5.50	5.50	173.8	7.5	4.5	975	6.4	64
Jagalene	12.5	63.2	6.00	6.00	173.0	7.5	4.5	990	6.6	73
KS13HW92-3	12.6	65.3	5.63	5.63	175.0	7.6	4.0	1060	7.1	79
KS14HW106-6-6	12.3	63.3	6.00	6.00	172.9	7.4	4.0	975	6.5	73
KS14H180-4-6	11.1	61.3	11.00	9.75	169.4	7.2	4.0	940	6.4	79
KS15H79-4	11.5	63.6	5.50	5.16	173.5	7.3	3.5	970	6.5	79
KS15H116-6	12.0	61.3	9.75	9.71	170.2	7.0	3.0	940	6.4	71
CO12D1770	11.7	61.4	7.38	7.12	170.4	7.3	4.0	950	6.4	75
CO13D1783	11.7	63.2	9.50	9.12	172.0	7.7	4.5	1010	6.8	82
CO13D1299	11.5	63.2	11.00	10.35	170.6	7.4	4.0	920	6.3	73
CO13D1383	10.9	61.3	6.25	5.42	170.7	7.7	2.5	915	6.2	77
CO13D1479	11.0	60.4	11.75	10.31	169.7	7.6	3.5	930	6.3	78
OK12716	11.7	64.3	5.13	4.93	173.8	7.8	4.0	990	6.6	79
OK12D22004-016	11.5	63.4	6.38	5.97	172.7	7.8	4.0	985	6.6	81
OCW05S616T-2	11.7	63.3	6.38	6.17	172.5	8.1	4.5	1045	7.1	85
OCW04S717T-6W	12.9	63.8	6.38	6.38	173.4	7.4	3.0	985	6.6	70
OK12206-127206-2	12.1	62.3	6.88	6.88	171.1	7.9	4.5	1020	6.9	79
AP-17CP020067	11.9	62.4	6.25	6.16	171.8	7.4	3.0	955	6.4	74
AP-17CP020068	11.2	60.3	7.25	6.57	169.5	7.6	3.5	960	6.5	80
AP-17CP020073	11.7	63.1	5.00	4.81	172.3	7.6	3.5	1030	6.9	84
AP-17CP020081	12.2	61.0	6.50	6.50	170.1	7.7	4.0	1030	7.1	79
AP-17CP020086	11.8	63.2	6.25	6.06	173.1	7.2	4.5	955	6.4	75
LCH14-52	11.8	61.1	3.50	3.42	171.0	7.4	2.5	950	6.5	74
LCH14-61	12.2	60.1	3.25	3.25	169.8	7.5	3.0	960	6.6	71
LCH14DH-21-1781	12.6	63.4	7.00	7.00	172.6	7.9	4.5	1055	7.1	79
DH11HRW-51-9	11.7	61.3	3.13	3.00	171.0	7.7	3.0	905	6.1	70
DH11HRW-27-3	11.6	62.3	5.38	5.13	171.7	7.6	4.0	985	6.7	79
KS080099M-3	12.4	63.4	6.50	6.50	172.4	7.7	4.5	910	6.2	65
KS080093K-18	12.3	64.2	5.13	5.13	173.6	7.6	3.5	980	6.6	73
KS090049K-8	12.2	63.2	5.00	5.00	173.0	7.5	3.5	980	6.6	74
KS090387K-20	13.2	63.5	5.88	5.88	173.1	8.0	4.0	990	6.7	68
TX12V7415	12.0	64.0	9.75	9.75	172.7	7.7	5.0	1025	6.9	80
TX13M5625	13.0	61.2	3.13	3.13	171.4	7.8	3.5	950	6.5	65
TX14A001112	11.6	63.2	7.88	7.49	172.1	7.8	4.0	940	6.4	74
TX14A001185	12.3	63.2	4.75	4.75	172.7	7.6	2.5	1010	6.8	76
TX14A001249	12.3	62.2	7.25	7.25	171.5	7.8	3.0	990	6.8	74
TX14A001035	12.1	63.4	3.75	3.75	173.0	8.3	4.0	1050	7.1	83
TX14A001215	13.7	64.7	5.13	5.13	174.1	8.0	3.0	1030	7.0	68
TX14V70086	11.6	63.3	7.75	7.42	172.7	7.3	4.0	880	5.9	67
TX14M7061	12.2	63.2	6.00	6.00	172.7	7.3	4.5	940	6.4	69
TX14M7088	12.4	63.3	5.13	5.13	172.9	7.9	4.0	1015	6.9	76
NF97117	11.7	63.1	4.13	3.97	173.5	8.4	2.0	900	6.0	69
NE10478-1	12.7	63.8	4.38	4.38	173.4	7.9	4.0	965	6.4	69
NHH144913-3	12.3	61.0	3.38	3.38	170.8	8.1	3.5	975	6.6	73

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
NW15443	12.0	63.5	8.13	8.11	172.3	7.9	5.0	1005	6.8	79
NE15624	12.6	64.3	7.50	7.50	177.1	8.2	5.0	1130	7.6	86
H3N13-0253	11.6	61.3	4.88	4.65	172.0	8.0	2.5	910	6.2	71
H4N13-0181	11.9	62.7	5.13	5.06	173.0	7.9	3.5	960	6.5	74
Scout 66	12.1	63.9	4.00	4.00	173.8	8.0	2.5	950	6.4	71
TAM107	11.9	62.9	4.38	4.30	172.5	8.0	3.0	1015	6.8	81

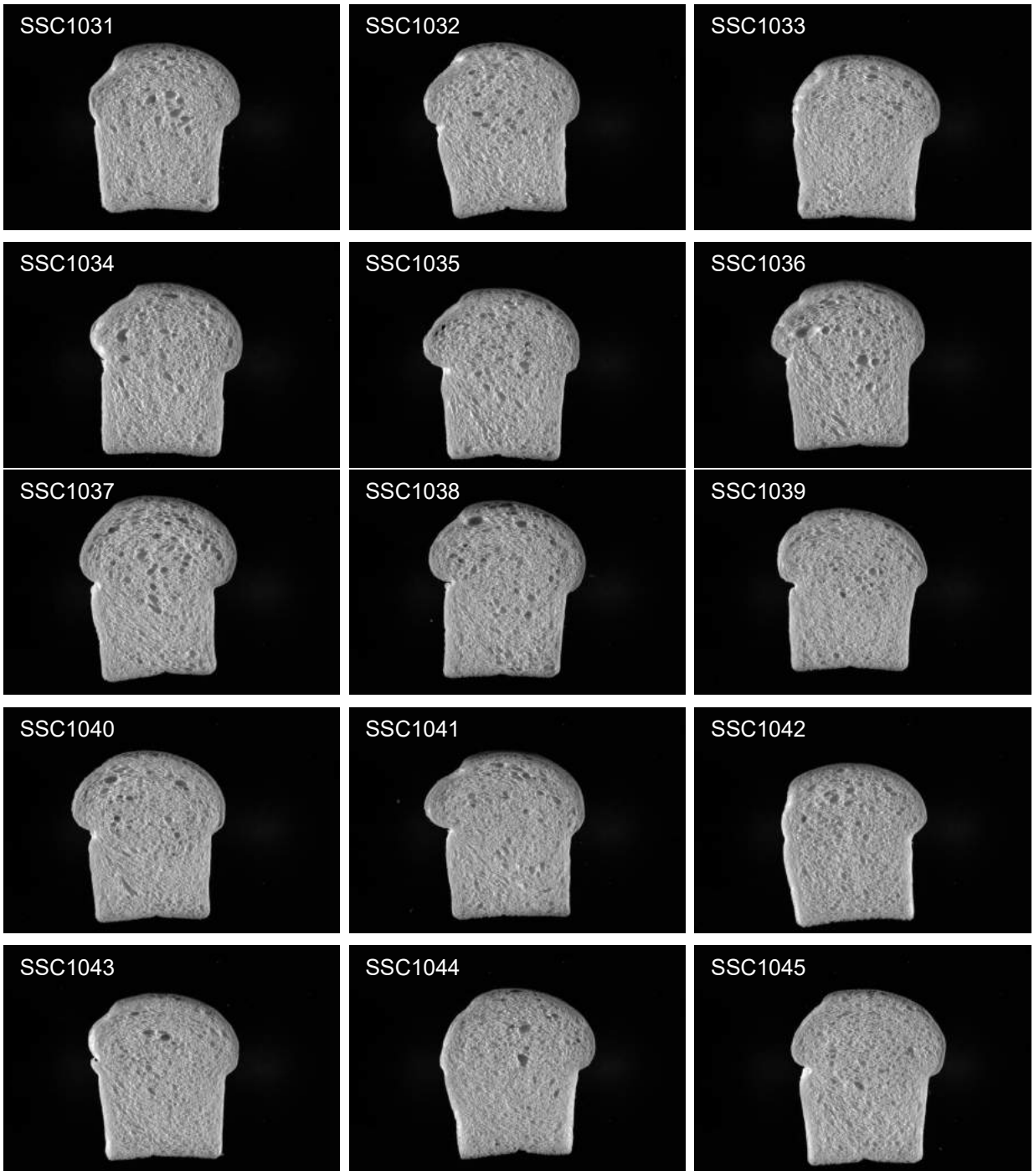
2018 SRPN Intraregional Production Zone
South Central Plains



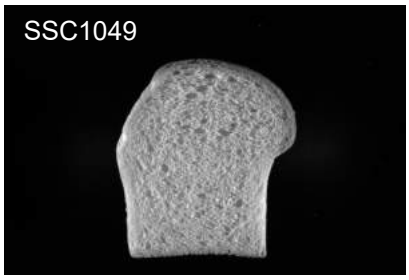
2018 SRPN Intraregional Production Zone
South Central Plains



2018 SRPN Intraregional Production Zone
South Central Plains



2018 SRPN Intraregional Production Zone
South Central Plains



Hard Winter Wheat Quality Report

2018 SRPN-SHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
Kharkof	31.9	Very Poor	48.8	59.1	Good	84.7		4,6,8,10,15,20,
Jagalene	58.9	Very Good	90.1	66.7	Very Good	95.5		
KS Venada	55.2	Good	84.6	66.5	Very Good	95.2		16,
KS14HW106-6-6	56.0	Very Good	85.7	51.5	Poor	73.8		5,15,
KS14H180-4-6	65.3	Very Good	100.0	36.4	Very Poor	52.1		11,13,14,15,17,
KS15H79-4	59.6	Very Good	91.2	59.8	Good	85.7		
KS15H116-6	57.5	Very Good	88.1	50.2	Poor	71.8		14,15,18,
Canvas	56.9	Very Good	87.2	34.8	Very Poor	49.8		2,4,14,15,
Whistler	52.1	Average	79.8	37.3	Very Poor	53.5		14,15,
Snowmass 2.0	54.8	Good	83.9	54.1	Average	77.5		14,15,18,19,20,
Monarch	53.4	Good	81.8	51.3	Poor	73.5		15,
CO13D1479	46.7	Poor	71.5	52.5	Average	75.1		2,14,15,
Showdown	59.1	Very Good	90.5	67.3	Very Good	96.4		
OK12D22004-016	54.8	Good	83.9	41.9	Very Poor	60.0		3,15,
OCW05S616T-2	53.2	Good	81.5	64.6	Very Good	92.5		3,
OCW04S717T-6W	43.9	Very Poor	67.2	61.9	Good	88.7		9,10,20,
OK12206-127206-2	43.6	Very Poor	66.7	52.9	Average	75.8		1,9,14,15,
AP-17CP020067	48.9	Average	74.9	39.0	Very Poor	55.8		12,
AP-17CP020068	48.8	Poor	74.8	53.2	Average	76.2		12,15,
AP-17CP020073	48.2	Poor	73.7	56.0	Average	80.3		15,
AP-17CP020081	50.6	Average	77.4	58.9	Good	84.4		12,15,
AP-17CP020086	48.8	Poor	74.7	43.5	Very Poor	62.3		18,
LCH14-52	41.3	Very Poor	63.3	40.8	Very Poor	58.4		10,12,13,17,
LCH14-61	46.1	Very Poor	70.7	50.8	Poor	72.7		12,16,18,
LCH14DH-21-1781	46.3	Very Poor	70.9	50.2	Poor	71.9		5,
DH11HRW-51-9	46.8	Poor	71.7	37.0	Very Poor	53.1		16,19,
DH11HRW-27-3	48.3	Poor	74.0	58.6	Good	84.0		12,
KS080099M-3	45.8	Very Poor	70.2	49.7	Poor	71.1		14,15,
KS080093K-18	50.7	Average	77.6	58.3	Average	83.5		
KS090049K-8	47.9	Poor	73.3	48.3	Poor	69.2		2,

Quality scores and ratings are calculated directly from the relative trait weightings (printed at the top of the page) and are applicable only to the nursery selected.

Hard Winter Wheat Quality Report

2018 SRPN-SHP

1 - Test weight	10	11 - Flour protein	8
2 - SKCS kernel weight	8	12 - Bake absorption	15
3 - Kernel weight SD	8	13 - Mixograph absorption	5
4 - SKCS kernel diameter	8	14 - Bake mix time	10
5 - Kernel diameter SD	8	15 - Mixograph mix time	5
6 - SKCS hardness	10	16 - Mixograph tolerance	5
7 - Hardness SD	8	17 - Dough weight	
8 - Flour yield	30	18 - Proof height	2
9 - Flour ash	10	19 - Loaf volume	20
10 - Milling score		20 - Volume regression	5
		21 - Crumb grain	25

ID	Milling Score	Rating	%	Baking Score	Rating	%	1RS	Trait Deficiencies
KS090387K-20	48.9	Average	75.0	50.6	Poor	72.4		15,16,
TAM 205	57.1	Very Good	87.4	58.9	Good	84.3		14,15,20,
TX13M5625	51.6	Average	79.0	56.0	Average	80.2		10,16,
TX14A001112	52.5	Good	80.5	40.1	Very Poor	57.4		14,15,
TX14A001185	43.4	Very Poor	66.4	62.0	Very Good	88.9		
TX14A001249	50.7	Average	77.7	50.8	Poor	72.8		
TX14A001035	52.2	Good	79.9	65.5	Very Good	93.8		
TX14A001215	47.6	Poor	73.0	65.1	Very Good	93.3		
TX14V70086	52.1	Average	79.8	52.7	Average	75.4		12,14,15,
TX14M7061	46.7	Poor	71.6	59.3	Good	84.9		3,9,
TX14M7088	47.1	Poor	72.1	69.8	Very Good	100.0		9,16,
NF97117	30.7	Very Poor	46.9	47.5	Poor	68.1		6,8,10,
NE10478-1	54.9	Good	84.0	52.0	Average	74.4		
NHH144913-3	33.3	Very Poor	51.0	60.7	Good	86.9		1,6,8,16,
NW15443	53.3	Good	81.6	59.3	Good	85.0		5,14,15,
NE15624	49.3	Average	75.6	66.7	Very Good	95.5		14,15,
H4N13-0253	53.5	Good	82.0	61.2	Good	87.6		4,16,
H4N13-0181	50.8	Average	77.8	44.2	Very Poor	63.3		2,16,
Scout 66	60.1	Very Good	92.0	55.0	Average	78.8		
TAM 107	55.3	Very Good	84.7	64.4	Very Good	92.2	1AL	

2018 SRPN Intraregional Production Zone

Southern High Plains

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
Kharkof	58.0	14.9	0.3	27.7	7.9	2.42	0.28	38	18	MIXED	43-28-15-14-03
Jagalene	59.4	14.5	0.3	31.6	8.0	2.71	0.30	69	14	HARD	01-06-18-75-01
KS13HW92-3	58.7	14.7	0.3	31.2	8.7	2.57	0.33	65	15	HARD	02-06-29-63-01
KS14HW106-6-6	59.0	14.2	0.4	31.3	9.8	2.62	0.36	55	16	HARD	08-24-31-37-01
KS14H180-4-6	65.0	14.7	0.3	31.5	8.0	2.60	0.33	61	17	HARD	06-16-23-55-01
KS15H79-4	60.1	15.1	0.3	31.8	9.2	2.68	0.32	74	14	HARD	01-02-11-86-01
KS15H116-6	59.5	14.9	0.3	36.9	8.9	2.73	0.33	65	14	HARD	01-06-27-66-01
CO12D1770	60.1	14.7	0.3	26.7	9.0	2.40	0.34	63	17	HARD	05-10-23-62-01
CO13D1783	58.4	14.9	0.3	27.9	8.8	2.50	0.35	65	15	HARD	02-07-29-62-01
CO13D1299	58.3	15.0	0.3	31.4	8.5	2.63	0.33	74	14	HARD	00-02-14-84-01
CO13D1383	60.0	15.0	0.3	28.6	8.6	2.52	0.34	63	14	HARD	03-08-30-59-01
CO13D1479	58.4	15.1	0.3	26.5	8.0	2.53	0.36	67	17	HARD	03-09-21-67-01
OK12716	60.7	14.8	0.3	30.7	8.6	2.60	0.36	64	15	HARD	02-13-25-60-01
OK12D22004-016	58.6	14.5	0.4	36.0	11.5	2.78	0.35	57	16	HARD	08-17-29-46-01
OCW05S616T-2	57.5	14.6	0.3	33.8	11.4	2.74	0.31	53	15	HARD	09-24-33-34-01
OCW04S717T-6W	56.6	15.6	0.4	32.9	9.3	2.68	0.31	76	14	HARD	01-01-08-90-01
OK12206-127206-2	55.5	15.6	0.3	31.5	8.6	2.62	0.33	58	14	HARD	04-16-34-46-01
AP-17CP020067	58.2	15.8	0.5	32.0	8.9	2.63	0.35	60	15	HARD	04-12-34-50-01
AP-17CP020068	58.0	15.4	0.4	32.4	9.6	2.69	0.31	63	15	HARD	02-11-24-63-01
AP-17CP020073	57.7	15.4	0.4	31.9	9.7	2.68	0.30	64	14	HARD	02-08-24-66-01
AP-17CP020081	57.5	16.0	0.3	29.5	7.8	2.67	0.29	66	14	HARD	01-05-26-68-01
AP-17CP020086	58.3	15.1	0.3	30.2	9.2	2.60	0.35	65	16	HARD	02-09-25-64-01
LCH14-52	58.1	15.0	0.3	33.1	10.0	2.64	0.34	60	14	HARD	03-12-35-50-01
LCH14-61	58.2	15.2	0.4	33.1	8.6	2.66	0.35	62	15	HARD	02-12-28-58-01
LCH14DH-21-1781	58.4	15.5	0.3	28.4	9.2	2.55	0.38	60	14	HARD	02-16-34-48-01
DH11HRW-51-9	58.7	16.1	0.3	29.2	9.2	2.58	0.33	64	14	HARD	02-07-26-65-01
DH11HRW-27-3	58.5	15.9	0.3	27.9	8.7	2.55	0.31	66	17	HARD	04-07-22-67-01
KS080099M-3	58.7	15.8	0.3	29.7	8.0	2.64	0.33	52	17	MIXED	12-22-35-31-03
KS080093K-18	58.2	15.4	0.3	34.3	9.3	2.75	0.31	68	14	HARD	01-06-20-73-01
KS090049K-8	57.7	15.0	0.3	27.3	8.6	2.53	0.31	66	16	HARD	04-08-21-67-01
KS090387K-20	59.0	15.3	0.3	32.4	9.3	2.65	0.32	53	14	HARD	08-20-38-34-01
TX12V7415	59.0	15.3	0.4	34.3	9.1	2.72	0.33	61	13	HARD	01-11-31-57-01
TX13M5625	58.3	15.1	0.4	30.3	8.0	2.65	0.32	67	15	HARD	02-07-21-70-01
TX14A001112	58.6	14.6	0.4	33.0	9.6	2.69	0.32	63	15	HARD	02-10-30-58-01
TX14A001185	57.8	15.2	0.5	32.7	9.1	2.69	0.36	65	16	HARD	01-11-24-64-01
TX14A001249	59.1	14.5	0.3	30.8	9.0	2.59	0.31	76	15	HARD	01-02-11-86-01
TX14A001035	59.6	15.1	0.3	31.3	9.6	2.61	0.36	63	14	HARD	04-06-30-60-01
TX14A001215	56.9	15.5	0.3	33.9	8.9	2.70	0.30	67	13	HARD	01-06-18-75-01
TX14V70086	59.0	15.4	0.3	30.3	9.8	2.60	0.29	60	16	HARD	04-16-26-54-01
TX14M7061	57.6	15.1	0.4	31.7	11.6	2.54	0.35	55	15	HARD	07-20-33-40-01
TX14M7088	58.3	15.5	0.4	35.0	10.1	2.72	0.35	60	13	HARD	03-13-32-52-01
NF97117	56.6	15.4	0.4	29.4	8.7	2.50	0.33	32	16	SOFT	51-33-12-04-05
NE10478-1	58.5	15.0	0.3	33.1	9.2	2.69	0.32	68	15	HARD	01-07-19-73-01
NHH144913-3	55.0	15.1	0.4	29.3	7.6	2.53	0.33	30	16	SOFT	60-23-13-04-05
NW15443	57.0	14.8	0.4	33.5	9.5	2.71	0.37	57	15	HARD	06-16-32-46-01

		SKCS Average Kernel						Hardness			
		Moisture		Weight		Diameter		SKCS		Class	Distribution
LINE	Wt/Bu (lb)	(%)	(sd)	(mg)	(sd)	(mm)	(sd)		(sd)		
NE15624	57.6	15.3	0.3	28.7	9.5	2.50	0.30	66	15	HARD	02-08-24-66-01
H3N13-0253	58.0	14.9	0.4	28.4	8.5	2.47	0.35	52	15	MIXED	13-21-34-32-03
H4N13-0181	57.3	14.6	0.4	26.3	7.4	2.51	0.30	76	14	HARD	00-01-09-90-01
Scout 66	58.7	14.6	0.4	32.9	7.4	2.66	0.30	57	14	HARD	05-18-36-41-01
TAM107	58.5	14.3	0.4	32.8	7.7	2.66	0.32	54	16	HARD	08-28-26-38-01

2018 SRPN Intraregional Production Zone

Southern High Plains

	Wheat		Flour			Noodle Color					
LINE	Protein (%)	Milling Yield (%)	Ash (%)	Protein (%)	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
Kharkof	16.2	60.0	0.44	14.3	0.486	77.86	-1.37	23.32	-7.87	1.27	0.47
Jagalene	15.6	69.1	0.45	14.1	0.601	77.37	-1.13	23.30	-8.80	1.41	0.03
KS13HW92-3	15.0	68.7	0.41	13.8	0.281	80.09	-1.87	23.79	-5.78	0.98	2.44
KS14HW106-6-6	14.6	70.5	0.38	13.3	0.641	79.19	-1.04	21.19	-8.66	1.44	2.12
KS14H180-4-6	13.1	71.4	0.38	11.7	0.628	79.94	-1.75	20.41	-9.24	1.20	4.16
KS15H79-4	14.2	69.3	0.44	12.5	0.520	78.02	-1.49	21.88	-11.58	1.59	1.88
KS15H116-6	15.3	67.6	0.42	14.0	0.742	77.68	-0.85	22.46	-9.47	1.54	2.16
CO12D1770	14.3	70.6	0.34	12.8	0.709	79.21	-1.35	22.11	-7.93	1.12	2.40
CO13D1783	14.4	68.3	0.40	12.8	0.498	79.39	-1.52	23.36	-9.27	1.12	2.02
CO13D1299	14.5	66.7	0.40	13.0	0.245	80.23	-1.56	21.66	-6.79	0.97	3.98
CO13D1383	14.1	67.3	0.39	12.5	0.233	80.15	-1.78	22.53	-6.49	1.05	3.35
CO13D1479	14.3	66.6	0.47	12.5	0.519	80.73	-2.03	22.68	-9.42	1.27	2.40
OK12716	14.4	70.6	0.44	13.2	0.472	78.33	-1.38	23.12	-9.49	1.41	0.89
OK12D22004-016	14.3	69.5	0.39	12.9	0.164	78.96	-1.24	21.73	-6.96	1.09	3.02
OCW05S616T-2	14.5	69.5	0.40	13.1	0.522	79.45	-1.61	20.94	-8.94	1.05	1.44
OCW04S717T-6W	16.1	62.3	0.49	14.2	0.437	79.00	-1.29	23.56	-8.12	1.61	0.80
OK12206-127206-2	14.7	64.7	0.48	13.3	0.210	80.60	-0.76	21.04	-7.02	0.80	4.77
AP-17CP020067	14.5	66.1	0.44	13.2	0.552	79.43	-1.50	23.34	-9.25	1.05	0.13
AP-17CP020068	13.9	65.4	0.41	12.6	0.563	79.05	-1.24	22.65	-6.96	0.90	1.53
AP-17CP020073	14.2	64.7	0.41	12.6	0.391	79.14	-1.37	22.77	-6.10	1.05	1.21
AP-17CP020081	15.0	65.8	0.44	13.3	0.569	79.05	-1.35	22.89	-6.28	0.94	-0.43
AP-17CP020086	14.1	66.5	0.44	12.7	0.562	78.86	-1.46	24.73	-7.19	1.23	0.97
LCH14-52	14.1	62.2	0.47	12.3	0.476	79.21	-1.67	23.95	-6.98	1.10	0.34
LCH14-61	13.9	63.8	0.45	12.4	0.471	79.96	-1.45	22.64	-7.60	1.45	0.60
LCH14DH-21-1781	15.5	64.9	0.39	13.9	0.521	79.04	-1.55	22.97	-9.15	1.11	1.77
DH11HRW-51-9	14.4	64.3	0.41	12.7	0.499	79.20	-1.84	23.45	-7.70	1.08	0.19
DH11HRW-27-3	14.2	65.7	0.38	12.5	0.498	78.97	-1.12	22.31	-7.85	1.17	1.32
KS080099M-3	15.1	64.4	0.39	13.6	0.608	80.39	-2.03	24.31	-7.88	1.17	1.17
KS080093K-18	14.7	64.9	0.43	13.2	0.168	77.97	-0.80	23.33	-6.62	1.11	2.52
KS090049K-8	14.8	66.2	0.42	13.6	0.610	77.88	-1.38	24.33	-7.04	1.16	1.13
KS090387K-20	16.1	64.5	0.35	14.8	0.610	78.32	-1.24	22.01	-8.96	1.28	0.60
TX12V7415	14.6	67.9	0.39	15.0	0.580	79.71	-1.72	22.44	-9.98	1.15	1.51
TX13M5625	16.4	66.1	0.40	13.0	0.514	77.72	-0.78	22.05	-8.74	1.35	0.63
TX14A001112	14.4	67.1	0.42	12.9	0.514	78.10	-1.14	22.58	-9.13	1.31	0.92
TX14A001185	15.3	62.5	0.43	13.4	0.662	78.86	-1.16	22.35	-8.80	1.42	0.83
TX14A001249	15.1	65.9	0.46	13.8	0.546	76.97	-0.79	23.29	-10.68	1.70	1.07
TX14A001035	14.6	66.9	0.40	13.2	0.542	78.85	-1.09	20.70	-10.33	1.14	0.53
TX14A001215	16.3	64.2	0.47	14.9	0.640	77.88	-0.87	21.65	-9.75	1.34	0.33
TX14V70086	13.5	68.5	0.44	12.2	0.521	79.18	-1.58	23.08	-7.43	1.22	1.60
TX14M7061	14.7	68.1	0.47	13.2	0.521	78.45	-1.70	25.95	-6.76	1.14	0.28
TX14M7088	14.7	64.8	0.48	13.0	0.513	78.59	-1.77	23.70	-6.82	1.44	-0.61
NF97117	15.2	55.6	0.38	13.3	0.698	79.99	-1.71	20.55	-8.71	1.45	1.00

	Wheat		Flour			Noodle Color					
	Protein	Milling Yield	Ash	Protein	PPO	L @ 0	a @ 0	b @ 0	Delta L 24 hrs	Delta a 24 hrs	Delta b 24 hrs
LINE	(%)	(%)	(%)	(%)							
NE10478-1	15.1	68.3	0.45	13.6	0.578	78.06	-0.93	21.44	-9.25	1.34	0.15
NHH144913-3	15.1	60.7	0.40	13.2	0.662	79.99	-1.74	22.95	-9.86	1.49	1.32
NW15443	14.4	69.3	0.44	12.9	0.257	79.19	-1.52	23.72	-6.93	1.29	1.80
NE15624	15.2	67.5	0.44	13.7	0.490	78.84	-1.32	23.61	-7.49	1.07	0.62
H3N13-0253	13.9	70.3	0.40	12.7	0.489	79.29	-1.62	22.97	-6.30	1.28	0.63
H4N13-0181	14.2	65.9	0.44	12.9	0.439	76.96	-1.04	23.24	-9.22	1.72	1.29
Scout 66	15.0	70.0	0.39	13.4	0.628	78.03	-1.15	21.68	-8.93	1.68	1.65
TAM107	14.6	68.7	0.39	13.0	0.578	77.85	-1.35	23.35	-9.37	1.63	1.45

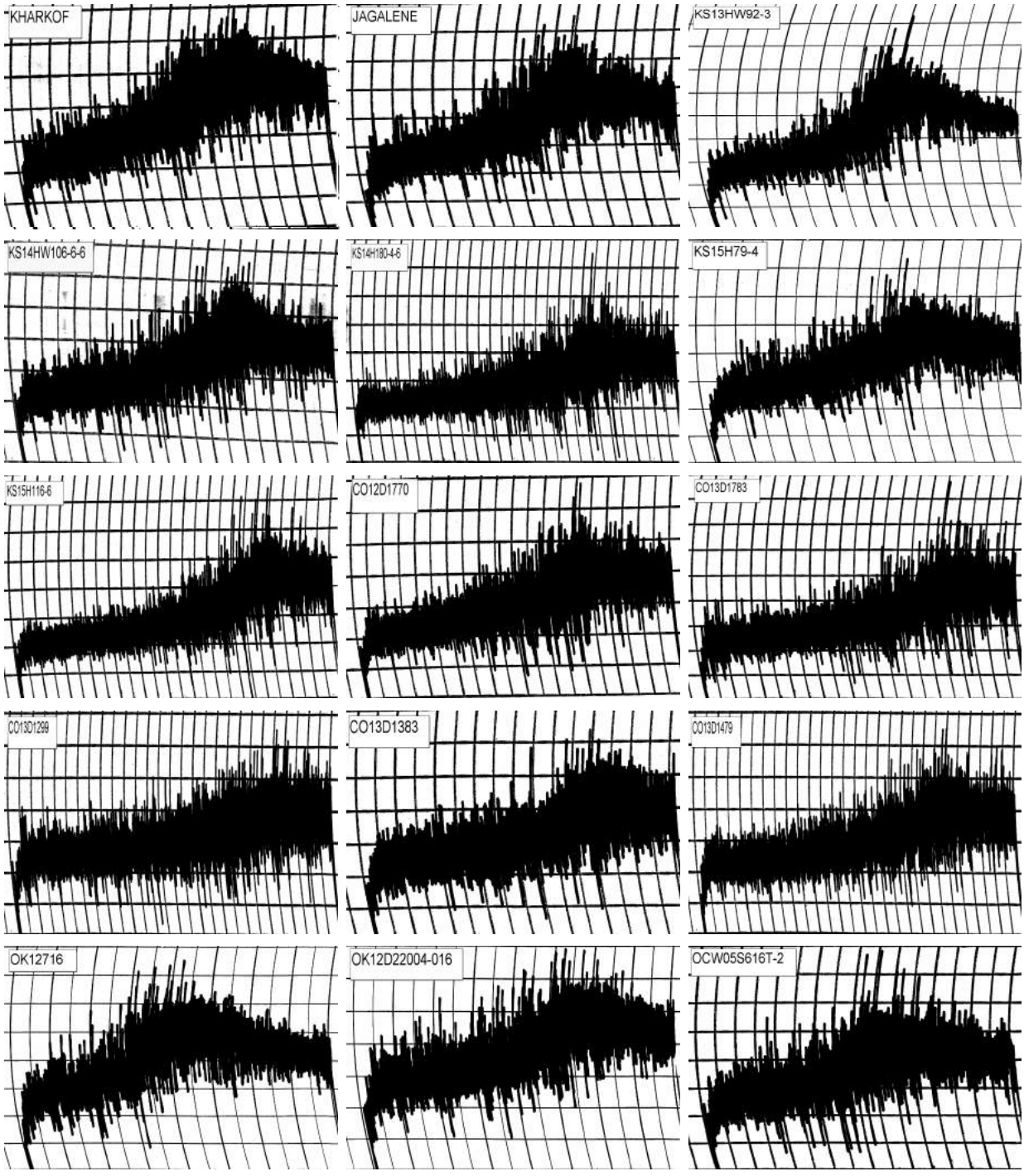
2018 SRPN Intraregional Production Zone

Southern High Plains

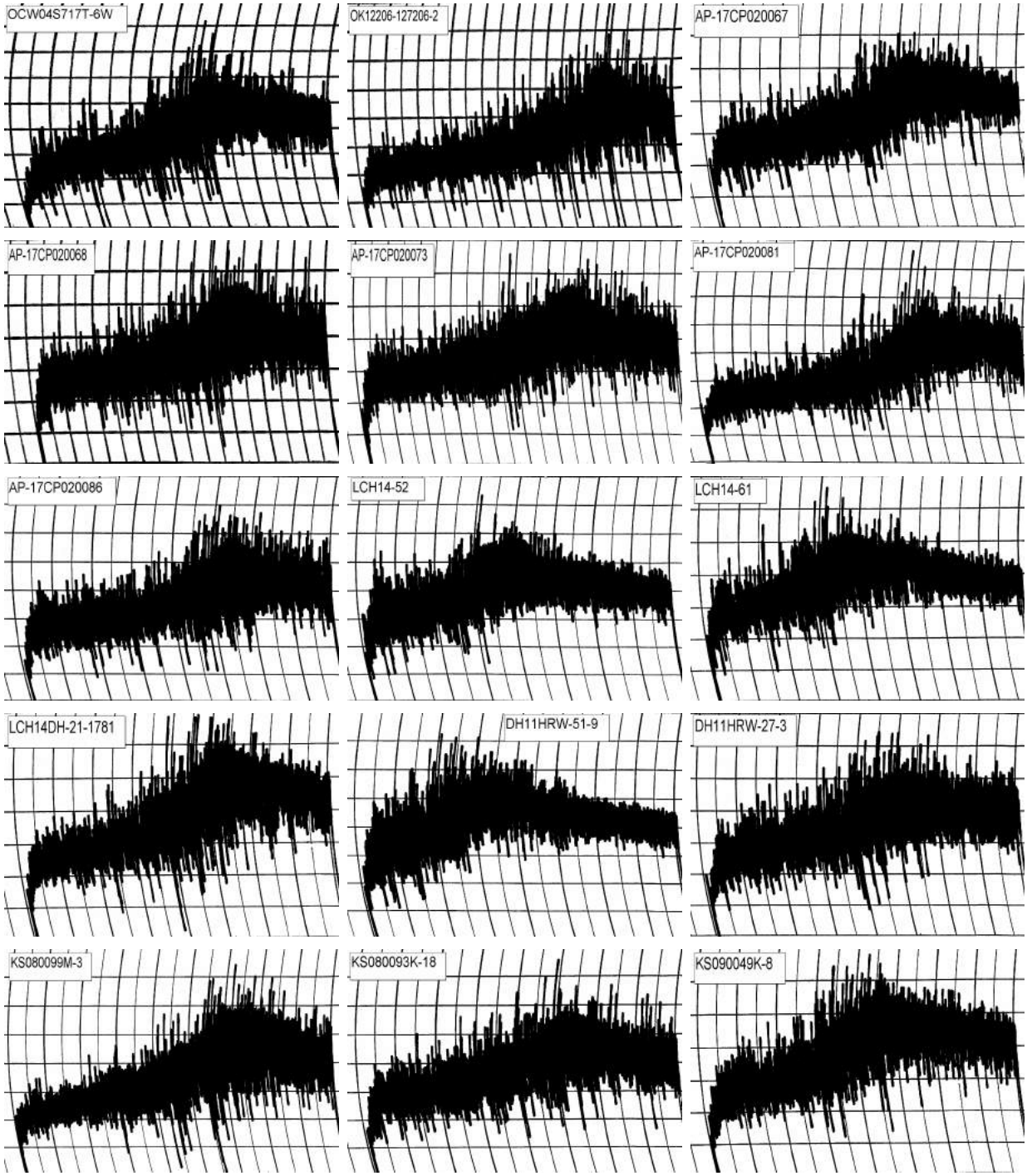
		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
Kharkof	14.3	66.8	5.75	5.75	4
Jagalene	14.1	66.4	5.50	5.50	3
KS13HW92-3	13.8	67.0	4.75	4.75	2
KS14HW106-6-6	13.3	65.5	7.00	7.00	4
KS14H180-4-6	11.7	62.9	10.5	10.1	5
KS15H79-4	12.5	64.7	5.38	5.38	4
KS15H116-6	14.0	66.3	10.5	10.5	5
CO12D1770	12.8	64.8	7.25	7.25	5
CO13D1783	12.8	64.3	8.75	8.75	6
CO13D1299	13.0	64.6	11.6	11.6	6
CO13D1383	12.5	63.8	6.13	6.13	5
CO13D1479	12.5	63.8	11.0	11.0	6
OK12716	13.2	66.4	4.50	4.50	4
OK12D22004-016	12.9	65.9	5.63	5.63	3
OCW05S616T-2	13.1	64.7	4.63	4.63	4
OCW04S717T-6W	14.2	66.7	5.00	5.00	4
OK12206-127206-2	13.3	65.1	7.88	7.88	5
AP-17CP020067	13.2	63.4	5.25	5.25	3
AP-17CP020068	12.6	63.9	6.25	6.25	5
AP-17CP020073	12.6	64.0	6.88	6.88	4
AP-17CP020081	13.3	63.6	6.25	6.25	4
AP-17CP020086	12.7	64.0	5.50	5.50	5
LCH14-52	12.3	62.5	3.88	3.88	3
LCH14-61	12.4	63.7	3.63	3.63	2
LCH14DH-21-1781	13.9	66.0	5.38	5.38	4
DH11HRW-51-9	12.7	64.1	3.00	3.00	2
DH11HRW-27-3	12.5	63.8	5.13	5.13	4
KS080099M-3	13.6	65.6	6.75	6.75	5
KS080093K-18	13.2	64.9	5.38	5.38	5
KS090049K-8	13.6	65.6	4.63	4.63	4
KS090387K-20	14.8	67.1	5.88	5.88	2
TX12V7415	15.0	64.7	7.88	7.88	4
TX13M5625	13.0	67.0	3.50	3.50	0
TX14A001112	12.9	64.4	6.50	6.50	4
TX14A001185	13.4	65.2	5.25	5.25	5
TX14A001249	13.8	66.0	5.25	5.25	5
TX14A001035	13.2	65.5	3.63	3.63	3
TX14A001215	14.9	67.7	4.50	4.50	3
TX14V70086	12.2	63.3	6.00	6.00	4
TX14M7061	13.2	64.9	5.38	5.38	4
TX14M7088	13.0	64.5	4.00	4.00	1
NF97117	13.3	65.6	3.50	3.50	3

		Mixograph			
	Flour Protein	Absorption	As-Is	Corrected	Tolerance
Line	(%)	(%)	(min)	(min)	
NE10478-1	13.6	65.5	4.25	4.25	4
NHH144913-3	13.2	65.0	3.50	3.50	1
NW15443	12.9	64.4	6.88	6.88	5
NE15624	13.7	65.8	6.50	6.50	5
H3N13-0253	12.7	64.1	4.13	4.13	2
H4N13-0181	12.9	64.4	5.13	5.13	2
Scout 66	13.4	65.2	3.50	3.50	3
TAM107	13.0	64.5	4.50	4.50	3

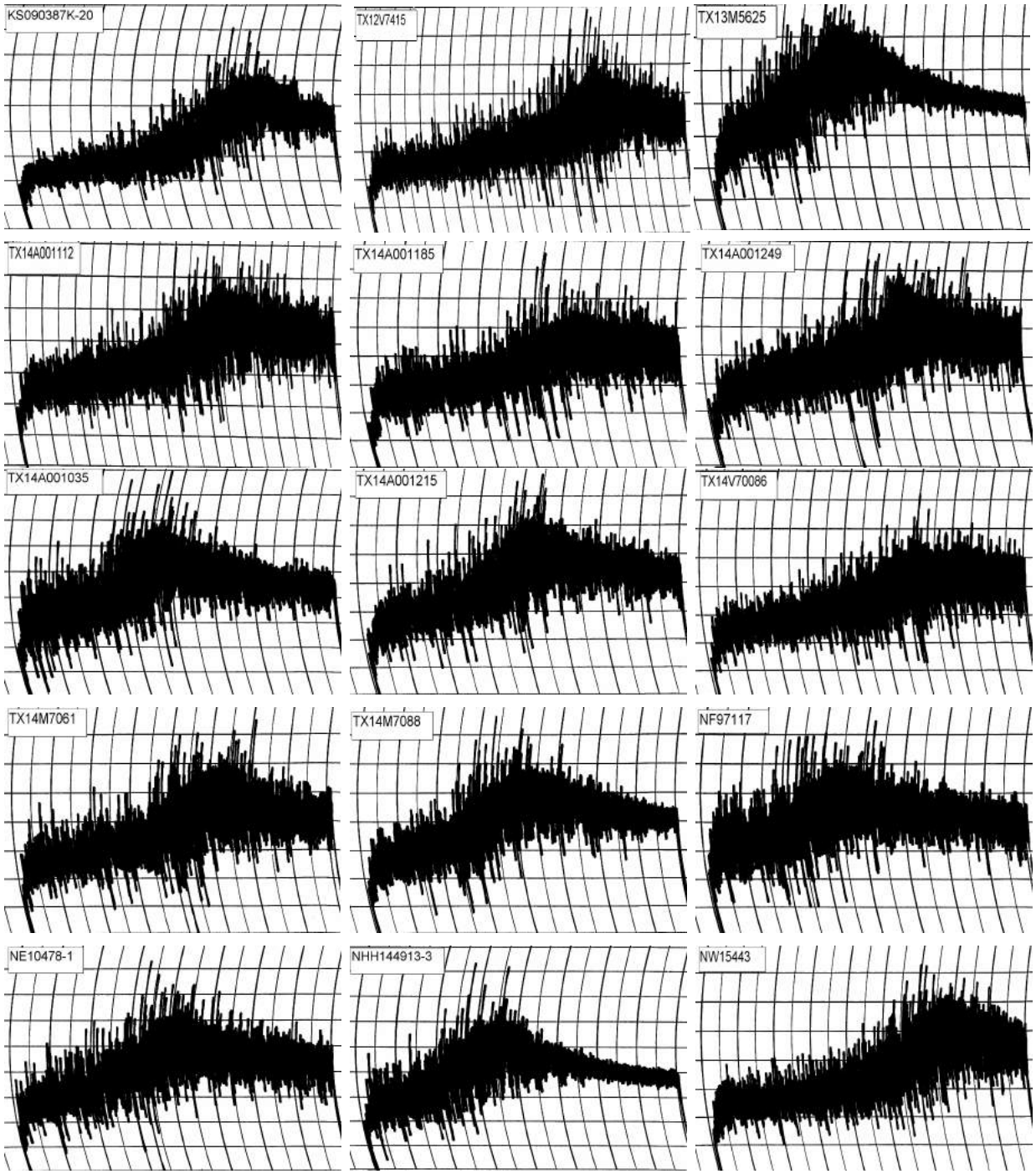
2018 SRPN Intraregional Production Zone
Southern High Plains



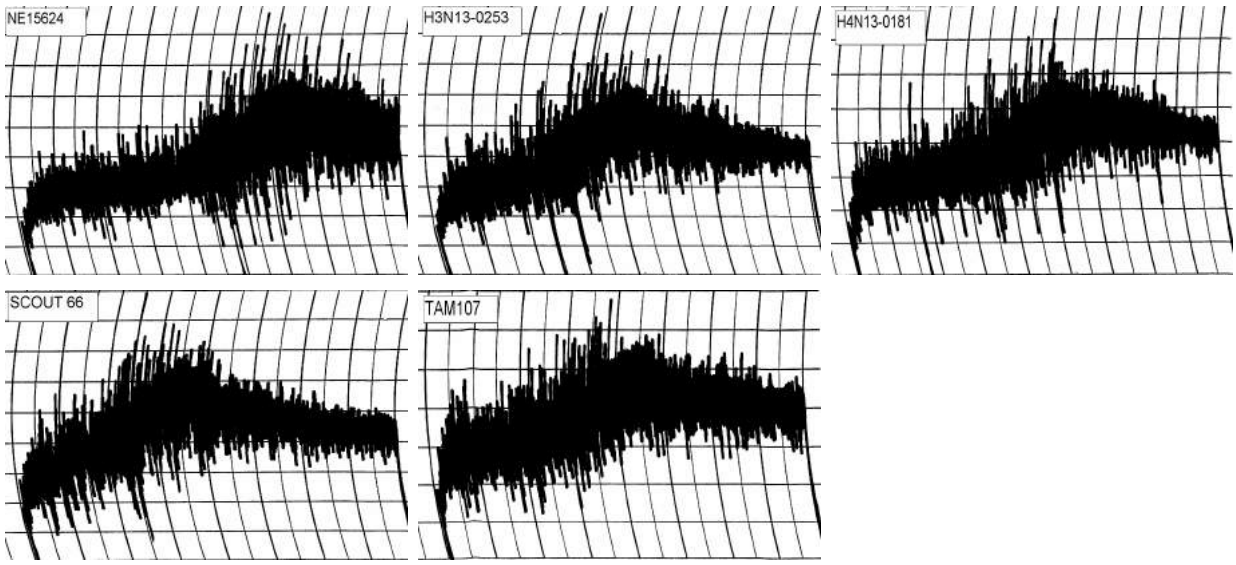
2018 SRPN Intraregional Production Zone
Southern High Plains



2018 SRPN Intraregional Production Zone
Southern High Plains



2018 SRPN Intraregional Production Zone
Southern High Plains



2018 SRPN Intraregional Production Zone

Southern High Plains

	RVA						
Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Breakdown (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (min)
Kharkof	144.67	254.58	190.25	64.33	298.67	108.42	6.47
Jagalene	90.75	234.25	160.58	73.67	282.75	122.17	6.13
KS13HW92-3	116.42	275.08	163.92	111.17	267.50	103.58	6.20
KS14HW106-6-6	62.67	271.00	149.58	121.42	244.83	95.25	6.00
KS14H180-4-6	64.08	274.58	169.92	104.67	292.33	122.42	6.00
KS15H79-4	108.58	291.42	171.00	120.42	274.25	103.25	6.13
KS15H116-6	130.08	281.00	172.67	108.33	268.50	95.83	6.20
CO12D1770	122.75	267.42	180.25	87.17	306.58	126.33	6.13
CO13D1783	121.00	256.25	183.33	72.92	310.50	127.17	6.27
CO13D1299	146.83	253.50	187.08	66.42	312.67	125.58	6.33
CO13D1383	119.42	243.50	179.67	63.83	308.67	129.00	6.27
CO13D1479	127.58	246.92	166.17	80.75	288.33	122.17	6.13
OK12716	119.75	246.33	165.75	80.58	287.50	121.75	6.20
OK12D22004-016	124.83	269.42	197.33	72.08	321.25	123.92	6.40
OCW05S616T-2	127.25	273.33	192.83	80.50	319.42	126.58	6.33
OCW04S717T-6W	142.67	233.67	164.08	69.58	281.17	117.08	6.20
OK12206-127206-2	79.00	247.33	172.92	74.42	299.00	126.08	6.20
AP-17CP020067	88.92	238.92	165.33	73.58	285.08	119.75	6.20
AP-17CP020068	131.17	273.42	193.17	80.25	321.50	128.33	6.27
AP-17CP020073	129.00	276.17	198.25	77.92	324.08	125.83	6.33
AP-17CP020081	93.33	247.25	156.75	90.50	266.58	109.83	6.13
AP-17CP020086	115.08	249.33	169.00	80.33	292.00	123.00	6.20
LCH14-52	92.00	261.58	176.42	85.17	296.17	119.75	6.20
LCH14-61	127.50	253.58	171.00	82.58	287.17	116.17	6.20
LCH14DH-21-1781	121.75	263.92	192.08	71.83	306.33	114.25	6.40
DH11HRW-51-9	109.83	241.83	176.08	65.75	304.83	128.75	6.27
DH11HRW-27-3	147.33	249.92	173.42	76.50	294.58	121.17	6.20
KS080099M-3	112.75	276.58	182.92	93.67	295.92	113.00	6.27
KS080093K-18	110.50	246.92	168.83	78.08	289.50	120.67	6.20
KS090049K-8	122.67	246.92	158.25	88.67	278.08	119.83	6.07
KS090387K-20	100.25	246.67	177.25	69.42	291.67	114.42	6.33
TX12V7415	85.50	249.92	162.25	87.67	278.00	115.75	6.13
TX13M5625	112.17	256.08	177.00	79.08	290.92	113.92	6.27
TX14A001112	117.67	279.50	173.00	106.50	271.58	98.58	6.27
TX14A001185	106.67	255.08	160.75	94.33	266.83	106.08	6.07
TX14A001249	136.75	258.33	166.92	91.42	272.25	105.33	6.20
TX14A001035	74.00	233.17	164.33	68.83	294.33	130.00	6.13
TX14A001215	136.42	276.08	182.50	93.58	292.25	109.75	6.27
TX14V70086	122.92	245.25	159.33	85.92	284.50	125.17	6.07
TX14M7061	134.75	252.75	176.83	75.92	298.50	121.67	6.33
TX14M7088	105.75	247.50	184.25	63.25	308.08	123.83	6.33
NF97117	131.17	249.67	166.00	83.67	273.50	107.50	6.20
NE10478-1	121.50	222.08	156.08	66.00	279.08	123.00	6.13
NHH144913-3	90.42	234.17	159.42	74.75	273.58	114.17	6.13
NW15443	111.42	227.25	169.42	57.83	294.17	124.75	6.27

	RVA						
	Stirring Number	Peak Viscosity	Trough Viscosity	Breakdown	Final Viscosity	Set back	Peak Time
Line	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(RVU)	(min)
NE15624	118.17	252.75	182.42	70.33	312.50	130.08	6.27
H3N13-0253	70.33	250.92	172.33	78.58	296.50	124.17	6.20
H4N13-0181	113.33	229.25	155.08	74.17	276.83	121.75	6.13
Scout 66	112.08	230.92	154.00	76.92	272.92	118.92	6.13
TAM107	116.58	272.83	188.08	84.75	306.00	117.92	6.27

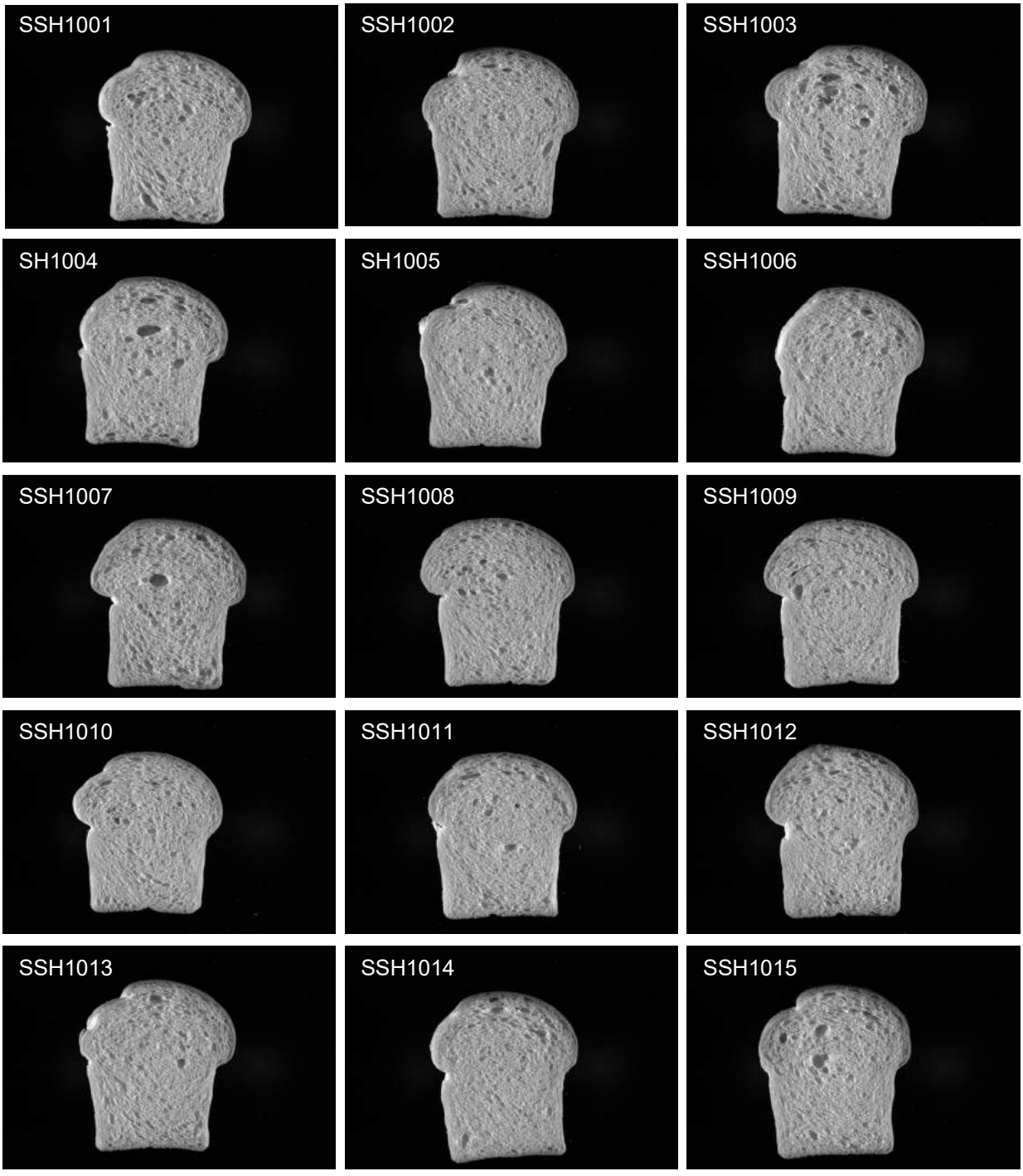
2018 SRPN Intraregional Production Zone

Southern High Plains

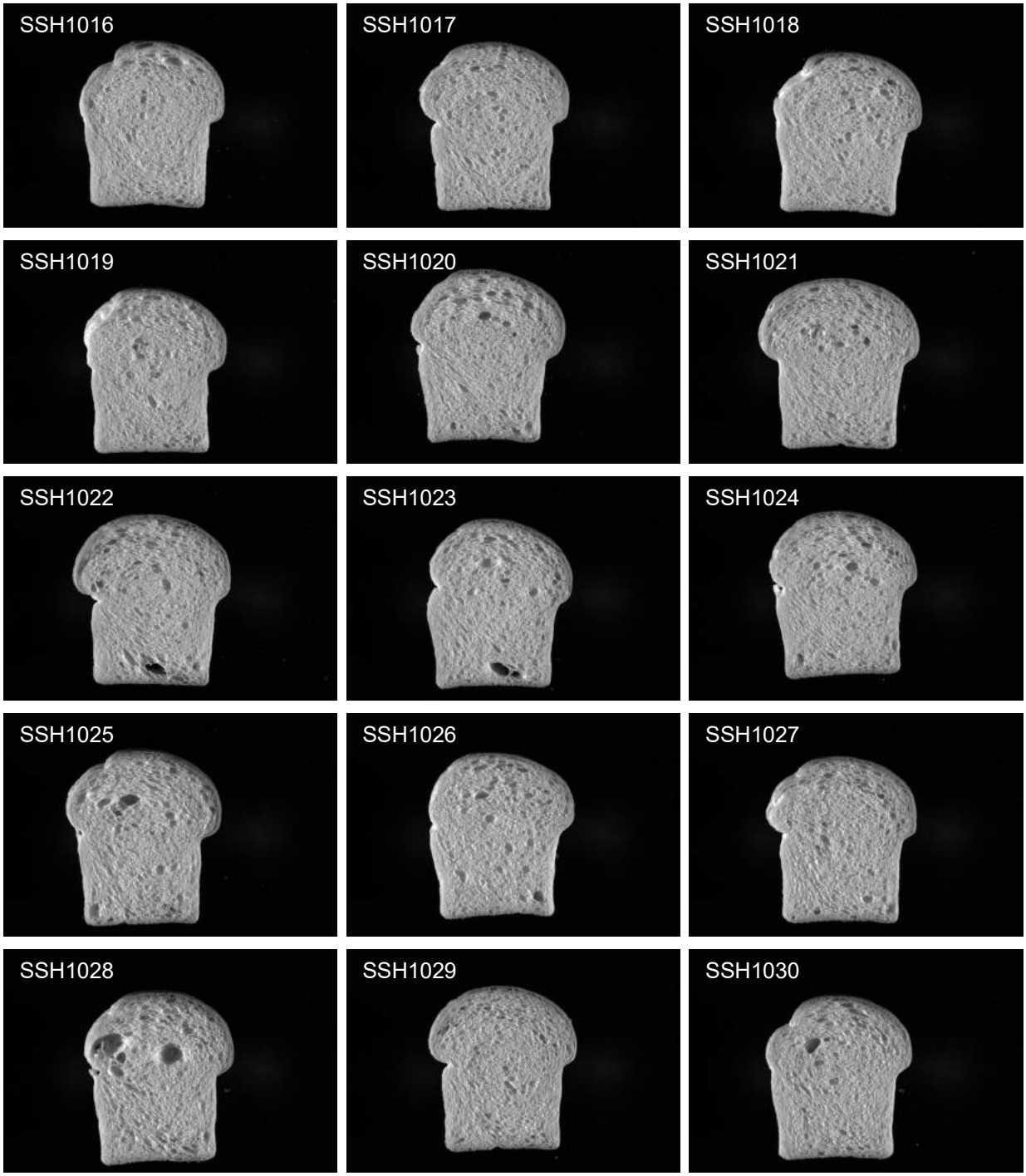
	Flour		Mix Time		Dough					
Line	Protein (%)	Water Abs. (%)	As-is (min)	Corrected (min)	Weight (g)	Proof Height (cm)	Crumb Grain	As-Rec'd. (cc)	Specific Volume (cc/g)	Loaf Volume Potential (cc/%)
Kharkof	14.3	66.5	7.00	7.00	175.2	7.7	4.0	990	6.5	61
Jagalene	14.1	66.6	6.50	6.50	175.7	7.9	5.0	1020	6.8	65
KS13HW92-3	13.8	66.7	5.50	5.50	176.7	7.6	4.0	1045	7.0	69
KS14HW106-6-6	13.3	65.7	7.25	7.25	175.5	7.4	3.0	1010	6.6	69
KS14H180-4-6	11.7	63.6	14.50	13.96	169.2	7.2	4.5	1010	6.8	82
KS15H79-4	12.5	65.1	6.00	6.00	174.5	7.5	4.0	975	6.4	71
KS15H116-6	14.0	66.3	12.00	12.00	174.6	7.0	3.0	1010	6.7	64
CO12D1770	12.8	64.9	8.00	8.00	174.3	7.2	4.5	935	6.2	65
CO13D1783	12.8	64.6	9.50	9.50	173.2	7.5	4.5	975	6.5	69
CO13D1299	13.0	66.7	13.00	13.00	175.0	7.0	5.0	885	5.8	59
CO13D1383	12.5	63.5	7.25	7.25	173.3	7.5	4.0	940	6.3	68
CO13D1479	12.5	63.8	13.00	13.00	172.3	7.5	4.0	1000	6.8	74
OK12716	13.2	66.4	5.25	5.25	175.8	7.5	4.0	1015	6.7	70
OK12D22004-016	12.9	65.7	6.75	6.75	175.1	7.6	4.5	980	6.5	69
OCW05S616T-2	13.1	63.8	6.00	6.00	174.0	7.7	4.0	1065	7.2	76
OCW04S717T-6W	14.2	66.3	6.13	6.13	175.4	7.5	4.0	985	6.4	61
OK12206-127206-2	13.3	65.5	8.50	8.50	174.5	7.7	4.0	995	6.5	67
AP-17CP020067	13.2	63.5	6.00	6.00	172.8	7.6	3.5	935	6.1	62
AP-17CP020068	12.6	63.6	6.75	6.75	173.2	7.2	4.0	970	6.3	70
AP-17CP020073	12.6	65.6	7.25	7.25	175.1	7.5	4.0	1030	6.8	76
AP-17CP020081	13.3	63.5	7.25	7.25	172.5	7.5	5.0	1025	6.9	70
AP-17CP020086	12.7	64.0	6.50	6.50	173.4	7.0	3.5	1020	6.8	75
LCH14-52	12.3	62.4	4.00	4.00	171.7	7.1	2.5	945	6.4	69
LCH14-61	12.4	63.4	4.00	4.00	172.8	7.0	3.0	950	6.3	69
LCH14DH-21-1781	13.9	66.3	6.50	6.50	175.4	7.6	3.5	1090	7.2	73
DH11HRW-51-9	12.7	64.1	3.50	3.50	174.0	7.7	2.5	910	6.0	63
DH11HRW-27-3	12.5	63.6	5.75	5.75	172.7	7.3	4.0	990	6.6	73
KS080099M-3	13.6	65.7	8.00	8.00	174.3	7.4	3.0	1015	6.8	68
KS080093K-18	13.2	64.9	6.00	6.00	173.7	7.2	4.0	945	6.3	63
KS090049K-8	13.6	65.9	5.25	5.25	175.8	7.6	3.5	955	6.3	62
KS090387K-20	14.8	66.9	6.25	6.25	175.6	7.4	3.5	1115	7.5	69
TX12V7415	15.0	64.8	9.00	9.00	174.6	7.3	5.0	1030	6.9	61
TX13M5625	13.0	66.8	3.75	3.75	176.3	7.4	3.0	985	6.5	68
TX14A001112	12.9	64.4	8.00	8.00	174.0	7.6	4.5	1050	7.1	76
TX14A001185	13.4	65.6	6.00	6.00	175.4	7.1	4.0	1010	6.7	68
TX14A001249	13.8	66.4	6.00	6.00	175.8	7.4	3.5	1035	6.9	68
TX14A001035	13.2	65.9	4.50	4.50	175.5	8.1	3.0	1095	7.3	78
TX14A001215	14.9	67.9	4.50	4.50	178.3	8.0	3.0	1045	6.8	63
TX14V70086	12.2	63.1	8.00	8.00	172.5	7.1	5.0	955	6.3	71
TX14M7061	13.2	64.8	7.00	7.00	174.3	7.6	4.0	1035	6.9	72
TX14M7088	13.0	64.7	5.00	5.00	174.6	8.0	5.0	1030	6.8	73
NF97117	13.3	66.0	4.00	4.00	175.9	7.9	4.5	980	6.4	66
NE10478-1	13.6	65.8	5.00	5.00	175.9	7.9	3.5	990	6.5	65
NHH144913-3	13.2	65.0	4.25	4.25	175.3	7.4	4.0	990	6.4	68

	Flour		Mix Time		Dough					
	Protein	Water Abs.	As-is	Corrected	Weight	Proof Height	Crumb Grain	As-Rec'd.	Specific Volume	Loaf Volume Potential
Line	(%)	(%)	(min)	(min)	(g)	(cm)		(cc)	(cc/g)	(cc/%)
NW15443	12.9	64.7	9.00	9.00	174.9	7.6	5.0	1030	6.8	74
NE15624	13.7	65.9	7.75	7.75	175.9	7.7	5.0	1110	7.2	75
H3N13-0253	12.7	64.1	4.75	4.75	174.2	7.5	4.0	970	6.3	69
H4N13-0181	12.9	64.4	5.75	5.75	174.2	7.8	3.5	990	6.5	70
Scout 66	13.4	65.5	3.75	3.75	175.6	7.5	3.0	955	6.1	63
TAM107	13.0	64.4	4.50	4.50	174.7	7.4	4.0	1030	6.7	73

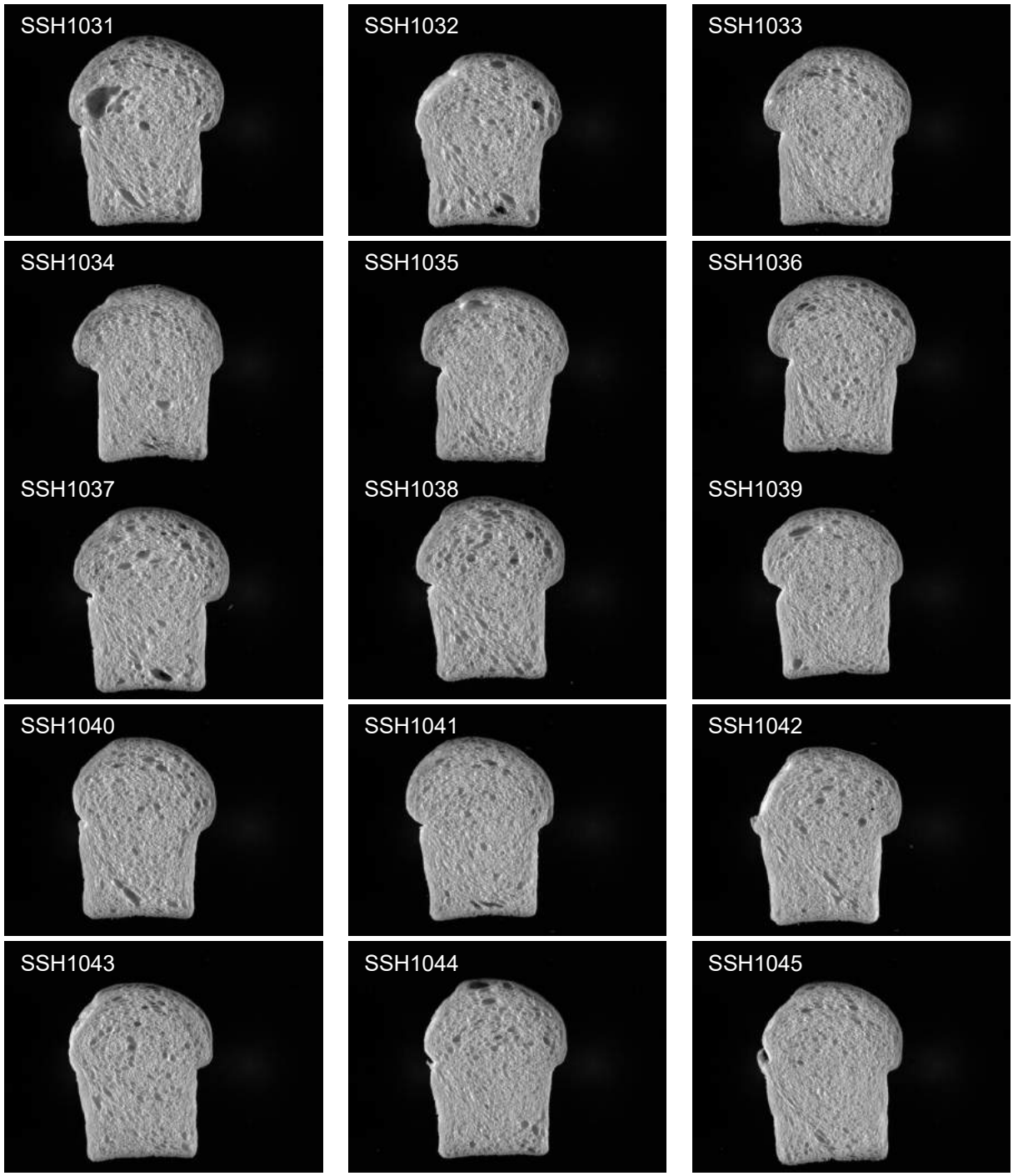
2018 SRPN Intraregional Production Zone
South Central Plains



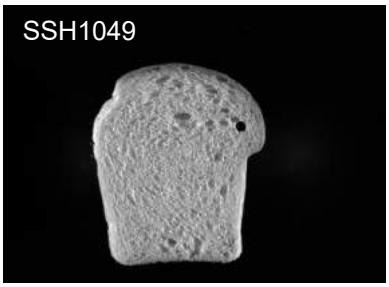
2018 SRPN Intraregional Production Zone
South Central Plains

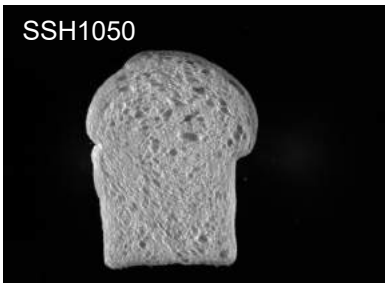


2018 SRPN Intraregional Production Zone
South Central Plains



2018 SRPN Intraregional Production Zone
South Central Plains





RECOMMENDED* QUALITY TARGETS FOR HARD RED WINTER WHEAT

HWW Quality Targets Committee
Approved February, 2006

** "The purpose of Recommended Quality Targets (RQT) for Hard Red Winter Wheat (HRW) is to provide specific quality 'goals' for the breeding community, wheat producers, and marketing programs in order to assist and guide the decisions needed to maintain the consistency and end-use quality of the U.S. HRW market class. The RQT will be dynamic over time in direct response to the primary needs of the marketplace (domestic and foreign), and the needs of the U.S. industry to breed, produce and market wheats to meet market needs. The RQT should NOT be used as essential criteria for variety release decisions in breeding programs, or as marketing/grading standards for private companies or federal/state agencies. This* ***Statement of Purpose*** *must accompany all published forms of the RQT." HWWQT Committee, 2006*

Quality Parameter (End-Use: Pan Bread)	Recommended Target Value
Wheat	
Test Weight (lb/bu)	***> 60***
SKCS-Hardness Index (SK-HI)	***60 – 80***
SK-HI Standard Deviation	***< 17.0***
SKCS-Weight (SK-WT, mg)	***> 30.0***
SK-WT Standard Deviation	***< 8.0***
SKCS-Diameter (SK-SZ, mm)	***> 2.40***
SK-SZ Standard Deviation	***< 0.40***
Protein Content (%, 12% mb)	***> 12.0***
Ash Content (%, 12% mb)	***< 1.60***
Falling Number (sec)	***> 300***
Straight Grade Flour Yield (%)	***> 68***
Flour	
Flour Color L-Value (Minolta Colorimeter)	***> 90***
Gluten Index	***> 95***
Sedimentation Volume (cc)	***> 40***
Farinograph:	
Water Absorption (%, 14% mb)	***62+***
Peak Time (min)	***4.00 – 8.00***
Stability (min)	***10.00-16.00***
Mixograph:	
Water Absorption (%, 14% mb)	***62+***
Peak Time (min)	***3.00 – 6.00***
Mixing Tolerance (HWWQL Score, 0-6)	***3.0***
Straight Dough Pup Method:	
Water Absorption (%, 14% mb)	***62+***
Mix Time (min)	***3.00 – 5.00***
Loaf Volume (cc)	***> 850***
Crumb Score (HWWQL Score, 0-6)	***> 3.0***

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Thank you for reviewing this report on milling and baking data of 2018 Regional Performance Nursery samples. Please let me know if you have any comments on this report. I can be reached at (785) 776-2750 or by email, Richard.chen@ars.usda.gov