

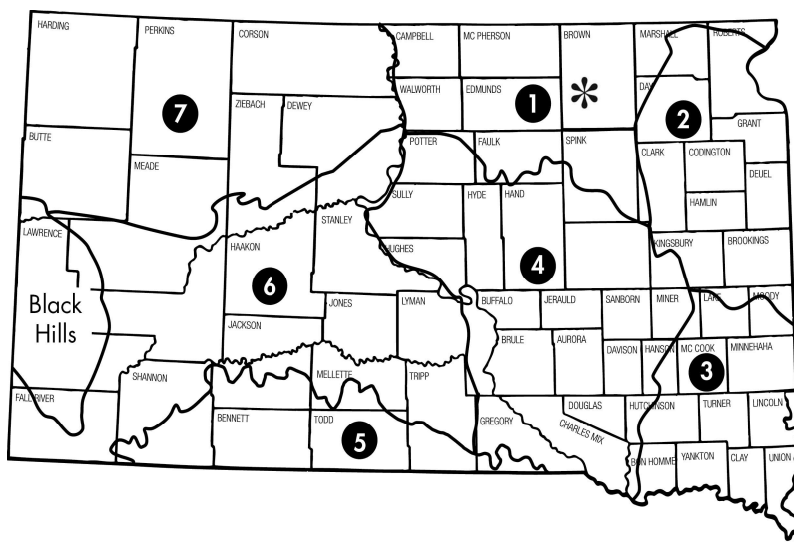
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Recommended Winter Wheat Varieties for Fall 2016 by Crop Zone†

Zone - 1 ^{pc}	Zone - 2 ^{pc}	Zone - 3	Zone - 4 ^{pc}	Zone - 5	Zone - 6	Zone - 7 ^{pc}
Oahe	Ideal‡	Ideal‡	Redfield	Redfield	Ideal‡	Ideal‡
Redfield	Denali	Oahe	Denali	Oahe	Oahe	Lyman
Denali	Freeman‡	Denali	Freeman‡	Denali	Denali	Denali
Freeman‡	LCS Mint‡	Freeman‡	LCS Mint‡	Freeman‡	Freeman‡	LCS Mint‡
LCS Mint‡	Overland	SY Wolf‡	SY Wolf‡	LCS Mint‡	LCS Mint‡	SY Wolf‡
SY Wolf‡	SY Wolf‡	WB Grainfield‡	WB Grainfield‡	Overland	SY Wolf‡	WB Grainfield‡
WB Grainfield‡						

Promising

Antero‡ (white)	Antero‡ (white)	Antero‡ (white)	Antero‡ (white)	Antero‡ (white)	Antero‡ (white)	Antero‡ (white)
SY Monument	SY Monument	LCS Compass	SY Monument	SY Monument	SY Monument	SY Monument
					Ruth‡	

* Multi-year averages are not available for this zone, however it is suggested to select a variety that appears frequently in the recommended list across all zones for the state or neighboring zones.

† Crop Zones for small grains are base on soil & climate information. Recommended varieties are in the top 1/3 of the trial over 3 years for each zone. Promising varieties are those in the top 1/3 of the trial over 2 years.

^{pc} plant in protective cover to improve winter survival in Crop Zones 1, 2, 4, & 7 and in other zones when planting varieties with (Fair) or lower winterhardiness ratings

‡ Variety is susceptible or moderately susceptible to Fusarium Head Blight (Scab).

Table 1. List of 2016 winter wheat testing locations and soil/cultural characteristics.

Location	Testing location characteristics				
	Cooperator	GPS coordinates	Soil Type	Previous crop	Tillage system
East River Locations (8)					
Beresford	Southeast Research Farm	43.043002° -96.901634°	Egan-Clarno-Trent complex, 0-2% slopes	Oats	No-till
Brookings	SDSU Foundation Seed	44.428208° -96.795120°	Kranzburg-Brookings silty clay loams, 0-2% slopes	Sp Wht	Min-till
Brookings - w/fungicide	SDSU Foundation Seed	44.128208° -96.795120°	Kranzburg-Brookings silty clay loams, 0-2% slopes	Sp Wht	Min-till
Onida	Tom Young	44.702751° -100.385525°	Agar silt loam, 0-2% slopes	Sp Wht	No-till
Pierre	Dakota Lakes	44.293688° -99.997029°	Millboro silty clay loam, 0-2% slopes	Flax	No-till
Platte (Geddes)	Curt Sybesma	43.265087° -98.663588°	Highmore-Walke silt loams, 0-2% slopes	Soybeans	No-till
Selby	Mark Stiegelmeyer	45.441954° -100.059511°	Highmore silt loam, cool, 2-6% slopes	Lentils	No-till
South Shore	Northeast Research Farm	45.105893° -97.101744°	Kranzburg-Brookings silty clay loams, 0-2% slopes	Oats	No-till
West River Locations (9)					
Bison	Brad Seidel	45.529722° -102.401111°	Felcor-Yegen loams, 2-6% slopes	Sp Wht	No-till
Hayes	RDO	44.497778° -100.720556°	Opal-Chantier clays, 2-6% slopes	W Wht	No-till
Kennebec (Vivian)	Larson's c/o Logan Ruman	44.006389° -100.194722°	Millboro silty clay, 3-6% slopes	Sp Wht	No-till
Martin	Mary Kay and Carl Novotny	43.187778° -101.656667°	Mobridge silt loam, 0-3% slopes	Millet	No-till
Faith (Dupree)	Bryant Schauer	45.055833° -101.731389°	Daglum-Rhoades loams, 2-6% slopes	Fallow	No-till
Sturgis	Dave Wilson	44.503333° -103.481389°	Nunn clay loams, 0-2% slopes	W Wht	No-till
Wall	Dale Patterson	44.095833° -102.338056°	Santana loam, 0-2% slopes	Fallow	No-till
Winner	Jorgenson Land & Cattle	43.500591° -99.912924°	Millboro silty clay, 0-3% slopes	Oats	No-till
Winner - intensive	Jorgenson Land & Cattle	43.500591° -99.912924°	Millboro silty clay, 0-3% slopes	Oats	No-till

Table 2. Agronomic practices for 2016 winter wheat trial locations.

Location	Agronomic practices					
	Planting date	Starter applied	Other Fertilizer applied	Herbicide applied	Fungicide applied	Harvest date
East River Locations (8)						
Beresford	09/16/15	90# 30-10-10	300# 46-0-0 4/11/16	1.7 pt Wolverine	none	7/14/16
Brookings	09/14/15	45# 30-10-10	225# 46-0-0 4/11/16	1.5 pt Brox M Ultra	none	7/13/16
Brookings - w/fungicide	09/14/15	45# 30-10-10	225# 46-0-0 4/11/16	1.5 pt Brox M Ultra	5 oz Prosaro (heading)	7/13/16
Onida	09/11/15	10 gals 10-34-0	250# 46-0-0 3/13/16	1 pt GoldSky	none	7/12/16
Pierre	09/12/15	10 gals 10-34-0	50 gal 28-0-0 streambar 4/8/16	0.9 pt Bromac Adv. + Harmony	none	7/11/16
Platte (Geddes)	10/06/15	90# 30-10-10	220# 46-0-0 4/4/16	none	none	7/14/16
Selby	09/11/15	10 gals 10-34-0	250# 46-0-0 3/13/16	none	none	7/28/16
South Shore	09/15/15	90# 30-10-10	300# 46-0-0 4/6/16	none	none	7/18/16
West River Locations (9)						
Bison	9/21/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	none	none	8/1/16
Hayes	09/23/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	8 oz Olympus (fall) 16 oz Goldsky	2 oz Bumper (flag lf) 4 oz Triazol (heading)	7/14/16
Kennebec (Vivian)	09/23/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	5 oz Barrage	6 oz Avaris (flag lf & heading)	7/21/16
Martin	09/22/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	none	none	7/22/16
Faith (Dupree)	09/25/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	16 oz Goldsky	4 oz Stratego (heading)	7/25/16
Sturgis	09/28/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	16 oz Goldsky	4 oz Stratego (heading)	7/11/16
Wall	09/25/15	6 gal 10-25-0-5.5Zn	35 gal 28-0-0 mid-row band	3.5 oz Power Flex (fall applied)	none	7/15/16
Winner†	10/12/15	10 gals 10-34-0	250# 46-0-0 3/13/16	1.5 pt Maestro	none	7/14/16
Winner - intensive†	10/12/15	4 gals 7-25-5 + 0.5 gal inFuze	250# 46-0-0 3/13/16	13.5 oz Starane Flex	none‡	7/14/16

‡ Plots at both Winner trials were missing one row, i.e., there were 6 rows instead of 7.

†Due to extremely wet conditions, the cooperator was not able to apply fungicide.

Table 3a. 2016 East River Winter Wheat Performance - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 1			Crop Zone - 2					
	Selby			Brookings			Brookings w/fung.#		
	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein
Alice (White)	111.0	59.4	12.7	57.6	58.2	12.3	52.3	58.1	12.9
Antero (White)	111.0	60.8	10.6	73.9	59.8	11.9	81.3	60.2	12.2
Avery†	92.0	59.0	11.0	68.8	59.5	12.2	72.2	60.4	11.6
Brawl CL Plus	109.6	59.7	12.2	57.1	56.9	13.8	65.4	57.9	13.7
Byrd	97.1	59.5	11.0	66.9	58.5	12.1	68.0	59.4	12.2
LCS Compass	83.4	61.0	11.9	55.2	58.5	12.6	58.9	60.0	12.0
Cowboy†	97.2	59.2	11.2	68.4	57.6	11.6	71.6	58.8	12.0
Decade	87.4	58.3	11.5	57.7	58.9	12.1	66.0	59.8	12.2
Denali	95.3	60.2	11.1	75.9	58.7	10.9	80.5	60.0	11.7
AC Emerson	84.2	60.2	13.5	55.7	59.4	12.9	56.8	60.3	12.3
Expedition	77.6	59.0	12.0	62.4	58.1	12.3	61.1	59.0	11.9
Freeman	105.5	57.4	12.4	73.3	57.6	12.0	67.1	57.8	12.4
WB-Grainfield	110.7	59.1	12.1	78.1	58.7	12.4	73.1	60.2	12.6
Ideal	85.8	59.2	12.0	68.8	59.0	11.8	69.9	58.7	11.3
Lyman	92.4	60.0	12.7	70.8	59.2	13.0	65.2	59.4	12.6
LCS Mint	112.9	61.6	11.8	69.4	60.9	12.1	73.7	60.9	12.0
SY Monument	110.9	59.7	12.2	79.1	58.0	11.9	79.1	58.8	11.9
Oahe	110.7	60.9	11.8	70.8	59.2	12.2	75.9	59.4	12.2
Overland	107.6	59.7	12.4	62.9	58.9	12.3	68.1	59.6	12.5
PSB13NEDH-7-140†	118.9	61.3	12.9	70.1	60.0	12.9	64.0	59.3	13.5
Redfield	111.2	60.4	12.0	69.0	59.5	11.9	71.3	59.7	12.4
Ruth	115.4	60.0	11.8	70.4	59.9	12.7	72.0	60.1	12.6
SY Sunrise†	121.8	60.7	11.6	67.7	58.2	12.5	73.3	59.5	12.7
WB4059-CLP	87.5	59.3	12.3	62.7	50.8	11.4	53.4	53.1	13.1
WB4614	88.9	60.5	11.8	74.1	58.4	12.7	80.4	59.2	12.2
Wesley	100.7	58.1	11.6	65.7	58.2	12.6	67.0	59.4	12.7
SY Wolf	110.0	61.1	11.5	82.9	58.2	12.4	76.7	59.4	12.7
Trial Average	102.4	59.9	11.9	67.8	58.5	12.3	68.2	59.2	12.4
LSD(0.05)‡	10.4	0.8	1.0	7.3	1.3	0.9	6.1	1.4	1.2
CV(%)§	7.3	0.9	5.9	7.7	1.5	5	6.5	1.8	6.7

Foliar fungicide applied at flowering.

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 3b. 2016 East River Winter Wheat Performance, continued - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 2			Crop Zone - 3			Crop Zone - 4		
	South Shore			Beresford			Dakota Lakes		
	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein
Alice (White)	73.2	55.9	14.0	65.8	55.7	12.5	63.7	55.2	14.5
Antero (White)	79.1	55.4	13.7	74.8	56.7	11.7	66.2	53.9	14.6
Avery†	77.6	55.6	13.4	73.3	55.9	12.3	53.6	53.3	14.6
Brawl CL Plus	78.6	57.3	13.5	72.4	58.7	12.3	64.1	53.7	15.4
Byrd	69.3	55.0	13.6	73.4	56.9	11.6	69.0	54.0	14.2
LCS Compass	72.8	56.7	14.4	68.6	59.8	12.3	57.9	53.8	15.0
Cowboy†	70.9	54.9	13.5	73.6	54.5	12.2	60.0	50.4	14.7
Decade	56.0	53.9	14.7	52.1	55.6	12.3	55.6	53.5	15.2
Denali	75.5	55.8	14.1	68.9	55.7	12.6	61.8	51.7	15.4
AC Emerson	52.7	54.9	15.1	43.0	51.3	12.5	51.5	55.7	14.9
Expedition	67.5	55.6	14.5	59.7	55.4	12.0	58.4	52.6	15.1
Freeman	65.3	52.0	14.4	75.0	56.0	11.9	63.5	51.5	15.6
WB-Grainfield	69.2	53.6	14.1	77.3	58.0	12.0	59.1	52.7	15.5
Ideal	75.2	56.1	14.4	60.7	56.0	12.5	56.4	53.4	14.7
Lyman	69.5	56.1	14.0	58.3	55.7	12.3	63.2	54.5	14.8
LCS Mint	76.8	57.4	13.7	71.7	58.5	11.6	67.6	54.7	15.0
SY Monument	77.0	54.4	14.0	63.5	53.2	12.0	67.1	50.3	14.3
Oahe	69.9	57.8	14.0	61.3	56.7	12.0	63.9	57.3	14.8
Overland	73.1	57.7	13.8	61.6	57.1	11.9	63.6	55.6	14.3
PSB13NEDH-7-140†	72.9	57.1	14.6	63.9	57.9	12.6	64.2	56.0	15.7
Redfield	66.5	54.8	15.0	61.8	55.7	12.7	65.2	55.4	15.1
Ruth	66.9	54.5	14.5	74.4	57.8	12.1	64.2	54.7	14.9
SY Sunrise†	79.9	55.5	13.9	72.5	56.6	11.9	70.8	54.3	14.5
WB4059-CLP	66.5	50.7	14.7	67.8	53.1	12.8	55.4	46.2	15.0
WB4614	64.6	55.4	14.5	55.0	52.7	12.2	65.9	53.0	14.6
Wesley	68.5	53.8	15.1	70.6	55.6	12.5	59.1	49.8	15.8
SY Wolf	68.9	54.4	14.4	74.0	54.8	12.3	69.5	53.6	14.3
Trial Average	69.2	55.1	14.2	66.0	55.9	12.2	61.8	53.4	15.0
LSD(0.05)‡	6.0	1.3	0.8	6.4	1.4	0.9	9.9	2.4	1.2
CV(%)§	6.1	1.6	4.2	6.9	1.8	5.1	11.5	3.4	5.8

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 3c. 2016 East River Winter Wheat Performance, continued - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 4						Crop Zones 1, 2, 3, & 4			
	Geddes			Onida			East River Average			
	Yield	Test Wt	Protein	Yield	Test Wt	Protein	Top 1/3%	Yield	Test Wt	Protein
Alice (White)	100	59.8	13.1	62.7	55.5	15.7	50	73.2	57.2	13.4
Antero (White)	99	57.4	12.3	64.4	53.7	14.8	88	81.1	57.2	12.7
Avery†	99	58.2	11.7	61.5	53.0	14.7	38	74.6	56.9	12.7
Brawl CL Plus	99	60.5	12.8	63.5	54.3	15.6	50	76.2	57.4	13.6
Byrd	106	58.8	12.0	67.6	54.4	14.5	50	77.0	57.1	12.6
LCS Compass	100	60.6	12.9	58.5	56.0	15.4	0	69.3	58.3	13.3
Cowboy†	102	59.0	12.0	56.1	51.7	15.6	25	74.8	55.7	12.8
Decade	99	60.6	13.0	47.3	54.4	15.5	0	65.0	56.9	13.3
Denali	106	59.4	12.3	69.4	53.4	15.4	63	79.0	56.9	12.9
AC Emerson	75	59.3	13.6	48.6	55.0	16.7	0	58.3	57.0	13.9
Expedition	103	60.5	12.8	62.2	53.7	16.1	13	68.8	56.7	13.3
Freeman	107	58.2	12.7	62.4	51.2	16.2	50	77.2	55.2	13.4
WB-Grainfield	103	59.8	12.4	58.3	54.5	15.8	63	78.5	57.1	13.4
Ideal	99	61.2	12.9	50.1	53.2	16.6	13	70.5	57.1	13.2
Lyman	98	59.6	13.4	54.6	55.6	16.4	13	71.3	57.5	13.6
LCS Mint	100	59.3	12.4	69.0	54.2	15.1	75	80.0	58.4	13.0
SY Monument	99	56.9	12.4	61.4	52.0	15.4	63	79.6	55.4	13.0
Oahe	97	61.4	12.3	51.5	55.4	16.2	38	75.0	58.5	13.2
Overland	96	60.7	12.8	59.2	56.2	15.2	13	73.9	58.2	13.1
PSB13NEDH-7-140†	102	62.4	13.4	60.4	57.0	15.9	50	76.9	58.9	13.9
Redfield	96	60.6	12.8	63.8	56.3	15.3	38	75.4	57.8	13.4
Ruth	108	60.7	12.8	60.1	55.3	15.6	75	78.8	57.9	13.4
SY Sunrise†	109	60.5	12.3	68.7	56.0	15.4	88	82.9	57.7	13.1
WB4059-CLP	88	55.9	13.6	50.8	38.5	16.0	0	66.4	50.9	13.9
WB4614	89	57.5	12.9	49.6	51.3	16.5	38	70.7	56.0	13.4
Wesley	96	58.2	12.5	56.1	53.0	16.4	0	72.9	55.8	13.6
SY Wolf	105	60.6	12.7	58.2	52.7	15.9	75	80.5	56.9	13.3
Trial Average	98.4	59.7	12.7	59.5	53.8	15.7	-	74.1	57	13.3
LSD(0.05)‡	4.8	1.4	0.6	8.9	4.9	1.5	-	5.6	1.2	0.4
CV(%)§	3.5	1.6	3.6	10.6	6.5	5.5	-	7.5	2.8	5.6

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 4a. 2016 West River Winter Wheat Performance - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 5			Crop Zone - 6								
	Martin			Hayes			Kennebec			Sturgis		
	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein
Alice (White)	77.2	58.9	13.0	56.1	54.9	15.0	53.9	58.0	10.7	60.6	61.7	9.6
Antero (White)	94.7	60.1	12.7	45.6	49.5	14.7	-	-	-	72.7	60.9	8.6
Avery†	87.0	60.0	11.0	47.8	52.4	15.2	64.3	58.6	9.1	71.5	60.5	8.2
Brawl CL Plus	76.9	60.3	13.0	51.2	50.2	16.3	52.1	59.1	10.7	64.8	63.1	9.4
Byrd	84.0	52.6	12.6	47.0	51.8	14.9	59.4	59.0	8.7	69.8	60.2	9.0
LCS Compass	75.0	60.7	13.1	42.4	52.6	15.9	47.3	58.4	9.6	57.0	61.9	10.2
Cowboy†	84.6	58.3	12.8	42.7	49.1	15.7	60.4	56.1	8.8	68.1	59.9	8.9
Decade	81.8	59.5	12.5	39.3	54.0	16.1	54.0	59.8	10.2	59.1	61.9	10.2
Denali	82.8	59.8	12.1	45.8	51.9	15.6	59.2	59.0	8.9	62.7	62.1	9.2
AC Emerson	66.1	60.0	12.5	37.2	55.9	16.5	46.0	59.9	10.9	49.2	62.4	10.9
Expedition	64.7	58.2	12.2	48.2	49.4	16.1	53.8	58.9	10.0	62.7	61.0	9.1
Freeman	86.6	58.3	12.1	42.6	47.6	16.1	57.2	56.3	9.1	65.9	59.4	9.0
WB-Grainfield	95.1	61.0	12.2	46.1	50.1	16.9	61.2	57.6	10.9	68.2	60.8	9.4
Ideal	79.8	59.7	11.6	38.6	53.6	16.7	58.1	58.5	9.6	60.5	62.3	9.3
Lyman	77.2	59.6	13.2	47.6	52.5	16.5	51.2	58.7	9.9	61.5	61.0	9.4
LCS Mint	91.4	60.4	12.8	43.8	55.9	15.5	61.6	59.3	9.3	67.0	62.8	9.2
SY Monument	92.2	59.8	12.4	43.7	50.4	15.8	61.8	56.0	9.3	61.2	59.4	8.8
Oahe	86.7	62.2	12.4	39.9	53.9	15.9	51.1	59.8	9.4	68.6	62.1	9.3
Overland	87.9	61.0	11.8	46.6	54.5	16.6	53.1	58.6	9.5	66.0	61.1	8.8
PSB13NEDH-7-140†	90.0	61.6	12.3	47.4	56.0	16.9	54.4	59.6	9.8	59.4	62.6	10.2
Redfield	85.1	61.1	12.2	44.8	53.0	16.6	52.5	59.5	9.8	62.7	61.7	9.8
Ruth	83.8	60.4	12.8	48.1	52.5	16.3	54.9	59.3	9.7	64.0	62.7	9.2
SY Sunrise†	80.2	61.0	12.7	46.8	51.5	15.5	52.7	57.9	10.3	63.0	61.7	9.5
WB4059-CLP	75.4	54.5	12.3	45.3	45.7	15.7	46.7	55.9	11.0	66.8	52.1	9.2
WB4614	86.3	59.9	12.3	40.3	52.0	16.6	57.0	59.2	9.3	69.3	61.5	9.2
Wesley	75.1	58.8	13.7	43.7	48.8	16.6	51.6	58.3	10.2	64.7	60.9	10.0
SY Wolf	81.1	59.3	12.8	44.7	52.0	16.7	56.3	58.4	9.7	66.2	61.9	9.1
Trial Average	81.7	59.6	12.6	44.5	51.9	16.0	54.4	58.5	9.8	63.4	61.0	9.4
LSD(0.05)‡	12.1	4.0	1.1	6.9	2.5	0.8	7.0	2.1	0.6	6.4	1.3	0.5
CV(%)§	9.8	4.7	6.3	11.1	3.5	2.4	7.0	1.7	3.5	7.1	1.5	2.4

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 4b. 2016 West River Winter Wheat Performance, continued - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 6								
	Wall			Winner			Winner intensive		
	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein	Yield	Test Wt.	Protein
Alice (White)	55.8	55.5	9.3	76.2	56.0	13.2	79.8	58.0	12.9
Antero (White)	65.6	56.9	9.1	82.3	55.8	11.9	81.9	58.2	11.7
Avery†	69.0	56.4	9.5	75.2	55.4	12.2	69.3	56.8	12.5
Brawl CL Plus	56.4	58.1	9.6	77.1	56.7	13.3	75.0	57.7	13.4
Byrd	67.0	55.7	8.5	72.6	54.7	12.9	70.2	55.8	13.0
LCS Compass	53.7	57.4	9.3	72.6	58.6	12.2	68.9	59.6	13.0
Cowboy†	75.0	54.6	8.9	77.9	54.8	12.1	72.8	58.0	12.0
Decade	56.8	55.9	9.2	67.1	58.6	12.6	60.9	59.1	13.0
Denali	72.7	56.5	8.8	76.4	56.6	12.7	78.8	59.4	11.9
AC Emerson	52.6	54.8	9.3	62.3	59.5	13.4	59.1	60.2	13.7
Expedition	55.4	56.7	9.0	71.6	54.7	12.9	67.0	58.1	12.6
Freeman	66.0	55.2	9.4	81.0	54.0	12.7	70.0	54.9	13.1
WB-Grainfield	58.7	57.1	9.5	81.6	54.4	12.3	76.4	57.3	12.3
Ideal	66.1	56.7	9.8	74.0	58.3	12.6	67.8	59.4	12.7
Lyman	60.3	55.2	8.6	76.5	57.5	12.6	78.3	59.5	12.5
LCS Mint	66.4	57.8	8.9	88.8	57.7	11.9	88.6	61.0	12.5
SY Monument	72.2	55.2	8.9	82.7	55.2	12.5	79.6	56.3	12.5
Oahe	63.9	58.6	9.7	70.0	59.3	12.8	71.6	60.3	12.9
Overland	65.2	54.9	8.7	79.6	58.9	12.0	74.8	59.9	12.2
PSB13NEDH-7-140†	62.9	57.1	9.3	79.5	60.4	12.6	68.8	61.5	13.3
Redfield	63.1	56.1	9.2	71.1	57.5	14.1	69.0	59.4	13.7
Ruth	60.7	57.6	10.1	79.9	56.7	13.5	78.1	58.1	12.7
SY Sunrise†	65.1	57.5	9.7	81.2	56.9	12.9	76.4	58.1	13.0
WB4059-CLP	57.9	52.4	9.7	65.7	53.6	13.7	64.6	55.3	13.9
WB4614	72.9	55.6	9.1	64.0	56.4	12.8	71.1	60.6	12.7
Wesley	56.9	54.7	9.8	75.5	56.5	12.9	77.0	57.7	13.0
SY Wolf	62.4	55.5	10.1	83.8	57.4	12.4	69.0	60.3	12.2
Trial Average	61.8	56.1	9.3	74.5	56.7	12.8	72.0	58.5	12.8
LSD(0.05)‡	6.7	1.3	0.8	7.8	2.1	1.1	9.6	1.5	0.9
CV(%)§	7.8	1.7	4.1	7.5	2.6	6.0	9.4	1.9	5.0

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 4c. 2016 West River Winter Wheat Performance, continued - Yield (13% moisture), Test Weight (harvest moisture), and Protein (13% moisture). Varieties yielding in the upper 1/3 of each trial location are denoted by gray shading.

Variety	Crop Zone - 7						Crop Zones 5, 6, & 7			
	Bison			Faith			West River Average			
	Yield	Test Wt	Protein	Yield	Test Wt	Protein	Top 1/3%	Yield	Test Wt	Protein
Alice (White)	34.2	58.3	12.4	85.2	60.8	10.9	22	65.6	58.0	12.0
Antero (White)	48.8	57.3	11.1	108.0	61.4	8.9	78	74.9	57.5	11.1
Avery†	40.6	55.4	12.6	82.3	60.2	9.9	56	67.8	57.1	11.2
Brawl CL Plus	41.9	57.8	12.4	91.5	61.6	10.5	44	66.8	58.2	12.2
Byrd	41.4	56.1	12.5	85.3	61.7	8.7	56	67.1	56.1	11.4
LCS Compass	36.4	57.0	13.2	82.6	62.6	10.1	0	61.1	58.8	12.0
Cowboy†	35.7	54.5	13.0	86.6	60.7	10.2	44	67.9	56.2	11.5
Decade	36.7	58.2	13.4	79.4	62.7	9.2	0	60.1	58.7	11.8
Denali	41.2	55.5	12.6	88.0	61.9	10.3	56	68.6	58.0	11.5
AC Emerson	29.1	57.9	15.0	74.7	62.2	11.1	0	53.8	59.1	12.5
Expedition	36.4	56.6	13.0	88.1	60.9	10.3	11	61.7	56.9	11.8
Freeman	33.1	54.7	12.4	84.4	58.5	10.1	44	66.2	55.3	11.8
WB-Grainfield	41.1	56.5	12.7	92.1	60.2	10.0	89	69.9	57.2	11.8
Ideal	40.1	57.5	13.1	80.8	62.1	9.9	22	63.5	58.7	11.8
Lyman	37.6	56.5	13.9	78.9	61.0	10.7	22	64.7	57.9	11.9
LCS Mint	48.7	58.1	11.9	92.2	62.3	10.3	89	73.3	59.5	11.6
SY Monument	39.6	56.2	11.3	94.3	59.7	10.4	67	70.7	56.5	11.6
Oahe	45.0	58.2	12.3	65.5	62.0	9.7	33	63.9	59.6	11.8
Overland	30.6	58.2	12.5	82.4	60.9	10.6	56	66.6	58.7	11.5
PSB13NEDH-7-140†	41.4	58.4	13.0	78.9	62.2	10.9	44	66.0	60.0	12.2
Redfield	38.3	57.8	13.3	77.4	61.4	10.0	0	63.9	58.5	12.2
Ruth	35.4	58.0	11.7	75.2	60.4	10.6	33	65.6	58.3	12.2
SY Sunrise†	39.8	57.6	11.1	91.6	61.7	10.5	44	68.0	58.2	12.0
WB4059-CLP	40.8	51.2	12.1	84.2	57.8	10.6	11	62.6	52.8	12.1
WB4614	44.7	57.2	13.6	92.9	61.7	10.8	67	67.7	58.1	11.9
Wesley	45.6	55.5	12.9	87.9	60.7	9.8	33	65.8	56.7	12.3
SY Wolf	43.9	55.5	12.5	86.1	61.4	10.2	44	67.1	57.9	11.9
Trial Average	38.3	56.8	12.7	83.8	61	10.2	-	65.0	57.7	12.0
LSD(0.05)‡	8.5	1.9	1.2	12.9	1.8	1.6	-	3.2	0.8	0.5
CV(%)§	15.9	2.3	7.0	11.1	2.1	11.3	-	9.9	2.8	6.5

† New entry in 2016, not previously tested.

‡ Yield, test weight, or protein value required (\geq LSD) to determine if varieties are statistically different than one another, § Coefficient of Variation (C.V.) is a measure of the variability of the experimental error, 15% or less is acceptable.

Table 5. 2014-2016 (2 and 3-year averages) East River Yield (bu/ac @ 13% moisture) Performance - sorted by overall 3-year yield. Varieties yielding in the upper 1/3 for each trial location are denoted by gray shading.

Variety	Zone - 1	Crop Zone - 2				Crop Zone - 3		Crop Zone - 4		Crop Zones 1-4	
	Selby	Brookings		Brookings-fung.		Beresford		Onida		East River Ave.	
	2 year	2 year	3 year	2 year	3 year	2 year	3 year	2 year	3 year	2 year	3 year
SY Wolf	95.6	64.6	65.4	64.5	66.8	81.7	75.2	63.6	76.6	75.4	78.1
Oahe	98.6	59.1	61.4	66.4	68.0	73.3	71.4	62.1	71.3	73.5	75.8
Freeman	96.7	60.1	61.7	57.2	62.1	82.2	75.8	60.1	72.0	72.8	75.5
WB-Grainfield	99.2	57.3	59.3	61.2	62.2	81.4	73.4	61.8	72.7	72.9	74.5
Redfield	99.3	54.3	54.0	64.0	62.9	74.8	69.5	63.5	74.5	72.4	73.8
Denali	83.7	58.5	55.2	69.6	66.4	83.8	73.5	62.4	70.4	73.5	73.6
LCS Mint	90.7	54.4	56.8	62.9	63.6	79.2	69.3	64.5	74.6	72.2	73.4
Ideal	84.5	55.7	56.2	60.5	63.1	75.3	72.6	52.5	69.8	68.8	73.3
Overland	98.9	54.0	55.4	61.5	64.0	71.6	68.4	61.3	70.6	71.7	73.3
Lyman	91.1	58.6	59.2	58.7	61.6	71.7	67.1	60.3	72.5	70.8	72.9
Wesley	88.8	52.8	55.1	57.0	58.2	78.5	69.0	51.5	65.3	67.4	69.6
Byrd	81.3	49.1	49.7	56.7	56.5	81.1	70.7	61.9	69.4	68.9	69.4
Alice	96.8	47.5	47.3	48.9	53.0	73.3	62.4	59.9	67.1	68.5	67.7
Decade	76.9	48.0	50.5	57.8	56.9	69.8	65.7	51.0	66.7	63.3	67.0
Expedition	80.2	49.0	49.1	51.3	53.5	78.8	68.9	56.0	66.0	66.5	66.7
Brawl CL Plus	92.8	41.6	42.3	50.9	51.2	81.9	70.0	60.1	64.1	68.3	66.3
Antero	94.4	58.5	-	70.5	-	80.5	-	67.0	-	75.6	-
SY Monument	94.7	58.5	-	68.1	-	77.3	-	63.5	-	74.1	-
Ruth	95.8	54.2	-	61.5	-	78.3	-	60.9	-	71.8	-
LCS Compass	81.9	46.6	-	54.0	-	85.3	-	54.4	-	67.8	-
WB4614	73.9	50.8	-	67.7	-	70.0	-	51.6	-	64.9	-
AC Emerson	82.5	52.6	-	51.7	-	65.3	-	55.9	-	62.5	-
WB4059CLP	84.0	42.6	-	40.7	-	75.9	-	41.4	-	59.4	-
Avery†	-	-	-	-	-	-	-	-	-	-	-
Cowboy†	-	-	-	-	-	-	-	-	-	-	-
PSB13NEDH-7-140†	-	-	-	-	-	-	-	-	-	-	-
SY Sunrise†	-	-	-	-	-	-	-	-	-	-	-
Trial Average	90.9	53.2	54.5	58.4	60.0	76.6	68.3	59.3	70.2	69.2	69.8
LSD(0.05)‡	7.0	5.0	3.9	4.9	4.1	6.9	4.7	6.1	4.1	8.6	6.0

† New entry in 2016, not previously tested.

‡ Yield value required (\geq LSD) to determine if varieties are statistically different than one another.

Table 6a. 2014-2016 (2 and 3-year averages) West River Yield (bu/ac @ 13% moisture) Performance - sorted by overall 3-year yield. Varieties yielding in the upper 1/3 for each trial location are denoted by gray shading.

Variety	Crop Zone - 5		Crop Zone - 6						
	Martin		Hayes	Kennebec		Sturgis		Wall	
	2 year	3 year	2 year	2 year	3 year	2 year	3 year	2 year	3 year
SY Wolf	68.4	61.1	62.5	65.9	75.1	71.3	65.6	64.8	60.9
LCS Mint	68.8	64.4	61.5	56.8	67.6	76.8	69.9	71.9	63.9
Denali	71.9	65.0	63.5	51.5	66.0	68.7	64.8	81.4	72.0
Ideal	65.4	61.1	58.4	50.5	68.5	66.4	62.7	71.7	69.2
Oahe	71.7	64.2	58.0	58.2	67.8	72.1	65.2	69.2	66.1
Freeman	71.0	65.3	60.4	53.6	67.4	73.0	64.4	66.0	62.8
WB-Grainfield	71.7	61.9	62.6	62.3	69.3	74.9	65.5	66.6	60.6
Overland	67.2	64.2	59.9	53.7	66.2	69.2	61.6	66.3	59.0
Redfield	65.0	62.1	62.6	55.2	65.5	68.1	61.5	73.3	67.2
Lyman	61.1	57.3	58.3	53.2	65.2	62.5	58.6	62.1	59.8
Decade	59.5	57.3	61.4	46.8	64.1	65.1	60.5	66.5	65.7
Wesley	59.2	56.5	58.7	47.9	61.7	66.5	59.5	61.4	57.7
Byrd	65.1	57.7	58.1	49.4	63.1	69.0	62.2	70.3	61.6
Alice	60.3	54.7	67.3	53.3	62.2	64.8	57.7	58.6	53.5
Expidition	57.2	52.5	59.5	51.4	63.1	62.7	57.8	64.8	56.5
Brawl CL Plus	59.8	51.4	59.4	45.9	53.0	64.1	58.0	60.9	54.7
Antero	71.5	-	57.1	48.5	-	79.1	-	73.2	-
SY Monument	68.7	-	64.0	60.1	-	71.6	-	79.5	-
Ruth	66.9	-	70.2	59.0	-	68.5	-	61.9	-
WB4614	64.6	-	55.8	53.1	-	77.9	-	77.2	-
LCS Compass	63.2	-	56.3	43.3	-	58.7	-	58.0	-
AC Emerson	55.7	-	51.6	50.1	-	59.2	-	59.7	-
WB4059CLP	54.4	-	54.9	29.3	-	61.8	-	56.3	-
Avery†	-	-	-	-	-	-	-	-	-
Cowboy†	-	-	-	-	-	-	-	-	-
PSB13NEDH-7-140†	-	-	-	-	-	-	-	-	-
SY Sunrise†	-	-	-	-	-	-	-	-	-
Trial Average	64.9	59.8	59.4	53.4	67.4	68.3	62.1	66.5	61.7
LSD(0.05)‡	7.1	6.2	8.2	9.1	6.3	4.4	3.3	6.3	5.1

† New entry in 2016, not previously tested.

‡ Yield value required (≥LSD) to determine if varieties are statistically different than one another.

Table 6b. 2014-2016 (2 and 3-year averages) West River Yield (bu/ac @ 13% moisture) Performance, continued - sorted by overall 3-year yield. Varieties yielding in the upper 1/3 for each trial location are denoted by gray shading.

Variety	Crop Zone - 6				Crop Zone - 7				Crop Zones 5-7	
	Winner		Winner intensive		Bison		Faith*		West River Ave.	
	2 year	3 year	2 year	3 year	2 year	3 year	2 year	3 year	2 year	3 year
SY Wolf	77.2	77.9	66.4	70.6	48.4	48.3	70.7	66.3	66.2	65.8
LCS Mint	75.1	75.2	75.3	74.9	48.9	44.5	66.9	58.5	66.9	65.0
Denali	63.8	66.1	71.4	70.1	51.7	47.4	62.2	55.9	65.1	63.9
Ideal	68.6	72.0	68.7	71.4	47.0	44.4	59.7	60.3	61.8	63.7
Oahe	67.2	69.8	70.6	69.2	51.9	46.2	56.7	54.2	63.9	62.9
Freeman	71.5	72.4	70.1	69.1	44.3	40.8	63.5	57.9	63.7	62.8
WB-Grainfield	64.9	69.2	73.1	70.3	49.2	41.8	69.2	59.8	66.0	62.6
Overland	69.6	71.5	72.6	70.6	41.7	41.5	62.9	59.3	62.6	62.0
Redfield	64.4	66.6	67.6	68.4	44.1	41.2	57.5	55.2	62.0	61.6
Lyman	69.8	70.9	73.6	72.9	43.4	42.4	63.4	61.0	60.8	61.4
Decade	60.0	66.2	61.8	66.0	44.6	42.4	57.3	53.7	58.1	60.2
Wesley	63.1	65.9	65.2	68.0	53.1	47.9	60.7	54.5	59.5	59.5
Byrd	66.0	66.4	75.4	71.1	50.4	42.9	56.4	50.5	62.2	59.4
Alice	66.0	64.7	67.3	64.1	39.4	35.5	61.0	58.6	59.8	57.7
Expedition	61.9	64.1	64.5	63.7	42.9	39.4	62.0	56.7	58.6	57.3
Brawl CL Plus	66.7	64.3	66.7	62.5	48.6	42.3	61.2	52.4	59.3	55.6
Antero	80.6	-	82.2	-	50.1	-	74.3	-	68.5	-
SY Monument	74.5	-	71.2	-	46.6	-	71.8	-	67.5	-
Ruth	71.4	-	74.7	-	40.8	-	58.1	-	63.5	-
WB4614	56.9	-	68.4	-	45.1	-	61.5	-	62.3	-
LCS Compass	62.9	-	64.0	-	38.6	-	61.7	-	56.3	-
AC Emerson	48.5	-	49.2	-	39.4	-	63.7	-	53.0	-
WB4059CLP	45.6	-	52.8	-	40.3	-	56.3	-	50.2	-
Avery†	-	-	-	-	-	-	-	-	-	-
Cowboy†	-	-	-	-	-	-	-	-	-	-
PSB13NEDH-7-140†	-	-	-	-	-	-	-	-	-	-
SY Sunrise†	-	-	-	-	-	-	-	-	-	-
Trial Average	67.2	69.9	68.4	69.0	44.6	42.5	62.5	58.0	61.7	61.1
LSD(0.05)‡	5.8	4.6	6.4	4.5	8.9	6.1	7.7	6.1	8.2	6.3

*Faith multiyear averages include data from McLaughlin in 2014 and 2015.

† New entry in 2016, not previously tested.

‡ Yield value required (\geq LSD) to determine if varieties are statistically different than one another.

Table 7. List of winter wheat varieties being tested in 2015 along with origin, agronomic, and grain quality characteristics.

Variety	Testing and Origin		Agronomic Characteristics				Grain Quality		
	Years tested in SD trials	Origin†-Year	Rel.‡ Hdg days	Rel.‡ Height inches	Lodging Score§	Winter Hardiness¶	2016 Test Wt.	2016 Protein %	Baking Quality#
Alice (White)	5+	SD-06	3	-2	1.8	G	Good	Good	E
Antero (White)	2	PG-12	0	0	2.1	G	Good	Low	(G)††
Avery	new	PG-15	3	0	2.5	-	Average	Low	-
Brawl CL Plus	3	PG-11	1	0	1.5	F	Good	Good	(E)
Byrd	3	PG-11	2	-1	2.2	(G)	Average	Low	(E)
LCS Compass	2	LCS-15	0	0	2.1	G	High	Average	(E)
Cowboy	new	WY-12	5	-2	2.1	(G)	Low	Average	(A)
Decade	3	MT/ND-10	7	-1	1.5	G	Good	Average	(A)
Denali	3	CO-11	4	0	1.5	G	Good	Average	(A)
AC Emerson	2	MS-15	8	-1	1.2	G	Good	High	(G)
Expedition	5+	SD-02	0	0	2.0	G	Average	Average	G
Freeman	4	NE-13	2	-2	2.4	F	Low	Average	A-G
WB-Grainfield	4	WB-12	1	0	1.9	F	Average	Average	G
Ideal	5+	SD-11	6	0	1.9	G-E	Good	Average	A
Lyman	5+	SD-08	3	0	2.4	G-E	Good	Good	A
LCS Mint	4	LCS-12	1	0	1.9	G	High	Average	(G)
SY Monument	2	AP-14	5	-1	1.8	G-E	Low	Average	(G)
Oahe	4	SD-16	4	3	2.0	G-E	High	Average	A
Overland	5+	NE-06	4	2	1.9	G-E	High	Good	(A)
PSB13NEDH-7-140	new	LCS-exp	6	2	1.2	(G)	High	Good	(A)
Redfield	5+	SD-13	5	-1	1.5	G	Good	Good	G
Ruth	2	NE-16	3	0	1.5	G	Good	Good	(G)
SY Sunrise	new	AP-15	4	-3	1.5	(E)	Good	Average	-
WB4059-CLP	2	WB-13	3	-4	1.3	G	Very Low	Good	(G)
WB4614	2	WB-14	7	-2	1.3	G	Average	Good	-
Wesley ^{no PVP}	5+	NE-99	3	-2	1.4	G	Low	Good	G
SY Wolf	5+	AP-11	4	-1	1.3	G	Good	Average	A

† AP, AgriPro; LCS, Limagrain Cereal Seeds; MS, Meridian Seeds; MT, Montana; NE, Nebraska (Husker Brand Genetics); ND, North Dakota; PG, PlainsGold; SD, South Dakota; WB, WestBred; WY, Wyoming; and – (Year of Release).

‡ Difference in days to heading compared to **Expedition** (2016 from Brookings and South Shore). Height compared to **Expedition** (34 inches) statewide.

§ Lodging score: 1, perfectly standing; to 5, completely flat.

¶ Winter hardiness: E, excellent; G, good; F, fair; P, poor.

Baking quality: E, excellent; G, good; A, acceptable; P, Poor. Note: SDSU does not typically do baking quality analysis.

†† Estimated ratings (X), based on information provided by entity that submitted the variety.

Table 8. Winter wheat variety disease ratings.

Variety	Disease Ratings‡					
	2016 Stripe Rust	Stem Rust	Leaf Rust	Leaf Spot	WSMV	2016 FHB (Scab)
Alice (White)	MS-S	MR	MS	MS-S	MS	MS
Antero (White)	MR	(MR)¶	(S)	MS-S	(MS)	S
Avery†	S	-	-	-	-	MS
Brawl CL Plus	MS-S	(R)	(R)	S	(MS)	MR
Byrd	S	(MS)	(MS)	S	(MS)	MS
LCS Compass	S	(R)	MS-MR	S	(S)	MR
Cowboy†	S	(MS)	(MS-S)	-	(MS)	S
Decade	S	(R)	MR	(MR)	-	MR
Denali	S	(MS)	MS-S	S	(MS)	MR
AC Emerson	MR-MS	(R)	MS	S	-	MS
Expedition	S	R	MS-S	MS-S	S	MR
Freeman	S	MR	MS-S	S	S	MS
WB-Grainfield	MR-MS	MR	MR	S	MR	S
Ideal	S	MR	MR-MS	S	S	MS
Lyman	S	R	MR ?	S	S	MR
LCS Mint	MS-S	MS	MS-S	S	MR	S
SY Monument	MR-R	(R)	MR	S	(R)	MR
Oahe	MR-MS	MS	MR	MS	MR	MR
Overland	S	MR	MR	S	MS	MR
PSB13NEDH-7-140†	MS-S	-	(MR-MS)	-	-	MR
Redfield	S	MR	MS-MR	MS-S	S	MR
Ruth	MS-S	(MR)	MS-S	S	(S)	MS
SY Sunrise†	MR-R	-	-	-	-	MR
WB4059-CLP	S	-	S	MR-MS	-	S
WB4614	MS	-	MS	MS-S	(S)	S
Wesley ^{no PVP}	S	R	MS	S	S	S
SY Wolf	S	MR	MR	MS	MR	S

† new entry in 2016

‡ Disease ratings: R, resistant; MR, moderately resistant; MS, moderately susceptible; S, susceptible.

¶ Estimated rankings based on information provided by the entity that submitted the variety.