

2008 VARIETAL RECOMMENDATION

KUNTZ

AgriPro requests that “Kuntz” hard red spring wheat be considered for variety recommendation in the state of Montana. We move that Kuntz be recommended for irrigated areas in crop reporting districts 2 and 3.

Kuntz was developed by AgriPro and released to AgriPro Associates in 2007. Certified seed will be available to growers in 2008. PVP was issued in 2007. Kuntz was derived from the cross “N97-0214/3/N93-0338//Sumai 3/Dalen”. It is a hollow stemmed, semidwarf hard red spring variety that has very good straw strength. It has exhibited good adaptation across the northern plains including several areas in Montana.

Kuntz has been tested in Montana State Trials (19 station years, Tables 1-5) and the FHB nursery near Manhattan, MT (Table 6) during the 2006 and 2007 seasons. It has exhibited good yields in irrigated trials in Bozeman and Huntley ('06 only) and in the FHB nursery over the two years in test. It would provide growers with a good alternative to Freyr and Kelby for irrigated areas due to its very good straw strength combined with its intermediate rating for scab tolerance. Test weight has been average, equal to the mean of the checks. Height is short, similar to Hank and Conan. It has much improved straw strength over Kelby and Freyr based upon lodging scores in eastern ND (Table 9) and grower reports in the Gallatin valley. Its protein has averaged lower than the checks at .4% lower than Vida and Freyr.

The disease resistance of Kuntz has been well documented from testing in North Dakota and Minnesota (Table 9). Kuntz has the Asian background (Sumai3) for fusarium resistance. Its scab rating is intermediate which would make it a good choice for use under irrigation. It is resistant to stem and moderately resistant to leaf rust. It has good tolerance to leaf spotting diseases. Based on Bozeman data from 2006, it is moderately susceptible to stripe rust.

Kuntz has acceptable overall breadmaking quality (Tables 7 and 8). It has good flour yield with mixing properties similar to the mean of the checks.

TABLE 1. 2006-2007 GRAIN YIELD (BU/AC) SUMMARY OF KUNTZ COMPARED TO SELECTED VARIETIES, MSU DATA

ID	PEDIGREE	DISTRICT 5				DISTRICT 6				DISTRICT 6				DISTRICT 4				DISTRICT 5			
		HAVRE				SIDNEY DRY				SIDNEY IRR				MOCCASIN				CONRAD DRY			
		2006	2007	YRS	AVE	2006	2007	YRS	ADJ1	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE
AGRIPRO7	KUNTZ	26.7	31.5	2	29.1	58.4	51.6	2	55.0	72.5	30.8	2	51.6	38.6	41.4	2	40.0	56.8	37.0	2	46.9
AGRIPRO6	KELBY	29.3	37.5	2	33.4	50.4	49.3	2	49.9	67.9	30.6	2	49.3	38.1	40.2	2	39.2	58.8	39.7	2	49.2
CI 13596	FORTUNA	34.0	32.1	2	33.0	49.0	49.2	2	49.1	60.3	40.3	2	50.3	32.1	34.5	2	33.3	43.7	32.9	2	38.3
PI574642	MCNEAL	27.4	34.8	2	31.1	52.7	53.8	2	53.3	69.5	46.4	2	58.0	34.2	43.0	2	38.6	51.3	36.6	2	43.9
PI592761	ERNEST	26.6	32.7	2	29.6	48.9	46.7	2	47.8	69.8	35.0	2	52.4	22.8	38.2	2	30.5	54.6	39.4	2	47.0
ND 695	REEDER	28.8	35.6	2	32.2	59.7	52.1	2	55.9	83.7	44.1	2	63.9	34.5	42.0	2	38.2	62.0	35.0	2	48.5
BZ992588	CONAN	31.9	35.8	2	33.9	46.0	48.8	2	47.4	72.1	37.5	2	54.8	32.8	37.7	2	35.3	53.1	36.2	2	44.7
BZ992322	HANK	33.3	34.5	2	33.9	55.0	53.6	2	54.3	69.1	40.3	2	54.7	37.2	42.3	2	39.8	59.6	33.1	2	46.4
PI632252	OUTLOOK	31.8	35.5	2	33.6	57.4	55.7	2	56.5	69.4	42.6	2	56.0	31.5	44.6	2	38.1	63.8	33.6	2	48.7
PI633974	CHOTEAU	32.1	36.1	2	34.1	52.3	52.1	2	52.2	71.3	35.5	2	53.4	33.9	43.0	2	38.4	67.3	37.8	2	52.6
PI642366	VIDA	34.3	42.3	2	38.3	60.6	56.2	2	58.4	77.4	35.7	2	56.6	35.5	44.3	2	39.9	64.7	37.6	2	51.1
AGRIPRO1	NORPRO	30.9	35.4	2	33.2	57.2	53.6	2	55.4	74.3	29.5	2	51.9	31.7	41.3	2	36.5	58.0	34.8	2	46.4
AGRIPRO3	FREYR	30.7	33.7	2	32.2	55.0	51.4	2	53.2	76.6	31.9	2	54.3	33.7	39.0	2	36.4	55.6	33.5	2	44.6
BZ996434	CORBIN	29.4	42.8	2	36.1	54.4	55.7	2	55.1	67.4	29.1	2	48.2	33.5	41.7	2	37.6	56.2	37.0	2	46.6
AVERAGE		30.5	35.7	2	33.1	54.1	52.1	2	53.1	71.5	36.4	2	53.9	33.6	40.9	2	37.3	57.5	36.0	2	46.8

ID	PEDIGREE	DISTRICT 3				DISTRICT 3			DISTRICT 1				DISTRICT 2				DISTRICT 2				OVERALL		
		HUNTLEY DRY				HUNTLEY IRR			KALISPELL				BOZ DRY				BOZ IRR				AVE	YEARS	RANK1
		2006	2007	YRS	AVE	2006	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE			
AGRIPRO7	KUNTZ	49.9	57.07	2	53.5	97.3	1	97.3	67.5	50.52	2	59.0	54.56	42.68	2	48.6	53.94	59.5	2	56.74	51.5	19	6
AGRIPRO6	KELBY	37.9	40.1	2	39.0	69.7	1	69.7	77.9	46.8	2	62.4	47.7	50.1	2	48.9	49.5	59.1	2	54.3	48.5	19	10
CI 13596	FORTUNA	41.3	54.7	2	48.0	70.3	1	70.3	41.4	51.6	2	46.5	53.3	40.5	2	46.9	55.6	37.7	2	46.7	45.0	19	14
PI574642	MCNEAL	57.1	55.9	2	56.5	89.2	1	89.2	51.3	52.9	2	52.1	47.3	42.7	2	45.0	33.0	41.3	2	37.2	48.4	19	11
PI592761	ERNEST	50.0	60.1	2	55.1	84.3	1	84.3	50.2	45.5	2	47.9	48.7	37.1	2	42.9	48.4	42.2	2	45.3	46.4	19	13
ND 695	REEDER	52.5	61.4	2	56.9	77.6	1	77.6	75.1	62.8	2	68.9	65.4	46.4	2	55.9	56.2	57.0	2	56.6	54.3	19	2
BZ992588	CONAN	41.7	55.4	2	48.5	70.5	1	70.5	56.5	46.1	2	51.3	55.2	41.0	2	48.1	63.7	52.2	2	58.0	48.1	19	12
BZ992322	HANK	47.3	61.4	2	54.3	92.2	1	92.2	74.0	55.9	2	64.9	56.8	44.7	2	50.7	60.6	56.2	2	58.4	53.0	19	3
PI632252	OUTLOOK	56.5	63.4	2	59.9	94.0	1	94.0	63.0	55.8	2	59.4	54.9	43.0	2	48.9	48.4	54.4	2	51.4	52.6	19	4
PI633974	CHOTEAU	53.5	61.9	2	57.7	87.9	1	87.9	74.2	47.2	2	60.7	59.3	39.8	2	49.5	54.8	54.1	2	54.4	52.3	19	5
PI642366	VIDA	54.0	67.2	2	60.6	88.2	1	88.2	54.5	64.3	2	59.4	64.8	47.7	2	56.3	53.7	58.0	2	55.9	54.8	19	1
AGRIPRO1	NORPRO	54.8	65.3	2	60.1	86.9	1	86.9	70.7	48.3	2	59.5	47.2	42.4	2	44.8	39.1	59.2	2	49.1	50.6	19	9
AGRIPRO3	FREYR	49.8	55.0	2	52.4	81.4	1	81.4	68.5	54.1	2	61.3	61.5	36.8	2	49.2	64.4	57.5	2	61.0	51.1	19	8
BZ996434	CORBIN	51.2	62.7	2	57.0	88.3	1	88.3	44.8	53.0	2	48.9	60.8	40.8	2	50.8	74.5	49.5	2	62.0	51.2	19	7
AVERAGE		49.8	58.7	2	54.2	84.1	1	84.1	62.1	52.5	2	57.3	55.5	42.5	2	49.0	54.0	52.7	2	53.4	50.6	19	0

TABLE 2. 2006-2007 GRAIN TEST WEIGHT (LB/BU) SUMMARY OF KUNTZ COMPARED TO SELECTED VARIETIES, MSU DATA

ID	PEDIGREE	DISTRICT 5				DISTRICT 6				DISTRICT 6				DISTRICT 4				DISTRICT 5			
		HAVRE				SIDNEY DRY				SIDNEY IRR				MOCCASIN				CONRAD DRY			
		2006	2007	YRS	AVE	2006	2007	YRS	ADJ1	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE
AGRIPRO7	KUNTZ	55.7	56.42	2	56.0	61.4	62.4	2	61.9	59	58.36	2	58.68	58.3	60.4	2	59.4	60.0	59.5	2	59.8
AGRIPRO6	KELBY	57.4	59.3	2	58.3	61.2	62.8	2	62.0	60.5	61.3	2	60.9	60.8	61.0	2	60.9	61.9	61.8	2	61.9
CI 13596	FORTUNA	56.5	56.8	2	56.6	59.3	61.4	2	60.4	59.5	60.4	2	60.0	60.5	58.4	2	59.4	60.3	58.8	2	59.5
PI574642	MCNEAL	51.9	54.8	2	53.4	57.3	60.9	2	59.1	57.3	58.3	2	57.8	57.8	59.1	2	58.4	58.9	57.1	2	58.0
PI592761	ERNEST	54.1	57.3	2	55.7	59.5	61.3	2	60.4	59.0	60.9	2	60.0	59.2	58.7	2	58.9	58.7	59.4	2	59.1
ND 695	REEDER	53.9	56.6	2	55.3	59.7	61.8	2	60.7	60.8	60.8	2	60.8	59.6	59.4	2	59.5	60.0	59.1	2	59.6
BZ992588	CONAN	54.9	57.3	2	56.1	59.8	61.3	2	60.6	56.7	60.2	2	58.4	59.0	58.1	2	58.6	59.1	59.6	2	59.3
BZ992322	HANK	53.0	54.6	2	53.8	58.3	60.6	2	59.4	56.5	58.8	2	57.6	57.1	53.3	2	55.2	58.0	55.9	2	56.9
PI632252	OUTLOOK	52.0	55.6	2	53.8	57.6	60.7	2	59.2	58.3	59.3	2	58.8	56.0	57.7	2	56.8	56.9	54.5	2	55.7
PI633974	CHOTEAU	53.7	55.5	2	54.6	59.6	62.0	2	60.8	58.2	60.1	2	59.1	60.4	59.2	2	59.8	59.6	59.8	2	59.7
PI642366	VIDA	53.1	56.3	2	54.7	59.1	61.3	2	60.2	58.8	56.3	2	57.6	58.3	58.7	2	58.5	58.3	58.8	2	58.5
AGRIPRO1	NORPRO	51.7	55.3	2	53.5	59.9	62.1	2	61.0	60.0	58.7	2	59.4	58.3	57.2	2	57.7	56.8	58.3	2	57.5
AGRIPRO3	FREYR	55.3	57.1	2	56.2	60.8	62.0	2	61.4	59.7	59.3	2	59.5	61.1	59.7	2	60.4	60.5	58.4	2	59.4
BZ996434	CORBIN	54.5	57.6	2	56.0	59.8	61.6	2	60.7	59.0	59.3	2	59.1	59.0	56.9	2	58.0	59.3	57.8	2	58.5
AVERAGE		54.1	56.5	2	55.3	59.5	61.6	2	60.6	58.8	59.4	2	59.1	59.0	58.4	2	58.7	59.2	58.5	2	58.8

ID	PEDIGREE	DISTRICT 3				DISTRICT 3			DISTRICT 1				DISTRICT 2				DISTRICT 2				OVERALL		
		HUNTLEY DRY				HUNTLEY IRR			KALISPELL				BOZ DRY				BOZ IRR				AVE	YEARS	RANK1
		2006	2007	YRS	AVE	2006	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS
AGRIPRO7	KUNTZ	63.1	62.9	2	63.0	64.3	1	64.3	60.4	58.7	2	59.6	58.7	53.4	2	56.1	57.9	58.2	2	58.03	59.4	19	5
AGRIPRO6	KELBY	63.2	63.6	2	63.4	64.4	1	64.4	61.9	59.3	2	60.6	61.0	57.0	2	59.0	59.8	58.5	2	59.2	60.9	19	1
CI 13596	FORTUNA	62.2	62.2	2	62.2	63.7	1	63.7	58.3	57.5	2	57.9	61.7	56.1	2	58.9	60.3	59.0	2	59.7	59.6	19	4
PI574642	MCNEAL	61.1	62.1	2	61.6	63.5	1	63.5	58.4	56.2	2	57.3	56.2	53.8	2	55.0	56.2	57.2	2	56.7	57.8	19	12
PI592761	ERNEST	62.7	62.5	2	62.6	63.4	1	63.4	61.4	58.8	2	60.1	60.1	55.1	2	57.6	57.5	58.2	2	57.9	59.4	19	6
ND 695	REEDER	62.6	63.5	2	63.0	64.1	1	64.1	60.8	57.0	2	58.9	62.3	56.8	2	59.6	60.1	59.8	2	60.0	59.9	19	3
BZ992588	CONAN	62.1	62.6	2	62.4	63.2	1	63.2	61.1	58.0	2	59.6	59.9	55.3	2	57.6	59.3	58.7	2	59.0	59.3	19	7
BZ992322	HANK	61.0	62.2	2	61.6	62.5	1	62.5	56.6	55.2	2	55.9	56.0	53.0	2	54.5	56.2	56.8	2	56.5	57.1	19	14
PI632252	OUTLOOK	61.3	61.6	2	61.5	62.6	1	62.6	58.6	55.2	2	56.9	56.4	52.1	2	54.3	54.2	57.1	2	55.7	57.3	19	13
PI633974	CHOTEAU	62.1	63.5	2	62.8	63.9	1	63.9	61.6	58.3	2	60.0	58.7	54.8	2	56.8	57.9	56.9	2	57.4	59.2	19	8
PI642366	VIDA	62.8	62.6	2	62.7	63.4	1	63.4	60.6	58.0	2	59.3	57.5	54.9	2	56.2	57.5	56.2	2	56.9	58.6	19	10
AGRIPRO1	NORPRO	62.4	63.5	2	62.9	63.8	1	63.8	60.5	57.8	2	59.2	55.0	53.6	2	54.3	53.2	57.5	2	55.3	58.2	19	11
AGRIPRO3	FREYR	62.8	63.5	2	63.1	63.9	1	63.9	62.0	59.5	2	60.8	61.0	53.7	2	57.4	59.8	59.2	2	59.5	60.0	19	2
BZ996434	CORBIN	63.0	63.3	2	63.2	64.0	1	64.0	58.4	58.0	2	58.2	60.4	54.9	2	57.7	61.9	56.9	2	59.4	59.2	19	9
AVERAGE		62.3	62.8	2	62.6	63.6	1	63.6	60.0	57.7	2	58.9	58.9	54.6	2	56.8	58.0	57.9	2	57.9	59.0	19	0

TABLE 3. 2006-2007 HEADING DATE (JULIAN DAYS; 170=JUNE 19) SUMMARY OF KUNTZ COMPARED TO SELECTED VARIETIES, MSU DATA

ID	PEDIGREE	DISTRICT 5				DISTRICT 6				DISTRICT 6				DISTRICT 4				DISTRICT 5			
		HAVRE		YRS	AVE	SIDNEY DRY		YRS	ADJ1	SIDNEY IRR		YRS	AVE	MOCCASIN		YRS	AVE	CONRAD DRY		YRS	AVE
		2006	2007			2006	2007			2006	2007			2006	2007			2006	2007		
AGRIPRO7	KUNTZ	166	177.76	2	172	165	171.76	2	168	168.67	175.55	2	172	171	176	2	174	176	178	2	177
AGRIPRO6	KELBY	164	174	2	169	163	169	2	166	168	175	2	172	169	174	2	171	174	176	2	175
CI 13596	FORTUNA	165	174	2	170	165	172	2	169	170	177	2	173	171	177	2	174	176	178	2	177
PI574642	MCNEAL	170	177	2	173	168	174	2	171	171	178	2	175	174	179	2	176	178	179	2	179
PI592761	ERNEST	167	177	2	172	167	172	2	169	170	175	2	173	172	178	2	175	177	180	2	179
ND 695	REEDER	166	177	2	172	165	172	2	168	169	176	2	172	171	178	2	175	176	179	2	178
BZ992588	CONAN	166	176	2	171	166	172	2	169	170	175	2	173	171	176	2	174	175	179	2	177
BZ992322	HANK	164	173	2	169	163	170	2	166	166	175	2	171	171	176	2	173	175	176	2	176
PI632252	OUTLOOK	170	179	2	174	169	175	2	172	172	177	2	175	175	179	2	177	179	180	2	180
PI633974	CHOTEAU	166	178	2	172	166	171	2	169	170	175	2	173	172	176	2	174	177	179	2	178
PI642366	VIDA	167	178	2	173	166	173	2	170	170	176	2	173	173	178	2	176	178	180	2	179
AGRIPRO1	NORPRO	165	178	2	172	166	173	2	169	169	175	2	172	170	178	2	174	176	179	2	178
AGRIPRO3	FREYR	165	176	2	171	165	172	2	168	169	175	2	172	171	177	2	174	175	177	2	176
BZ996434	CORBIN	164	174	2	169	164	170	2	167	167	174	2	171	171	176	2	174	175	177	2	176
AVERAGE		166	176	2	171	166	172	2	169	169	176	2	173	172	177	2	174	176	178	2	177

ID	PEDIGREE	DISTRICT 3				DISTRICT 3			DISTRICT 1				DISTRICT 2				DISTRICT 2				OVERALL			
		HUNTLEY DRY		YRS	AVE	HUNTLEY IRR		YRS	AVE	KALISPELL		YRS	AVE	BOZ DRY		YRS	AVE	BOZ IRR		YRS	AVE	AVE	YEARS	RANK1
		2006	2007			2006	2007			2006	2007			2006	2007			2006	2007					
AGRIPRO7	KUNTZ	159	161	2	160	158	1	158	179	174	2	176	174	181	2	178	174	181	2	177.5	172	19	7	
AGRIPRO6	KELBY	159	157	2	158	156	1	156	177	168	2	173	173	178	2	176	172	178	2	175	170	19	14	
CI 13596	FORTUNA	156	159	2	157	156	1	156	180	172	2	176	176	182	2	179	176	181	2	179	172	19	8	
PI574642	MCNEAL	159	162	2	161	160	1	160	180	175	2	177	177	182	2	180	177	182	2	180	174	19	2	
PI592761	ERNEST	156	159	2	158	157	1	157	179	174	2	176	176	182	2	179	176	182	2	179	172	19	4	
ND 695	REEDER	157	160	2	158	157	1	157	178	171	2	174	173	181	2	177	176	181	2	179	172	19	10	
BZ992588	CONAN	159	159	2	159	157	1	157	179	172	2	176	175	180	2	178	176	180	2	178	172	19	9	
BZ992322	HANK	159	159	2	159	158	1	158	178	169	2	174	174	179	2	177	174	179	2	177	170	19	12	
PI632252	OUTLOOK	160	162	2	161	163	1	163	181	175	2	178	178	183	2	181	178	183	2	181	175	19	1	
PI633974	CHOTEAU	158	160	2	159	158	1	158	179	171	2	175	176	180	2	178	176	180	2	178	172	19	6	
PI642366	VIDA	158	160	2	159	158	1	158	180	173	2	176	177	182	2	180	176	181	2	179	173	19	3	
AGRIPRO1	NORPRO	159	160	2	160	160	1	160	179	174	2	176	176	180	2	178	176	182	2	179	172	19	5	
AGRIPRO3	FREYR	157	160	2	159	156	1	156	178	171	2	175	175	181	2	178	174	180	2	177	171	19	11	
BZ996434	CORBIN	157	159	2	158	156	1	156	178	170	2	174	174	179	2	177	173	179	2	176	170	19	13	
AVERAGE		158	160	2	159	158	1	158	179	172	2	175	175	181	2	178	175	181	2	178	172	19	0	

TABLE 4. 2006-2007 PLANT HEIGHT (INCHES) SUMMARY OF KUNTZ COMPARED TO SELECTED VARIETIES, MSU DATA

ID	PEDIGREE	DISTRICT 5				DISTRICT 6				DISTRICT 6				DISTRICT 4				DISTRICT 5			
		HAVRE				SIDNEY DRY				SIDNEY IRR				MOCCASIN				CONRAD DRY			
		2006	2007	YRS	AVE	2006	2007	YRS	ADJ1	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE
AGRIPRO7	KUNTZ	24.3	25.4	2	24.8	28.1	31.1	2	29.6	28.1	28.3	2	28.2	31.8	32.9	2	32.4	30.0	27.0	2	28.5
AGRIPRO6	KELBY	22.6	23.2	2	22.9	26.9	28.5	2	27.7	26.0	26.2	2	26.1	33.4	30.5	2	31.9	30.0	25.0	2	27.5
CI 13596	FORTUNA	27.9	29.1	2	28.5	34.2	37.6	2	35.9	35.4	39.3	2	37.3	39.8	40.0	2	39.9	42.0	34.0	2	38.0
PI574642	MCNEAL	24.2	25.9	2	25.0	30.6	31.8	2	31.2	30.5	34.7	2	32.6	36.0	36.2	2	36.1	33.0	28.0	2	30.5
PI592761	ERNEST	28.5	29.8	2	29.1	35.2	36.8	2	36.0	36.3	38.3	2	37.3	39.0	39.5	2	39.2	39.0	36.0	2	37.5
ND 695	REEDER	25.4	27.1	2	26.2	28.2	31.2	2	29.7	30.2	33.3	2	31.8	33.8	35.4	2	34.6	35.0	25.0	2	30.0
BZ992588	CONAN	21.7	24.3	2	23.0	27.0	29.7	2	28.3	29.1	30.9	2	30.0	32.8	34.1	2	33.4	33.0	25.0	2	29.0
BZ992322	HANK	23.8	24.4	2	24.1	27.6	27.0	2	27.3	27.5	29.5	2	28.5	33.1	35.3	2	34.2	33.0	27.0	2	30.0
PI632252	OUTLOOK	26.1	26.4	2	26.3	30.0	32.4	2	31.2	30.8	32.3	2	31.6	33.6	35.2	2	34.4	34.0	26.0	2	30.0
PI633974	CHOTEAU	26.0	24.2	2	25.1	28.7	31.0	2	29.9	28.8	28.6	2	28.7	34.6	33.7	2	34.1	33.0	25.0	2	29.0
PI642366	VIDA	26.9	26.5	2	26.7	30.2	32.5	2	31.4	30.7	34.7	2	32.7	34.7	37.0	2	35.8	34.0	27.0	2	30.5
AGRIPRO1	NORPRO	24.6	23.1	2	23.9	27.7	29.9	2	28.8	27.5	28.6	2	28.0	33.4	33.3	2	33.4	29.0	24.0	2	26.5
AGRIPRO3	FREYR	26.5	27.6	2	27.0	30.6	33.2	2	31.9	31.2	30.3	2	30.8	37.1	36.2	2	36.7	35.0	30.0	2	32.5
BZ996434	CORBIN	23.2	27.3	2	25.3	29.5	30.1	2	29.8	28.7	29.0	2	28.8	34.5	35.2	2	34.8	33.0	29.0	2	31.0
AVERAGE		25.1	26.0	2	25.6	29.6	31.6	2	30.6	30.1	31.7	2	30.9	34.8	35.3	2	35.1	33.8	27.7	2	30.8

ID	PEDIGREE	DISTRICT 3				DISTRICT 3			DISTRICT 1				DISTRICT 2				DISTRICT 2				OVERALL				
		HUNTLEY DRY				HUNTLEY IRR			KALISPELL				BOZ DRY				BOZ IRR				AVE	YEARS	RANK1		
		2006	2007	YRS	AVE	2006	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	YEARS
AGRIPRO7	KUNTZ	29.5	32.1	2	30.8	36.3	1	36.3	34.1	29.3	2	31.7	28.8	30.1	2	29.5	28.9	30.2	2	29.56	29.8	19	13		
AGRIPRO6	KELBY	27.7	30.3	2	29.0	32.7	1	32.7	34.6	30.0	2	32.3	27.7	29.8	2	28.7	27.8	30.2	2	29.0	28.6	19	14		
CI 13596	FORTUNA	38.9	42.5	2	40.7	45.6	1	45.6	46.3	39.3	2	42.8	38.2	38.7	2	38.5	38.0	40.6	2	39.3	38.3	19	1		
PI574642	MCNEAL	34.7	34.6	2	34.6	40.2	1	40.2	39.9	32.2	2	36.0	31.5	31.1	2	31.3	31.4	34.0	2	32.7	32.6	19	5		
PI592761	ERNEST	39.0	41.8	2	40.4	44.6	1	44.6	44.9	35.0	2	40.0	39.4	36.4	2	37.9	37.4	40.1	2	38.8	37.7	19	2		
ND 695	REEDER	31.3	35.4	2	33.3	41.3	1	41.3	39.1	32.6	2	35.9	33.7	32.6	2	33.2	32.9	33.6	2	33.3	32.5	19	6		
BZ992588	CONAN	29.3	32.6	2	30.9	35.0	1	35.0	35.7	29.5	2	32.6	29.9	29.5	2	29.7	29.7	32.0	2	30.8	30.0	19	11		
BZ992322	HANK	30.7	32.2	2	31.5	35.8	1	35.8	37.5	30.5	2	34.0	29.2	31.2	2	30.2	29.4	31.3	2	30.3	30.3	19	10		
PI632252	OUTLOOK	32.9	35.3	2	34.1	40.5	1	40.5	38.2	32.3	2	35.3	32.2	30.6	2	31.4	32.9	34.2	2	33.5	32.4	19	7		
PI633974	CHOTEAU	31.3	32.9	2	32.1	36.3	1	36.3	36.6	30.6	2	33.6	30.6	30.5	2	30.6	29.9	33.2	2	31.5	30.8	19	9		
PI642366	VIDA	32.6	36.2	2	34.4	39.8	1	39.8	38.2	31.7	2	35.0	33.1	31.6	2	32.4	32.1	34.6	2	33.3	32.9	19	4		
AGRIPRO1	NORPRO	30.1	34.3	2	32.2	36.2	1	36.2	35.7	29.1	2	32.4	29.3	30.0	2	29.7	29.6	31.0	2	30.3	29.8	19	12		
AGRIPRO3	FREYR	33.7	36.4	2	35.0	40.2	1	40.2	37.9	33.6	2	35.7	34.2	32.6	2	33.4	33.8	34.6	2	34.2	33.4	19	3		
BZ996434	CORBIN	32.3	34.3	2	33.3	39.2	1	39.2	35.7	32.1	2	33.9	31.4	31.6	2	31.5	31.5	33.5	2	32.5	31.6	19	8		
AVERAGE		32.4	35.1	2	33.7	38.8	1	38.8	38.2	32.0	2	35.1	32.1	31.9	2	32.0	31.8	33.8	2	32.8	32.2	19	0		

TABLE 5. 2006-2007 GRAIN PROTEIN (%) SUMMARY OF KUNTZ COMPARED TO SELECTED VARIETIES, MSU DATA

ID	PEDIGREE	DISTRICT 5				DISTRICT 6				DISTRICT 6				DISTRICT 4				DISTRICT 5			
		HAVRE				SIDNEY DRY				SIDNEY IRR				MOCCASIN				CONRAD DRY			
		2006	2007	YRS	AVE	2006	2007	YRS	ADJ1	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE
AGRIPRO7	KUNTZ	16.8	16.3	2	16.5	12	12.2	2	12.1	13.2	15.1	2	14.2	12.7	11.1	2	11.9	13.4	14.8	2	14.1
AGRIPRO6	KELBY	17.2	16.6	2	16.9	14.9	13.5	2	14.2	14.4	16.8	2	15.6	14.3	12.6	2	13.5	13.4	15.2	2	14.3
CI 13596	FORTUNA	16.5	15.6	2	16.0	13.2	12.7	2	13.0	13.9	16.0	2	15.0	14.1	12.9	2	13.5	13.6	15.1	2	14.4
PI574642	MCNEAL	18.0	17.3	2	17.7	13.7	12.9	2	13.3	13.3	15.9	2	14.6	14.4	11.9	2	13.2	13.1	15.3	2	14.2
PI592761	ERNEST	18.7	17.0	2	17.8	14.0	12.6	2	13.3	14.3	15.1	2	14.7	14.0	13.7	2	13.9	13.4	15.4	2	14.4
ND 695	REEDER	17.2	16.9	2	17.1	13.9	12.6	2	13.3	14.0	15.4	2	14.7	14.6	12.9	2	13.8	13.9	15.1	2	14.5
BZ992588	CONAN	18.0	16.6	2	17.3	13.8	12.6	2	13.2	13.7	14.8	2	14.3	14.0	12.8	2	13.4	13.8	15.2	2	14.5
BZ992322	HANK	17.7	16.7	2	17.2	12.8	11.2	2	12.0	14.4	15.6	2	15.0	13.6	12.7	2	13.2	14.2	15.9	2	15.1
PI632252	OUTLOOK	18.4	16.4	2	17.4	12.9	11.8	2	12.4	13.1	14.5	2	13.8	15.3	11.6	2	13.5	13.9	15.8	2	14.9
PI633974	CHOTEAU	17.8	16.9	2	17.3	14.1	12.6	2	13.4	13.6	16.2	2	14.9	12.8	12.7	2	12.8	13.7	15.2	2	14.5
PI642366	VIDA	17.9	16.5	2	17.2	13.0	11.9	2	12.5	13.6	15.3	2	14.5	13.5	11.5	2	12.5	13.9	14.9	2	14.4
AGRIPRO1	NORPRO	17.5	17.1	2	17.3	13.5	11.5	2	12.5	12.9	15.6	2	14.3	12.8	11.9	2	12.4	13.2	15.0	2	14.1
AGRIPRO3	FREYR	16.9	16.3	2	16.6	13.0	12.3	2	12.7	13.3	15.2	2	14.3	12.7	12.1	2	12.4	13.2	15.5	2	14.4
BZ996434	CORBIN	18.3	16.5	2	17.4	14.0	11.5	2	12.8	13.2	14.8	2	14.0	14.5	13.7	2	14.1	13.1	15.6	2	14.4
AVERAGE		17.6	16.6	2	17.1	13.5	12.3	2	12.9	13.6	15.5	2	14.5	13.8	12.4	2	13.1	13.6	15.3	2	14.4

ID	PEDIGREE	DISTRICT 3				DISTRICT 3			DISTRICT 1				DISTRICT 2				DISTRICT 2				OVERALL					
		HUNTLEY DRY				HUNTLEY IRR			KALISPELL				BOZ DRY				BOZ IRR				AVE	YEARS	RANK1			
		2006	2007	YRS	AVE	2006	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	2006	2007	YRS	AVE	YEARS	RANK1
AGRIPRO7	KUNTZ	12.1	9.8	2	11.0	11.9	1	11.9	15.81	15.8	2	15.8	13.8	16.1	2	15	13.8	14.3	2	14.05	13.7	19	14			
AGRIPRO6	KELBY	14.8	12.2	2	13.5	12.6	1	12.6	15.8	17.0	2	16.4	15.5	16.7	2	16.1	14.2	16.1	2	15.2	14.9	19	1			
CI 13596	FORTUNA	13.5	10.3	2	11.9	11.9	1	11.9	16.8	16.0	2	16.4	14.3	16.9	2	15.6	13.5	15.5	2	14.5	14.3	19	10			
PI574642	MCNEAL	13.1	10.4	2	11.8	12.1	1	12.1	16.4	16.5	2	16.5	14.5	17.3	2	15.9	14.0	15.7	2	14.9	14.5	19	7			
PI592761	ERNEST	13.2	10.6	2	11.9	12.4	1	12.4	16.3	17.1	2	16.7	14.9	17.5	2	16.2	14.8	16.0	2	15.4	14.8	19	2			
ND 695	REEDER	14.4	10.6	2	12.5	12.1	1	12.1	16.4	16.4	2	16.4	15.1	16.3	2	15.7	14.4	15.8	2	15.1	14.6	19	4			
BZ992588	CONAN	13.8	11.3	2	12.6	12.3	1	12.3	15.1	16.8	2	16.0	14.9	17.4	2	16.2	14.8	15.7	2	15.3	14.6	19	5			
BZ992322	HANK	12.8	9.8	2	11.3	12.1	1	12.1	15.5	17.0	2	16.3	14.7	17.5	2	16.1	14.8	15.4	2	15.1	14.4	19	9			
PI632252	OUTLOOK	12.6	10.2	2	11.4	10.7	1	10.7	15.0	16.7	2	15.9	14.0	16.7	2	15.4	13.7	14.9	2	14.3	14.1	19	11			
PI633974	CHOTEAU	14.2	10.3	2	12.3	11.7	1	11.7	16.0	17.1	2	16.6	15.5	17.1	2	16.3	15.0	16.2	2	15.6	14.7	19	3			
PI642366	VIDA	12.7	9.4	2	11.1	11.0	1	11.0	16.4	15.6	2	16.0	14.6	16.2	2	15.4	14.2	16.0	2	15.1	14.1	19	12			
AGRIPRO1	NORPRO	12.7	10.1	2	11.4	13.2	1	13.2	17.5	17.3	2	17.4	15.9	16.4	2	16.2	15.5	15.2	2	15.4	14.5	19	8			
AGRIPRO3	FREYR	13.2	10.0	2	11.6	11.9	1	11.9	16.2	16.0	2	16.1	14.3	16.4	2	15.4	13.8	14.9	2	14.4	14.1	19	13			
BZ996434	CORBIN	13.1	9.6	2	11.4	10.7	1	10.7	17.2	17.0	2	17.1	14.9	17.5	2	16.2	14.7	16.2	2	15.5	14.5	19	6			
AVERAGE		13.3	10.3	2	11.8	11.9	1	11.9	16.2	16.6	2	16.4	14.8	16.9	2	15.8	14.4	15.6	2	15.0	14.4	19	0			

Table 6. Effects of Fusarium Head Blight on Spring Wheat Varieties in 2006 and 2007, Manhattan, MT. - MSU.

VARIETY	FHB reaction	Grain Yield 2007	Grain Yield 2006	Grain Yield 2 yr Aver	Test Wt 2007	Test Wt 2006	Test Wt 2 yr Aver	DON <0.20 2007	DON <0.20 2006	DON <0.20 2 yr Aver	Scab Heads Aug 08, 2007	Scab Heads Aug 06, 2006	Scab Heads 2 yr Aver
		Bu/ac	Bu/ac	Bu/ac	Lb/bu	Lb/bu	Lb/bu	ppm	ppm	ppm	%	%	%
VOLT	Tolerant	88.4	86.7	87.4	63.3	61.6	62.3	1.0	0.00	0.43	9.3	3.8	6.2
FREYR	Sumai3	90.1	85.0	87.2	62.4	60.6	61.4	0.50	0.06	0.25	6.8	10.7	9.0
KUNTZ	Sumai3	81.2	90.5	86.5	62.2	60.4	61.2	0.83	0.00	0.36	16.0	12.4	13.9
KNUDSON	Sumai3	86.8	80.7	83.3	61.3	59.2	60.1	0.63	0.15	0.36	5.1	6.1	8.1
MT0550	Sumai3	88.8	78.9	83.1	63.1	60.7	61.8	0.37	0.16	0.25	1.8	7.7	5.2
KELBY	Sumai3	83.0	78.5	80.5	62.8	60.7	61.6	0.50	0.25	0.36	15.7	16.0	15.9
CHOTEAU		77.9	na	77.9	60.8	na	60.8	2.83	na	2.83	21.5	na	21.5
EXPRESSO		77.4	76.0	76.6	60.6	59.2	59.8	5.07	1.98	3.30	18.0	33.5	26.8
GRANITE	Tolerant	75.5	74.5	74.9	62.8	61.8	62.2	0.73	0.11	0.38	5.6	26.8	7.0
ALSEN	Sumai3	74.4	67.7	70.6	63.1	61.2	62.0	0.27	0.00	0.11	3.4	8.1	6.3
GLENN	Sumai3	74.1	67.3	70.2	64.7	63.1	63.8	0.33	0.00	0.14	1.3	4.9	3.3
VIDA		71.4	68.2	69.5	58.5	56.9	57.6	1.13	1.61	1.41	6.8	29.3	19.7
MT0551		na	66.8	66.8	na	59.9	59.9	na	1.33	1.33	na	12.9	12.9
HOWARD		62.2	68.9	66.0	60.7	59.6	60.1	1.33	0.89	1.08	16.3	26.8	22.3
HANK B		65.5	53.0	58.4	56.3	52.1	53.9	6.70	9.40	8.24	39.3	67.5	51.8
HANK A		60.5	52.9	56.1	55.3	51.7	53.2	7.90	10.3	9.28	32.5	66.4	55.4
EXPLORER		45.4	61.0	54.3	54.2	56.6	55.6	2.67	2.00	2.11	5.2	21.9	14.8
Mean		75.2	72.3	73.5	60.8	59.1	59.8	2.03	1.77	1.88	12.8	21.3	17.6
Variety	LSD	10.9	5.7	5.83	3.52	0.8	1.57	1.03	0.83	0.67	11.3	13.7	10.2
Year	p>			0.005			0.0008			NS			0.001
Year x Var	p>			0.0001			NS			0.0001			0.002
	CV%	8.68	5.6	7.03	3.47	0.9	2.33	30.6	33.20	31.7	52.8	45.1	51.0

TABLE 7. 2006 Advanced Spring Wheat Yield Trial Mill & Bake, MSU Data

Location: Means Across Locations

Whole Grain Analysis		Flour Analysis				Mixograph Analysis			Bake Analysis					
Pedigree	Class	Wheat Protein, % (12% <i>m.b.</i>)	Single Kernel Hardness	Flour Protein, % (14% <i>m.b.</i>)	Flour Yield, %	Flour Ash, %	Wheat Ash, %	Mixing Tolerance	Mixo Mixing Time, min	Mixo Water Absorption, %	Bake Mixing Time, min	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score
KUNTZ	HRS	13.90	86.25	66.50	12.33	0.46	1.62	4.25	4.58	63.40	7.58	74.98	1045.00	4.00
KELBY	HRS	15.22	81.68	65.03	13.25	0.44	1.58	2.75	3.15	62.93	4.35	72.38	1042.50	4.00
FORTUNA	HRS	14.38	74.38	68.70	12.85	0.48	1.61	3.75	3.73	63.18	5.30	72.50	1123.75	4.00
MCNEAL	HRS	15.09	92.38	63.95	13.33	0.49	1.75	5.75	6.08	64.40	9.53	76.35	1207.50	4.00
ERNEST	HRS	15.41	75.65	67.93	13.68	0.45	1.69	4.75	4.33	64.58	8.55	74.28	1187.50	3.50
SCHOLAR	HRS	15.49	84.30	68.13	13.80	0.48	1.65	3.75	3.28	64.15	4.90	73.35	1151.25	3.50
REEDER	HRS	14.77	80.68	65.33	13.20	0.42	1.59	3.50	3.80	62.95	5.05	73.03	1147.50	3.50
THATCHER	HRS	15.67	83.08	63.70	13.90	0.49	1.80	4.75	4.43	64.03	7.18	73.73	1206.25	4.00
CONAN	HRS	15.22	80.33	65.83	13.25	0.44	1.75	4.00	5.05	63.58	7.08	73.28	1171.25	4.00
HANK	HRS	14.79	73.93	66.45	13.65	0.46	1.68	4.25	6.70	64.15	9.68	74.60	1173.75	3.75
OUTLOOK	HRS	15.12	96.13	65.53	13.70	0.49	1.76	4.50	5.10	63.85	5.85	73.55	1186.25	4.00
CHOTEAU	HRS	15.00	74.78	65.75	13.58	0.42	1.60	3.75	3.80	63.83	5.18	73.15	1191.25	3.50
NORPRO	HRS	14.88	92.90	62.55	13.08	0.49	1.66	4.00	3.88	63.45	6.05	73.28	1096.25	3.25
KNUDSON	HRS	14.62	83.70	66.80	13.18	0.50	1.64	5.50	6.65	66.10	15.60	79.55	1115.00	3.75
FREYR	HRS	14.12	83.53	67.70	12.58	0.44	1.58	4.00	4.40	63.38	6.75	73.33	1075.00	3.75
CORBIN	HRS	15.40	73.03	67.80	13.65	0.48	1.70	3.75	5.28	64.73	10.25	75.18	1127.50	3.50
WPB GERMANY	HRS	13.93	89.98	66.30	12.33	0.48	1.62	5.00	5.88	62.78	10.43	75.73	995.00	4.00
NURSERY MIN		13.9	73.0	62.6	12.3	0.42	1.58	2.8	3.2	62.8	4.4	72.4	995	3.3
NURSERY MAX		15.7	96.1	68.7	13.9	0.50	1.80	5.8	6.7	66.1	15.6	79.6	1208	4.0
NURSERY AVE		14.9	82.5	66.1	13.3	0.46	1.67	4.2	4.7	63.9	7.6	74.2	1137	3.8

TABLE 8. AgriPro Over Year Quality Summary of Kuntz compared to Norpro and Reeder

Year-Loc	Flour/Wheat Quality					Mixogram					Baking Quality			Crumb	Comment	
	Wht Prot	Flr Prot	Norris Hrd	Flr Yld	Ash	Peak Time	Peak Ht	Tol.	Bakr Abs	BakePk Time	Loaf Vol	Grain R	Tex R			Color R
	14%m	14%m		%	14%m	min	N.U.	mm	%	min	cc	R	R			R
KUNTZ																
2006 - ARPR	13.6	12.7	81	71.7	0.414	6.00	4.8	1467	64.0	5.00	1020	4	3	4		
2005 - MI	13.6	12.8	96	71.3		4.00	5.3	1416	68.0	3.70	1100	3	2	3		
2005 - ARPR	13.7	12.7	62	72.0	0.539	3.50	5.3	1268	66.0	3.40	1130	5	3	3		
2004 - BKPR	13.2	12.4	88	71.1	0.454	4.50	5.0	1707	68.0	4.50	1010	4	3	4		
2003 - BKPR	14.0	12.8	86	71.6	0.390	3.50	5.3	1067	67.0	3.20	1040	4	3	3		
2002 - MW	14.0	13.1	74	67.9		6.50	4.8	1171	69.0	7.40	1030	3	3	3	bucky	
Average:	13.7	12.8	81	70.9	0.449	4.67	5.0	1349	67.0	4.53	1055	4	3	3		
NORPRO																
2006 - ARPR	14.6	13.1	84	69.3	0.406	3.50	5.0	1086	65.5	3.20	985	3	3	2		
2005 - MI	14.5	13.3	100	69.0		3.00	5.0	839	67.0	2.50	975	4	3	3		
2005 - ARPR	14.5	12.9	65	69.2	0.583	2.50	5.3	943	64.5	2.80	860	5	4	3		
2004 - BKPR	14.3	12.8	104	71.4	0.466	2.75	5.3	1361	66.0	2.70	895	4	3	3		
2003 - BKPR	14.5	12.8	85	70.3	0.440	2.75	5.5	828	65.5	2.60	1035	3	3	3		
2002 - MW	14.4	13.2	83	66.5		4.00	5.3	1118	67.5	4.80	1060	3	3	2		
Average:	14.5	13.0	87	69.3	0.474	3.08	5.2	1029	66.0	3.10	968	4	3	3		
KUNTZ																
2007 - ARPR	13.8	12.9	90	69.9	0.494	4.50	5.0	1599	67.0	4.10	1185	5	3	3		
2006 - ARPR	13.6	12.7	81	71.7	0.414	6.00	4.8	1467	64.0	5.00	1020	4	3	4		
2005 - MI	13.6	12.8	96	71.3		4.00	5.3	1416	68.0	3.70	1100	3	2	3		
2005 - ARPR	13.7	12.7	62	72.0	0.539	3.50	5.3	1268	66.0	3.40	1130	5	3	3		
2004 - BKPR	13.2	12.4	88	71.1	0.454	4.50	5.0	1707	68.0	4.50	1010	4	3	4		
2003 - BKPR	14.0	12.8	86	71.6	0.390	3.50	5.3	1067	67.0	3.20	1040	4	3	3		
Average:	13.7	12.7	84	71.3	0.458	4.33	5.1	1421	66.7	3.98	1081	4	3	3		
REEDER																
2007 - ARPR	13.7	12.8	74	69.8	0.444	4.00	5.0	1206	65.5	3.40	1155	6	2	3		
2006 - ARPR	15.0	14.2	68	70.7	0.412	4.00	5.0	1167	66.0	3.40	1060	5	3	3		
2005 - MI	14.5	13.5	71	71.8		3.00	5.0	846	68.0	2.40	935	6	3	5	B,weak	
2005 - ARPR	15.0	13.7	47	69.4	0.474	3.00	5.0	890	66.0	2.60	1105	7	3	5	SS	
2004 - BKPR	14.9	13.6	83	69.4	0.401	3.25	5.0	1269	68.0	3.10	1045	5	3	4		
2003 - BKPR	14.7	13.7	53	70.6	0.389	3.00	5.3	877	67.0	3.00	995	5	3	4		
Average:	14.6	13.6	66	70.3	0.424	3.38	5.0	1043	66.8	2.98	1049	6	3	4		

TABLE 9. 2004-6 OVER YEAR AGRIPRO SUMMARY OF E. ND/MN SITES

(Data presented to show lodging and disease information on Kuntz and Kelby.)

VARIETY	YIELD - BU/A ³				TEST		HEAD. ² 1-9	HT. 1-9	LOD. 1-9	FOLIAR		SEED		FUSARIUM		WORTH
	04	05	06	AVG	WT. LBS/BU	PROT. %				DIS. 1-9	SCORE 1-9	DAMAGED KERNELS	LEAF RUST			
														%	%	
KUNTZ	79.8	60.5	73.6	71.3	61.3	13.4	5.0	4.6	1.0	4.2	3.8	9.7	3.5	3.8		
KNUDSON	79.3	60.9	65.2	68.5	61.2	13.8	5.0	5.8	2.2	3.2	4.1	6.8	2.0	4.4		
FREYR	75.2	60.3	68.4	68.0	61.3	14.6	4.6	6.8	2.9	4.2	3.4	3.9	3.9	4.7		
GLENN ¹	77.2	57.8	68.0	67.7	62.9	15.2	3.3	7.5	na	4.1	4.0	9.2	2.2	4.7		
NORPRO	80.5	52.4	69.0	67.3	59.9	14.2	5.7	4.9	1.5	3.5	5.3	19.1	3.4	4.4		
STEELE ND	71.9	56.1	71.1	66.4	61.5	14.9	4.6	7.2	5.7	4.1	4.0	10.9	2.0	6.0		
KELBY	76.0	55.3	64.3	65.2	61.4	15.1	3.2	4.2	2.3	3.6	4.4	4.1	2.9	4.1		
LARS	74.7	53.5	65.3	64.5	58.6	13.2	6.3	4.0	1.0	4.8	6.3	27.7	5.3	4.5		
ALSEN	71.6	53.4	66.9	64.0	62.1	15.0	4.2	6.2	1.8	5.2	3.6	3.2	4.8	4.6		
GRANGER	70.0	53.2	65.6	62.9	61.2	14.4	3.4	8.2	5.2	4.7	4.1	5.4	4.0	6.4		
GRANITE	75.5	50.4	60.4	62.1	62.5	15.7	7.2	6.3	1.0	5.1	4.8	23.0	4.8	5.5		
OKLEE	69.6	55.6	59.5	61.6	61.8	15.0	3.2	6.6	3.7	5.6	3.3	5.4	5.6	5.5		
REEDER	69.2	46.5	67.7	61.1	59.9	14.3	4.4	7.2	2.7	6.0	4.6	14.9	6.6	5.6		
MEAN	73.9	54.5	65.8	64.7	61.0	14.4	4.6	6.3	2.4	4.7	4.3	11.1	4.0	5.1		
NO. OF LOCS.	5	5	5	15	15	15	17	8	4	9	20	13	7	21		

¹Not tested in 2004, data adjusted for averages

²Heading: 1= v. early (no days to heading taken); Height: 1 = short (4 rating=70 cm's); Lodging: 1 = no lodging; Foliar disease: 1 = no disease; Leaf rust: 1 = resistant

³Locations: Argusville, ND; Valley City, ND; Maddock, ND; Park River, ND; Breckenridge, MN; Crookston, MN

TABLE OF PAIRED T-TEST RESULTS - MSU TRIALS

GRAIN YIELD (BU/AC)

REFERENCE MEAN: KUNTZ 51.5 (N= 19)

ID	NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
AGRIPRO6	KELBY	48.5	19	-3.0	-1.5	.152
CI 13596	FORTUNA	45.0	19	-6.5	-2.8	.012
PI574642	MCNEAL	48.4	19	-3.1	-1.5	.147
PI592761	ERNEST	46.4	19	-5.1	-3.3	.004
ND 695	REEDER	54.3	19	2.8	1.7	.116
BZ992588	CONAN	48.1	19	-3.4	-1.8	.086
BZ992322	HANK	53.0	19	1.5	1.5	.145
PI632252	OUTLOOK	52.6	19	1.1	.9	.375
PI633974	CHOTEAU	52.3	19	.8	.7	.493
PI642366	VIDA	54.8	19	3.3	2.1	.047
AGRIPRO1	NORPRO	50.6	19	-.9	-.7	.480
AGRIPRO3	FREYR	51.1	19	-.4	-.3	.738
BZ996434	CORBIN	51.2	19	-.3	-.1	.890

GRAIN TEST WEIGHT (LB/BU)

REFERENCE MEAN: KUNTZ 59.4 (N= 19)

ID	NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
AGRIPRO6	KELBY	60.9	19	1.5	5.6	.000
CI 13596	FORTUNA	59.6	19	.2	.5	.623
PI574642	MCNEAL	57.8	19	-1.6	-6.3	.000
PI592761	ERNEST	59.3	19	-.1	-.3	.785
ND 695	REEDER	59.9	19	.5	1.3	.207
BZ992588	CONAN	59.3	19	-.2	-.5	.607
BZ992322	HANK	57.1	19	-2.3	-6.3	.000
PI632252	OUTLOOK	57.2	19	-2.2	-6.8	.000
PI633974	CHOTEAU	59.2	19	-.2	-.7	.504
PI642366	VIDA	58.5	19	-.9	-3.8	.001
AGRIPRO1	NORPRO	58.2	19	-1.2	-3.2	.005
AGRIPRO3	FREYR	60.0	19	.5	2.1	.046
BZ996434	CORBIN	59.2	19	-.2	-.5	.626

HEADING DATE (JULIAN DAYS)

REFERENCE MEAN: KUNTZ 171.9 (N= 19)

ID	NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
AGRIPRO6	KELBY	169.7	19	-2.2	-7.2	.000
CI 13596	FORTUNA	171.8	19	-.2	-.5	.651
PI574642	MCNEAL	173.7	19	1.8	6.8	.000
PI592761	ERNEST	172.4	19	.5	1.8	.095
ND 695	REEDER	171.7	19	-.2	-.8	.438
BZ992588	CONAN	171.8	19	-.2	-.7	.484
BZ992322	HANK	170.4	19	-1.5	-4.6	.000
PI632252	OUTLOOK	174.7	19	2.7	9.9	.000
PI633974	CHOTEAU	172.1	19	.2	.6	.536
PI642366	VIDA	172.9	19	1.0	3.7	.002
AGRIPRO1	NORPRO	172.4	19	.4	2.1	.047
AGRIPRO3	FREYR	171.4	19	-.6	-2.5	.021
BZ996434	CORBIN	170.4	19	-1.6	-5.9	.000

(CONT'D) TABLE OF PAIRED T-TEST RESULTS - MSU TRIALS

PLANT HEIGHT (INCHES)

REFERENCE MEAN: KUNTZ 29.8 (N= 19)

ID	NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
AGRIPRO6	KELBY	28.6	19	-1.2	-4.0	.001
CI 13596	FORTUNA	38.3	19	8.5	15.1	.000
PI574642	MCNEAL	32.6	19	2.8	6.9	.000
PI592761	ERNEST	37.7	19	7.9	17.1	.000
ND 695	REEDER	32.5	19	2.7	5.9	.000
BZ992588	CONAN	30.0	19	.2	.7	.520
BZ992322	HANK	30.3	19	.5	1.3	.203
PI632252	OUTLOOK	32.4	19	2.6	7.9	.000
PI633974	CHOTEAU	30.8	19	1.0	3.3	.004
PI642366	VIDA	32.8	19	3.0	9.1	.000
AGRIPRO1	NORPRO	29.8	19	.0	.0	.968
AGRIPRO3	FREYR	33.4	19	3.6	13.6	.000
BZ996434	CORBIN	31.6	19	1.8	6.3	.000

GRAIN PROTEIN (%)

REFERENCE MEAN: KUNTZ 13.7 (N= 19)

ID	NAME	ACTUAL MEAN	NO. OBS	MEAN DIFF	T-PAIRED VALUE	P-VALUE
AGRIPRO6	KELBY	14.9	19	1.2	6.0	.000
CI 13596	FORTUNA	14.3	19	.6	3.9	.001
PI574642	MCNEAL	14.5	19	.8	6.4	.000
PI592761	ERNEST	14.8	19	1.1	6.7	.000
ND 695	REEDER	14.6	19	.9	5.9	.000
BZ992588	CONAN	14.6	19	.9	5.4	.000
BZ992322	HANK	14.4	19	.7	4.9	.000
PI632252	OUTLOOK	14.1	19	.4	1.9	.073
PI633974	CHOTEAU	14.7	19	.9	5.7	.000
PI642366	VIDA	14.1	19	.4	2.7	.014
AGRIPRO1	NORPRO	14.5	19	.7	4.2	.000
AGRIPRO3	FREYR	14.1	19	.3	3.7	.002
BZ996434	CORBIN	14.5	19	.8	3.4	.003