No. 9300290

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

AgriPro Biosciences Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS Y THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Ponderosa'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 30th *day of* November *in the year of our Lord one thousand nine hundred and* ninety-three.

Attest:

Kenneth H. Evan

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Espy

Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)
HybriTech US, a Monsanto Company
~~AgriPro Biosciences Inc.~~ CGM 1 Jun 1998

2. TEMPORARY DESIGNATION
W87-017-44

3. VARIETY NAME
Ponderosa

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
6700 Antioch
Shawnee Mission, Kansas 66204

5. PHONE *(Include area code)*
913-384-4940 (KS)
303-532-3721 (CO)

FOR OFFICIAL USE ONLY
PVPO NUMBER
9300290

6. GENUS AND SPECIES NAME
Triticum aestivum

7. FAMILY NAME *(Botanical)*
Gramineae

FILING
DATE Aug. 16, 1993
TIME ☐ A.M. ☐ P.M.

8. KIND NAME
Hard Red Winter Wheat

9. DATE OF DETERMINATION
July 1991

FEES RECEIVED
AMOUNT FOR FILING $ 2325.00
DATE Aug. 16, 1993
AMOUNT FOR CERTIFICATE $ 275.00
DATE Nov. 16, 1993

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Delaware

12. DATE OF INCORPORATION
February 10, 1989

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~Robert F. Bruns~~
~~P.O. Box 30~~
~~806 N. Second Street~~
~~Berthoud, Colorado 80513~~

OR

~~R.E. Heiner~~
~~6700 Antioch~~
~~Shawnee Mission~~
~~Kansas~~

Mark J. Messmer
HybriTech US
5912 North Meridian
Wichita, KS 67204

PHONE *(Include area code)*: ~~303-532-3721~~ 316-755-7707
FAX 316-755-0072
E-mail: Mark.J.Messmer@Monsanto.Com

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)* CGM 1 Jun 1998
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership. Exhibit F; Quality and Agronomic Data

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☒ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
RE Heiner
DATE 7-26-93

SIGNATURE OF APPLICANT
DATE

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF PONDEROSA

Ponderosa was an F3 derived single plant selection from the cross WI88-133/Thunderbird. The cross was made in 1982 and the plant selection was made at Berthoud, Colorado in 1985. The resulting F4 plant row was tested in preliminary yield trials in 1986 and 1987. Ponderosa was headrowed in 1988 and an individual F6 headrow (designated W87-017-44) was selected for foliar disease resistance, height and uniformity and has been subsequently tested in replicated trials from 1989 thru 1992. These trials represent a fairly broad geographic area in the Hard Red Winter Wheat region. Ponderosa is entered in selected official 1993 university trials and the 1993 Southern Regional Performance Nursery.

In 1991, 60 head-rows were grown in Berthoud, Colorado and two rows were discarded for being to tall. In 1992, 9,070 pounds of breeders seed was grown in Colorado.

Ponderosa is uniform and stable as observed from 1991 thru 1993 with the foundation seed production. The majority of the rogued variant plants in the 1992 breeders seed production consisted of approximately 95% taller awned wheat plants and approximately 5% bronze chaffed wheat plants. Up to 1% total variant plants may be encountered in subsequent generations.

EXHIBIT B.

NOVELTY STATEMENT PONDEROSA

Ponderosa is most similar to the hard red winter wheat Tomahawk. However, it can be distinguished by the following morphological characteristic:

- Ponderosa has a significantly longer beak length than Tomahawk, (see 1992 & 1993 statistical data following pages).

9300290

ONE-WAY ANALYSIS OF VARIANCE 1992
Ponderosa vs. Tomahawk
TOTAL OBSERVATIONS: 50 Beak Length

	VAR	BEAK
N OF CASES	50	50
MINIMUM	1.000	2.900
MAXIMUM	2.000	15.800
MEAN	1.500	7.564
STANDARD DEV	0.505	3.244

THE FOLLOWING RESULTS ARE FOR:
VAR = 1.000 = Ponderosa

TOTAL OBSERVATIONS: 25

	VAR	BEAK
N OF CASES	25	25
MINIMUM	1.000	7.400
MAXIMUM	1.000	15.800
MEAN	1.000	10.332
STANDARD DEV	0.000	2.141

THE FOLLOWING RESULTS ARE FOR:
VAR = 2.000 = Tomahawk

TOTAL OBSERVATIONS: 25

	VAR	BEAK
N OF CASES	25	25
MINIMUM	2.000	2.900
MAXIMUM	2.000	6.700
MEAN	2.000	4.796
STANDARD DEV	0.000	0.970

DEP VAR: BEAK N: 50 MULTIPLE R: 0.862 SQUARED MULTIPLE R: 0.743
ADJUSTED SQUARED MULTIPLE R: 0.737 STANDARD ERROR OF ESTIMATE: 1.662

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	15.868	0.743	0.000	.	21.346	0.000
VAR	-5.536	0.470	-0.862	.100E+01	-11.775	0.000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	383.091	1	383.091	138.650	0.000
RESIDUAL	132.624	48	2.763		

PONDEROSA vs. TOMAHAWK
Beak Length 1992

KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE FOR 50 CASES
DEPENDENT VARIABLE IS BEAK
GROUPING VARIABLE IS VAR

GROUP		COUNT	RANK SUM
Ponderosa	1.000	25	950.000
Tomahawk	2.000	25	325.000

MANN-WHITNEY U TEST STATISTIC = 625.000
PROBABILITY IS 0.000
CHI-SQUARE APPROXIMATION = 36.786 WITH 1 DF

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ONE-WAY ANALYSIS OF VARIANCE 1993
PONDEROSA vs. TOMAHAWK
Beak Length

TOTAL OBSERVATIONS: 50

	VAR	BEAKLENG
N OF CASES	50	50
MINIMUM	1.000	2.200
MAXIMUM	2.000	11.000
MEAN	1.500	5.028
STANDARD DEV	0.505	2.139

THE FOLLOWING RESULTS ARE FOR:
VAR = 1.000 = PONDEROSA

TOTAL OBSERVATIONS: 25

	VAR	BEAKLENG
N OF CASES	25	25
MINIMUM	1.000	4.900
MAXIMUM	1.000	11.000
MEAN	1.000	6.812
STANDARD DEV	0.000	1.577

THE FOLLOWING RESULTS ARE FOR:
VAR = 2.000 = TOMAHAWK

TOTAL OBSERVATIONS: 25

	VAR	BEAKLENG
N OF CASES	25	25
MINIMUM	2.000	2.200
MAXIMUM	2.000	3.900
MEAN	2.000	3.244
STANDARD DEV	0.000	0.475

DEP VAR:BEAKLENG N: 50 MULTIPLE R: 0.842 SQUARED MULTIPLE R: 0.710
ADJUSTED SQUARED MULTIPLE R: 0.704 STANDARD ERROR OF ESTIMATE: 1.165

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	10.380	0.521	0.000	.	19.929	0.000
VAR	-3.568	0.329	-0.842	.100E+01	-10.831	0.000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	159.133	1	159.133	117.319	0.000
RESIDUAL	65.108	48	1.356		

PONDEROSA vs. TOMAHAWK 1993
Beak Length

KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE FOR 50 CASES
DEPENDENT VARIABLE IS BEAKLENG
GROUPING VARIABLE IS VAR

GROUP		COUNT	RANK SUM
Ponderosa	1.000	25	950.000
Tomahawk	2.000	25	325.000

MANN-WHITNEY U TEST STATISTIC = 625.000
PROBABILITY IS 0.000
CHI-SQUARE APPROXIMATION = 36.830 WITH 1 DF

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT C
(Wheat)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
AgriPro Biosciences Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
6700 Antioch
Shawnee Mission, Kansas 66204

FOR OFFICIAL USE ONLY

PVPO NUMBER
9300290

VARIETY NAME OR TEMPORARY DESIGNATION
Ponderosa

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0|8|9] or [0|9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____ [2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM [redacted] TO:

[2|2|9] FIRST FLOWERING Jan. 1st [2|3|5] LAST FLOWERING

4. MATURITY (50% *Flowering*):

[0|1] NO. OF DAYS *EARLIER* THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Victory

[--|--] NO. OF DAYS *LATER* THAN ..... [--]

5. PLANT HEIGHT (*From soil level to top of head*):

[0|8|0] CM. HIGH

[--|--] CM. TALLER THAN ..... [--]

[0|4] CM. SHORTER THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Victory

6. PLANT COLOR AT BOOTING (*See reverse*):

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom: 1 = ABSENT 2 = PRESENT

[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[0|5] NO. OF NODES (*Originating from node above ground*)

[2|5] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[2] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____

[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1|5] MM. LEAF WIDTH (*First leaf below flag leaf*)

[2|6] CM. LEAF LENGTH (*First leaf below flag leaf*):

FORM LPGS-470-6 (7-81) (Edition of 3-79 may be used)

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'PONDEROSA' 9300290

FORM GR-470-5 (REVERSE)

11. HEAD:

[3] Density: 1 = LAX 2 = DENSE 3=middense

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[7.0] CM. LENGTH [10] MM. WIDTH

12. GLUMES AT MATURITY:

[1] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[2] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[3] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[---] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[6.0] MM. LENGTH [3.3] MM. WIDTH [44] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[4] STEM RUST (Races) field races

[4] LEAF RUST (Races) field races

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[4] POWDERY MILDEW

[0] BUNT

[4] OTHER (Specify) 1=Wheat streak mosaic virus Soilborne mosaic virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[0] SAWFLY

[0] APHID (Spec.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER (Specify) _____

HESSIAN FLY RACES: [1] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Tomahawk	Seed size	Tomahawk
Leaf size	Tomahawk	Seed shape	Tomahawk
Leaf color	Tomahawk	Coleoptile pigmentation	Tomahawk
Leaf carriage	Tomahawk	Seedling pigmentation	Tomahawk

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.T. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States. Technical Bulletin 1278, United States Department of Agriculture.

(b) T.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

EXHIBIT D.

ADDITIONAL BOTANICAL DESCRIPTION OF PONDEROSA

Ponderosa is a hard red winter wheat bred and developed by AgriPro Biosciences Inc. Ponderosa is a high yielding, strong strawed, medium short semi-dwarf with midseason maturity. Milling and baking characteristics are very good.

Juvenile growth habit is semi-erect. Plant color is green at boot stage with an erect, twisted flag leaf. Auricle hairs and auricle anthocyanin are present. Waxy bloom is present on the stem, flag leaf sheath and head. Head shape is tapering, awned and white at maturity. Glumes are midwide and short in length with square shoulders and acuminate beaks. Seed shape is ovate with rounded cheeks. Seed crease is narrow and shallow.

Ponderosa is well adapted to the Great Plains. This includes the southern portion of Nebraska, northern Texas, eastern Colorado, Oklahoma and Kansas.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANTS OWNERSHIP

AgriPro Biosciences Inc. is the applicant for protection in this case being:

a) The incorporated business (registered in Delaware) for and within which regular employees have bred the named variety.

b) The proprietory owner and intending commercial user of the variety.

EXHIBIT F.

QUALITY AND AGRONOMIC DATA

Quality Data . . . . . pages 1 & 2.

Agronomic & Yield Data . . . . . pages 3 thru 7.

AGRIPRO WHEAT
HARD RED WINTER WHEAT
PONDEROSA

YEAR: 1992

	FLOUR/WHEAT QUALITY											BAKING QUALITY										
								MIXOGRAM										CRUMB				
YEAR-LOC	WHT PROT	FLR PROT		NHRD	FLR YLD		ASH	PK TIME	PK HT	TOL		ABS		MIX TIME		LOAF VOL		GR	TX	COL	OVER ALL	CMT
	14%mb	14%mb	R		%	R		min	N.U.	mm	R	%	R	min	R	cc	R	R	R	R	R	
										PONDEROSA												
92-SK	14.5	13.4	4	64	67.1	5	.400	5.00	5.0	1708	1	66.0	2	5.00	8	990	2	3	2	2	34	R
92-SK	14.2	13.5	4	56	68.3	5	.441	4.50	5.0	1713	1	67.0	2	4.50	8	940	3	2	2	2	31	SS
91-NO	14.3	13.3	4	61	71.4	4	.390	4.50	5.0	1876	2	63.0	3	4.50	3	980	4	4	3	2	40	
90-NO	13.6	12.9	3	71	68.8	4	.374	5.50	4.8	1979	1	64.0	2	5.50	7	1090	4	3	3	2	37	
90-CI	14.2	12.9	3	91	68.1	3	.505	4.00	5.0	1513	2	64.0	3	4.00	1	1030	3	4	3	2	34	
89-GI	13.4	12.2	3	56	67.9	3	.000	4.75	5.0	1529	2	62.0	2	4.75	5	1040	4	3	2	2	34	
AVERAGE	**14.0**	**13.0**	**3.5**	**67**	**68.6**	**4.0**	**.422**	**4.71**	**4.97**	**1720**	**1.5**	**64.3**	**2.3**	**4.71**	**5.3**	**1012**	**3.3**	**3.2**	**2.5**	**2.0**	**35**	

RATINGS : 1=EXCELLENT 9=UNACCEPTABLE

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9300290

AGRIPRO WHEAT
HARD RED WINTER WHEAT
PONDEROSA vs HAWK

YEAR: 1992

YEAR-LOC	WHT PROT 14%mb	FLR PROT 14%mb	R	NHRD	FLR YLD %	R	ASH	MIXOGRAM PK TIME min	MIXOGRAM PK HT N.U.	MIXOGRAM TOL mm	R	ABS %	R	MIX TIME min	R	LOAF VOL cc	R	CRUMB GR R	CRUMB TX R	CRUMB COL R	OVER ALL R	CMT
	FLOUR/WHEAT QUALITY											BAKING QUALITY										
PONDEROSA																						
92-SK	14.5	13.4	4	64	67.1	5	.400	5.00	5.0	1708	1	66.0	2	5.00	8	990	2	3	2	2	34	R
92-SK	14.2	13.5	4	56	68.3	5	.441	4.50	5.0	1713	1	67.0	2	4.50	8	940	3	2	2	2	31	SS
91-NO	14.3	13.3	4	61	71.4	4	.390	4.50	5.0	1876	2	63.0	3	4.50	3	980	4	4	3	2	40	
90-NO	13.6	12.9	3	71	68.8	4	.374	5.50	4.8	1979	1	64.0	2	5.50	7	1090	4	3	3	2	37	
90-CI	14.2	12.9	3	91	68.1	3	.505	4.00	5.0	1513	2	64.0	3	4.00	1	1030	3	4	3	2	34	
89-GI	13.4	12.2	3	56	67.9	3	.000	4.75	5.0	1529	2	62.0	2	4.75	5	1040	4	3	2	2	34	
AVERAGE	**14.0**	**13.0**	**3.5**	**67**	**68.6**	**4.0**	**.422**	**4.71**	**4.97**	**1720**	**1.5**	**64.3**	**2.3**	**4.71**	**5.3**	**1012**	**3.3**	**3.2**	**2.5**	**2.0**	**35**	
HAWK																						
92-SK	12.7	11.4	7	76	67.3	5	.475	4.00	5.0	1397	3	63.0	6	4.00	6	800	6	3	3	3	50	R
92-SK	12.5	11.1	7	70	68.0	5	.451	3.25	5.0	1213	5	62.0	7	3.25	4	810	5	3	2	2	54	
91-NO	12.9	11.5	6	70	72.7	3	.479	3.50	5.0	1375	5	60.0	6	3.50	1	950	5	2	2	3	45	
90-NO	12.5	11.6	6	95	69.4	3	.496	4.50	4.8	1736	3	62.0	4	4.50	3	920	7	4	3	2	49	
90-CI	13.5	12.4	4	86	66.2	5	.585	4.25	5.0	1488	2	64.0	3	4.25	1	1000	4	4	3	2	39	
89-GI	12.7	11.0	6	57	68.3	3	.000	4.50	5.0	1456	2	60.0	4	4.50	3	980	5	4	3	3	45	
AVERAGE	**12.8**	**11.5**	**6.0**	**76**	**68.7**	**4.0**	**.497**	**4.00**	**4.97**	**1444**	**3.3**	**61.8**	**5.0**	**4.00**	**3.0**	**910**	**5.3**	**3.3**	**2.7**	**2.5**	**47**	

RATINGS : 1=EXCELLENT 9=UNACCEPTABLE

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AgriPro Seeds
HARD RED WINTER WHEAT TRIAL SUMMARY
OVER LOCATIONS/OVER YEARS

APRIL 21, 1993

YEARS: 1992

VARIETIES: PONDEROSA, TAM 107

AREA	# LOCS	YIELD (BU/A) PONDEROSA	YIELD (BU/A) TAM 107	# LOCS	TEST WT. (LB/BU) PONDEROSA	TEST WT. (LB/BU) TAM 107
REGIONS:						
CENTRAL	2	49.6	35.0	2	58.0	57.9
N.WEST	3	116.0	121.7	2	61.2	60.1
S.WEST	1	71.8	73.0	1	58.7	57.8
STATES:						
CO	2	139.2	132.3	2	61.2	60.1
KS	2	49.6	35.0	2	58.0	57.9
NE	1	69.5	100.7	--	----	----
TX	1	71.8	73.0	1	58.7	57.8
WATER MANAGEMENT:						
IRR.	4	105.0	109.6	3	60.4	59.3
CONT.	2	49.6	35.0	2	58.0	57.9
ALL:	6	86.5	84.7	5	59.4	58.8

AgriPro Seeds
HARD RED WINTER WHEAT TRIAL SUMMARY
OVER LOCATIONS/OVER YEARS

APRIL 21, 1993

YEARS: 1992

VARIETIES: PONDEROSA, TAM 200

AREA	# LOCS	YIELD (BU/A) PONDEROSA	YIELD (BU/A) TAM 200	# LOCS	TEST WT. (LB/BU) PONDEROSA	TEST WT. (LB/BU) TAM 200
REGIONS:						
CENTRAL	2	49.6	45.5	2	58.0	58.5
N.WEST	2	103.4	103.0	1	59.9	57.2
S.WEST	1	71.8	65.2	1	58.7	59.5
STATES:						
CO	1	137.3	116.7	1	59.9	57.2
KS	2	49.6	45.5	2	58.0	58.5
NE	1	69.5	89.3	-	-	-
TX	1	71.8	65.2	1	58.7	59.5
WATER MANAGEMENT:						
IRR.	3	92.9	90.4	2	59.3	58.4
CONT.	2	49.6	45.5	2	58.0	58.5
ALL:	5	75.6	72.4	4	58.7	58.4

AgriPro Seeds
HARD RED WINTER WHEAT TRIAL SUMMARY
OVER LOCATIONS/OVER YEARS

APRIL 21, 1993

YEARS: 1990,1991,1992

VARIETIES: PONDEROSA, ABILENE

	YIELD (BU/A)			TEST WT. (LB/BU)			1990 YIELD			1991 YIELD			1992 YIELD		
AREA	#LOCS	PONDEROSA	ABILENE	#LOCS	PONDEROSA	ABILENE	#LOCS	PONDEROSA	ABILENE	#LOCS	PONDEROSA	ABILENE	#LOCS	PONDEROSA	ABILENE
REGIONS:															
CENTRAL	10	48.1	41.9	8	58.9	58.7	3	52.8	52.2	3	43.8	41.4	4	47.9	34.5
N.WEST	10	105.1	95.5	5	62.1	60.7	2	112.8	110.8	3	88.6	71.2	5	111.9	103.9
S.WEST	3	66.4	52.9	2	60.0	60.7	–	–	–	1	64.5	57.4	2	67.4	50.6
STATES:															
CO	6	123.7	107.4	4	61.8	60.0	1	121.1	118.9	2	96.2	81.1	3	142.9	121.1
KS	8	48.3	41.7	6	58.6	58.4	2	52.2	53.3	2	45.4	44.8	4	47.9	34.5
NE	4	77.3	77.6	1	63.2	63.4	1	104.4	102.6	1	73.6	51.6	2	65.6	78.2
OK	2	47.3	42.3	2	59.7	59.7	1	54.0	50.1	1	40.6	34.5	–	–	–
TX	3	66.4	52.9	2	60.0	60.7	–	–	–	1	64.5	57.4	2	67.4	50.6
WATER MANAGEMENT:															
IRR.	13	96.2	85.6	7	61.5	60.7	2	112.8	110.8	4	82.6	67.8	7	99.2	88.7
CONT.	10	48.1	41.9	8	58.9	58.7	3	52.8	52.2	3	43.8	41.4	4	47.9	34.5
ALL:	23	75.3	66.6	15	60.1	59.6	5	76.8	75.6	7	66.0	56.5	11	80.6	69.0

AgriPro Seeds
HARD RED WINTER WHEAT TRIAL SUMMARY
OVER LOCATIONS/OVER YEARS

APRIL 21, 1993

YEARS: 1990,1991, 1992

VARIETIES: PONDEROSA, VICTORY

	YIELD (BU/A)			TEST WT. (LB/BU)			1990 YIELD			1991 YIELD			1992 YIELD		
AREA	#LOCS	PONDEROSA	VICTORY	#LOCS	PONDEROSA	VICTORY	#LOCS	PONDEROSA	VICTORY	#LOCS	PONDEROSA	VICTORY	#LOCS	PONDEROSA	VICTORY
REGIONS:															
CENTRAL	8	48.6	49.9	6	59.3	58.2	3	52.8	53.3	3	43.8	47.5	2	49.6	48.3
N.WEST	8	104.9	101.7	4	61.7	60.8	2	112.8	119.9	3	88.6	84.9	3	116.0	106.4
S.WEST	2	68.2	74.5	2	60.0	59.1	-	-	-	1	64.5	77.3	1	71.8	71.6
STATES:															
CO	5	118.4	114.2	3	61.2	60.3	1	121.1	132.3	2	96.2	95.9	2	139.3	123.4
KS	6	49.0	51.2	4	59.0	57.8	2	52.2	55.1	2	45.4	50.2	2	49.6	48.3
NE	3	82.5	81.0	1	63.2	62.0	1	104.4	107.5	1	73.6	63.1	1	69.5	72.5
OK	2	47.3	46.0	1	59.7	59.1	1	54.0	49.9	1	40.6	49.9	-	-	-
TX	2	68.2	74.5	2	60.0	59.1	-	-	-	1	64.5	77.3	1	71.8	71.6
WATER MANAGEMENT:															
IRR.	10	97.6	96.3	6	61.1	60.2	2	112.8	119.9	4	82.6	83.0	4	105.0	97.7
CONT.	8	48.6	49.9	6	59.3	58.2	3	52.8	53.3	3	43.8	47.5	2	49.6	48.3
ALL:	18	75.8	75.7	12	60.2	59.2	5	76.8	80.0	7	66.0	67.8	6	86.5	81.3

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AGRIPRO HARD RED WINTER WHEAT TRIAL SUMMARY

VAR. LINE	YIELD (BU/A) 1989-1992 4 YR. AVG.(28)	T.WT. LB/BU	HD	ANTH	MT	COLEO	HT	STRAW STRNTH	LEAF RUST S	LEAF RUST R	STEM RUST S	STEM RUST R	PM	HF	WSMV	SBMV	SSMV
Ponderosa W87-017-44	78.0	60.5	4	4	4	5	3	4	2	3	2	7	3	8	7	3	4
VICTORY	78.0	58.6	5	5	3	5	4	4	2	3	7	5	5	9	8	3	2
ABILENE	70.4	58.7	6	7	6	5	3	2	3	7	6	5	8	8	6	3	4

Data generated in 1989:

Berthoud, CO - Yield, Test Wt., Heading Date, Height, Stem Rust (field)
Nardin, OK - Maturity, Height, Leaf Rust (field)
Garden City, KS - Yield, Test WT., Winter Hardiness
Grant, NE - Winter Hardiness

Data generated in 1990:

Berthoud, CO - Yield, Test Wt., Powdery Mildew, Coleoptile (grnhse), Lodging Severity, Leaf Rust (grnhse), Stem Rust (field & grnhse), Hessian Fly
Nardin, OK - Yield, Test WT., Height, Maturity, Leaf Rust, Septoria
Wichita, KS - Yield, Powdery Mildew
Salina, KS - Yield, Leaf Rust
Everest, KS - Yield, SSMV
Geneva, NE - Yield, Leaf Rust
Grant, NE - Yield, Test Wt., Lodging Severity, SBMV
Hays, KS - WSMV (visual screening, Dr. T.J. Martin, KSU)

Data Generated in 1991:

Berthoud, CO - Yield, Test Wt., Height, Heading, Coleoptile (grnhse), Leaf Rust (field & grnhse), Stem Rust (field & grnhse), Hessian Fly (grnhse)
Nardin, OK - Yield, Test Wt., Heading
Wichita, KS - Yield, Test Wt., Heading, Maturity, Tan Spot
Salina, KS - Yield, Test Wt.
Everest, KS - SSMV
Imperial, NE - Yield, Leaf Rust
Geneva, NE - Leaf Rust
Burlington, CO - Yield, Test Wt.
Dumas, TX - Yield, Test Wt.
Hays, KS - WSMV (visual screening - Dr.T.J. Martin, KSU)

Data generated in 1992:

Berthoud, CO - Yield, Test Wt., Height, Heading, Lodging Severity, Coleoptile (grnhse), Leaf Rust (grnhse), Stem Rust (grnhse), Hessian Fly (grnhse)
Nardin, OK - Maturity, Lodge Breakage, Leaf Rust
Wichita, KS - Test Wt., Leaf Rust
Rome, KS - Yield, Test Wt., SSMV
Salina, KS - Yield, Test Wt., Leaf Rust
Garden City, KS - BYDV
Imperial, NE - Yield
Dumas, TX - Yield, Test Wt.
Hays, KS - WSMV (visual screening - Dr.T.J. Martin, KSU)