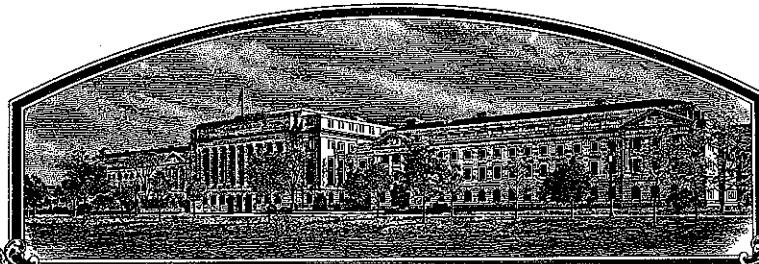


No.



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

*Westbred, LLC*

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED 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 TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLACEMENT 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, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Expresso'

*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 seventh day of December, in the year two thousand and seven.*

Attest:

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

Secretary of Agriculture



**U.S. DEPARTMENT OF AGRICULTURE**  
**AGRICULTURAL MARKETING SERVICE**  
**SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE**

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
*(Instructions and information collection burden statement on reverse)*

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

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).

1. NAME OF OWNER <b>WestBred, LLC</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <b>DA984-034SRR</b>	3. VARIETY NAME <b>Expresso</b>
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>81 Timberline Drive Bozeman, MT 59718</b>		5. TELEPHONE (include area code) <b>406-587-1218</b>	FOR OFFICIAL USE ONLY PVPO NUMBER <b>#200800002</b> FILING DATE <b>OCTOBER 10, 2007</b>
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>WestBred, LLC</b>		6. FAX (include area code) <b>406-586-8247</b>	
8. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Arizona</b>		9. DATE OF INCORPORATION <b>August 4, 2003</b>	

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <b>Kim C. Shantz WestBred, LLC P.O. Box 6904 Yuma, AZ 85366</b>		FILING AND EXAMINATION FEES: \$ <b>4,382.00</b> DATE <b>10/10/07</b> CERTIFICATION FEE: \$ <b>768.00</b> DATE <b>10/23/2007</b>
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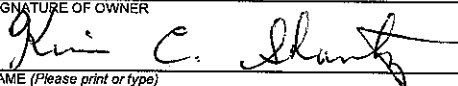
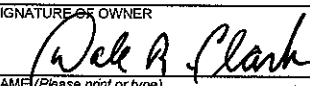
11. TELEPHONE (Include area code) <b>928-782-2749</b>	12. FAX (Include area code) <b>928-782-2751</b>	13. E-MAIL <b>kshantz@westbred.com</b>
14. CROP KIND (Common Name) <b>Common Wheat</b>	16. FAMILY NAME (Botanical) <b>Poaceae</b>	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
15. GENUS AND SPECIES NAME OF CROP <b>Triticum aestivum</b>	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		<input type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (If "no", go to item 23) <input type="checkbox"/> UNDECIDED
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO  IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO  IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED
		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO  IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED <i>(If additional explanation is necessary, please use the space indicated on the reverse.)</i>
		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

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

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

SIGNATURE OF OWNER 		SIGNATURE OF OWNER 	
NAME (Please print or type) <b>Kim C. Shantz</b>		NAME (Please print or type) <b>Dale R. Clark</b>	
CAPACITY OR TITLE <b>Wheat Breeder</b>	DATE <b>Oct. 4, 2007</b>	CAPACITY OR TITLE <b>Director of Research</b>	DATE <b>Oct 8, 2007</b>

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice). NEW: With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety per se, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

Plant Variety Protection Office  
Telephone: (301) 504-5518 FAX: (301) 504-5291  
General E-mail: PVPOmail@usda.gov  
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, Seed Regulatory and Testing Branch, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
  - (1) identify these varieties and state all differences objectively;
  - (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
- 20. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
- 23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
- 24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

November 8, 2006 USA Certified Seed

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

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**19.a. Exhibit A. Origin and Breeding History of the Variety**

'Expresso' originated from a backcross breeding scheme with the objective of moving stripe rust resistant genes Yr15 and Yr17 into 'Express' background. The donor of Yr15 was the isogenic line of YR15 in 'Avocet' provided by Bob McIntosh. The donor of Lr37/Sr38/Yr17 was the variety Madsen. The genes were introduced separately into Express using 6 backcrosses with Express as the recurrent parent and using molecular markers for selection. The two resulting lines were crossed and the double homozygote line that became 'Expresso' was selected using molecular markers. The pedigree is Express 6\*/Yr15 Avocet//Express 6\*/Madsen. The crossing and marker assisted selection were performed for WestBred, LLC in the greenhouse by Dr. Jorge Dubcovsky of the University of California-Davis. In the F3 generation of the final cross, four plants were found to be homozygous for Yr15 and Lr37/Sr38/Yr17. The seed of these four plants were planted in a growth chamber near Bozeman, MT in September of 2004. Seed was harvested from 132 plants in December and planted as plant plots near Yuma, AZ in December of 2004. One hundred twenty plant plots, which were identical and uniform, were harvested, bulked together and designated DA984-034SRR. This seed was used to plant 6 acres near Bozeman, MT in the summer of 2005. The resulting seed was harvested as Breeder Seed and this seed was used to produce Foundation Seed near Woodland, CA in 2006. Certified Seed was first offered for sale November 8, 2006. The breeding method used was backcross Marker Assisted Selection. (MAS)

'Expresso' was tested in replicated yield trials at 9 locations in Central California in 2006 and 2007. (Davis, CA; Dixon, CA; UCD, CA; Colusa, CA; Delta, CA; Corcoran, CA; Five Points, CA; Kern County, CA; and Kings County, CA)

The selection criteria used during the breeding of 'Expresso' was 2 molecular markers associated with Yr15 and the molecular markers associated with Lr37/Sr38/Yr17. The plot selection criteria used in 2005 was a phenotype identical to 'Express'. In 2006 and 2007 the stripe rust resistance of 'Expresso' relative to 'Express' was confirmed by field observation.

'Expresso' has been observed for five generations of reproduction and seed increase and is stable and uniform. 'Expresso' has a tall variant that is 12-30 cms taller that occurs at a frequency of up to .5%. A white seed variant may occur at a frequency of up to .5%. An awnless variant may occur at a frequency of up to .5% The variants are otherwise identical to the variety in all other characteristics as described in Exhibit C.



Expresso  
Hard Red Spring Wheat

#200800002

**19.b. Exhibit B. Statement of Distinctness**

'Expresso' most resembles the hard red spring variety 'Express' but differs in that 'Expresso' has the molecular markers associated with the stripe rust resistant genes Yr15 and Lr37/Sr38/Yr17 and is resistance to current stripe rust races in California, while 'Express' does not have the markers and is susceptible to the current stripe rust races in California.

For Yr15 the proximal loci micro-satellite marker used was Xgwm273 and the distal loci micro-satellite marker used was Xbarc8. The 2NS segment contains the genes Lr37/Sr38/Yr17. The two PCR primer pairs used that are specific for 2NS were VENTRIUP and LN2. This is a dominant marker so a CAPS marker was used (primer URIC) to identify the absence of the 2A-allele in the homozygous 2NS plants. The reference is <http://maswheat.ucdavis.edu>.



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Expresso  
Hard Red Spring Wheat

**Table 1. Mean Agronomic Data of 'Expresso' Compared to Check Varieties in 2006 and 2007. UC Davis Regional Common Wheat and Triticale at Sites With High Stripe Rust Infestation. (UC Davis 2006, 2007; Sacramento/ San Joaquin Delta 2006, 2007; Madera 2006; and Colusa 2007)**

Variety	Yields in lbs/A	Plant Height cm	Lodging Rating	Heading After 3/1	Test Weight lbs/bu	Protein %	Stripe Rust*
Expresso	5914	104	2.1	44	62.8	14.5	1.1
Express	4980	104	2.2	44	58.5	14.0	5.8
Summit	5541	93	1.0	44	59.1	13.9	6.3

\* 1 = none, 2 = trace, 3 = moderately resistant, 4 = moderately susceptible, 5 = susceptible, 9 = dead.

**Table 2. Mean Agronomic Data of 'Expresso' Compared to Check Varieties in WestBred, LLC trials in 2006 and 2007 in the Absence of High Levels of Stripe Rust. (Yuma, AZ. 2006, 2007; Corcoran, CA. 2006, 2007; Five Points, CA. 2006, 2007; Dixon, CA. 2006, 2007; and Davis, CA. 2007)**

Variety	Yield in lbs/A	Plant Height cm	Days to Head After 3/1	Test Weight lbs/bu	Protein %
Expresso	5455	95	40	63.1	14.9
Express	5607	94	40	63.0	14.3
Summit	5882	87	41	62.2	13.2



Expresso  
Hard Red Spring Wheat

#200800002

Table 3.

Quality of Expresso compared to Express and Blanca Grande				
	California Extension Trials		California Wheat Collaborative Trial	
	Expresso	Express	Expresso	Blanca Grande
% Protein	16.0	16.2	16.1	15.1
Flour Yield	65.0	64.4	63.5	63.1
Falling number	473	468	453	371
Wet Gluten	35.8	35.6	32.9	30.0
Farinograph Absorption	61.8	61.6	62.2	61.5
Arrival	3.0	3.0	6.00	17.5
Mix tolerance	22.5	26.0	16.0	12.5
MTI	20	20	10	15
Bread Volume cc	955	1000	1005	945
Texture rating	S	S	S	S
Bake Score	5	5	5	5

\*Quality Data provided by the California Wheat Commission



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Expresso  
Hard Red Spring Wheat

#200800002

**Table 4 Quality of Expresso Compared to Express and Blanca Grande  
Cargill Bake Lab Analysis.**

Trait	Expresso	Express	Blanca Grande
% Protein	14.9	13.6	12.8
Loaf Volume cc	900	933	933
Crumb Grain Rating	5	5	10
Crumb Texture Rating	10	10	10
Crumb Color Rating	5	5	5
Dough Handling Rating	5	5	10
Mix Tolerance Rating	5	10	5
Bake Score	53	58	63

7





According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD); USDA is an equal opportunity provider and employer.

**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705**

Exhibit C

**OBJECTIVE DESCRIPTION OF VARIETY  
Wheat (*Triticum* spp.)**

NAME OF APPLICANT (S) <b>WestBred, LLC</b>	TEMPORARY OR EXPERIMENTAL DESIGNATION <b>DA984-034SRR</b>	VARIETY NAME <b>Expresso</b>
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) <b>81 Timberline Drive Bozeman, MT 59718</b>		FOR OFFICIAL USE ONLY  PVPO NUMBER  <b>#200800002</b>

**PLEASE READ ALL INSTRUCTIONS CAREFULLY:**

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.,    or   ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: Munsell Color Chart. Please answer all questions for your variety; lack of response may delay progress of your application.

**1. KIND:**

1 = Common  
 2 = Durum  
 3 = Club  
 4 = Other (Specify) \_\_\_\_\_

**2. VERNALIZATION:**

1 = Spring  
 1 = Winter  
 3 = Other (Specify) \_\_\_\_\_

**3. COLEOPTILE ANTHOCYANIN:**

1 = Absent                      2 = Present

**4. JUVENILE PLANT GROWTH:**

3 = Prostrate              2 = Semi-Erect              3 = Erect

**5. PLANT COLOR: (boot stage)**

3 = Yellow-Green  
 2 = Green  
 3 = Blue-Green

**6. FLAG LEAF: (boot stage)**

1 = Erect                      2 = Recurved  
 2 = Not Twisted              2 = Twisted  
 2 = Wax Absent              2 = Wax Present

**7. EAR EMERGENCE:**

Number of Days (Average)  
  Number of Days Earlier Than \* \_\_\_\_\_  
 Same As \* Express  
  Number of Days Later Than \* \_\_\_\_\_

\*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

**8. ANTHR COLOR:**

1 = Yellow      2 = Purple

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

1 0 4

cm (Average)

cm Taller Than \_\_\_\_\_ \*

Same As

Express \_\_\_\_\_ \*

cm Shorter Than \_\_\_\_\_ \*

10. STEM:

A. ANTHOCYANIN

1

1 = Absent 2 = Present

B. WAXY BLOOM

2

1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

2

1 = Absent 2 = Present

D. INTERNODE

1

1 = Hollow 2 = Semi-Solid 3 = Solid

5

Number of Nodes

E. PEDUNCLE

1

1 = Erect 2 = Recurved 3 = Semi-Erect

1 4

cm Length

F. AURICLE

1

Anthocyanin: 1 = Absent 2 = Present

2

Hair: 1 = Absent 2 = Present

11. HEAD: (At Maturity)

A. DENSITY

1

1 = Lax  
2 = Middense (Laxidense)  
3 = Dense

B. SHAPE

2

1 = Tapering  
2 = Strap  
3 = Clavate  
4 = Other (Specify) \_\_\_\_\_

C. CURVATURE

1

1 = Erect  
2 = Inclined  
3 = Recurved

D. AWNEDNESS

4

1 = Awnless  
2 = Apically Awnletted  
3 = Awnletted  
4 = Awned

12. GLUMES: (At Maturity)

A. COLOR

1

1 = White  
2 = Tan  
3 = Other (Specify) \_\_\_\_\_

B. SHOULDER

2

1 = Wanting 2 = Oblique  
3 = Rounded 4 = Square  
5 = Elevated 6 = Apiculate  
7 = Other (Specify) \_\_\_\_\_

C. SHOULDER WIDTH

2

1 = Narrow  
2 = Medium  
3 = Wide

D. BEAK

3

1 = Obtuse  
2 = Acute  
3 = Acuminate

E. BEAK WIDTH

2

1 = Narrow  
2 = Medium  
3 = Wide

F. GLUME LENGTH

3

1 = Short (ca. 7 mm)  
2 = Medium (ca. 8 mm)  
3 = Long (ca. 9 mm)

G. WIDTH

3

1 = Narrow (ca. 3 mm)  
2 = Medium (ca. 3.5 mm)  
3 = Wide (ca. 4 mm)

H. PUBESCENCE

2

1 = Not Present  
2 = Present

13. SEED:

A. SHAPE

- 3 1 = Ovate
- 2 = Oval
- 3 = Elliptical

B. CHEEK

- 1 1 = Rounded
- 2 = Angular

C. BRUSH

- 2 1 = Short
- 2 = Medium
- 3 = Long
- 1 1 = Not Collared
- 2 = Collared

D. CREASE

- 1 1 = Width 60% or less of Kernel
- 2 = Width 80% or less of Kernel
- 3 = Width Nearly as Wide as Kernel

- 2 1 = Depth 20% or less of Kernel
- 2 = Depth 35% or less of Kernel
- 3 = Depth 50% or less of Kernel

E. COLOR

- 3 1 = White
- 2 = Amber
- 3 = Red
- 4 = Other (Specify) \_\_\_\_\_

F. TEXTURE

- 1 1 = Hard
- 2 = Soft
- 3 = Other (Specify) \_\_\_\_\_

G. PHENOL REACTION (See Instructions)

- 4 1 = Ivory
- 2 = Fawn
- 3 = Light Brown
- 4 = Dark Brown
- 5 = Black

H. SEED WEIGHT

- 4  5 g/1000 Seed (whole number only)

I. GERM SIZE

- 2 1 = Small
- 2 = Midsize
- 3 = Large

14. DISEASE: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

- |   |   |
|---|---|
| <input type="checkbox"/> 0 Stem Rust ( <i>Puccinia graminis</i> f. sp. <i>tritici</i> ) | <input type="checkbox"/> 0 Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> )                      |
| <input type="checkbox"/> 2 Stripe Rust ( <i>Puccinia striiformis</i> )                  | <input type="checkbox"/> 0 Loose Smut ( <i>Ustilago tritici</i> )   |
| <input type="checkbox"/> 0 Tan Spot ( <i>Pyrenophora tritici-repentis</i> )             | <input type="checkbox"/> 0 Flag Smut ( <i>Urocystis agropyri</i> )  |
| <input type="checkbox"/> 0 Halo Spot ( <i>Selenophoma donacis</i> )                     | <input type="checkbox"/> 0 Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )                        |
| <input type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)                       | <input type="checkbox"/> 0 Dwarf Bunt ( <i>Tilletia controversa</i> )   |
| <input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)               | <input type="checkbox"/> 0 Karnal Bunt ( <i>Tilletia indica</i> )   |
| <input type="checkbox"/> 4 <i>Septoria tritici</i> (Speckled Leaf Blotch)               | <input type="checkbox"/> 0 Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )                  |
| <input type="checkbox"/> 0 Scab ( <i>Fusarium</i> spp.)                                 | <input type="checkbox"/> 0 "Snow Molds"   |
| <input type="checkbox"/> 0 "Black Point" (Kernel Smudge)                                | <input type="checkbox"/> 0 Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> 1 Barley Yellow Dwarf Virus (BYDV)                             | <input type="checkbox"/> 0 Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                 |
| <input type="checkbox"/> 0 Soilborne Mosaic Virus (SBMV)                                | <input type="checkbox"/> 0 Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> ).              |
| <input type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus                   | <input type="checkbox"/> 0 Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )          |
| <input type="checkbox"/> 0 Wheat Streak Mosaic Virus (WSMV)                             | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____  | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____  | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____  | <input type="checkbox"/> Other (Specify) _____  |

15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- |  |  |
|--|--|
| <input type="checkbox"/> 0 Hessian Fly ( <i>Mayetiola destructor</i> )   | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Stem Sawfly ( <i>Cephus</i> spp.)             | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Cereal Leaf Beetle ( <i>Oulema melanopa</i> ) | <input type="checkbox"/> Other (Specify) _____ |

15. INSECT: (continued) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (Where Needed)

<input type="checkbox"/> Russian Aphid ( <i>Diuraphis noxia</i> )	<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> Greenbug ( <i>Schizaphis graminum</i> )	<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> Aphids	<input type="checkbox"/> Other (Specify) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

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

**EXHIBIT E  
STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S)  WestBred, LLC	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  DA984-034RR	3. VARIETY NAME  Expresso
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  81 Timberline Drive Bozeman, MT 59718	5. TELEPHONE (Include area code)  (406) 587-1218	6. FAX (Include area code)  (406) 587-8247
7. PVPO NUMBER		

# 2 0 0 8 0 0 0 0 2

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.  YES  NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.  YES  NO

10. Is the applicant the original owner?  YES  NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?  YES  NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?  YES  NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provide and employer.

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According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

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**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705**

**EXHIBIT F  
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S) WestBred, LLC	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) WestBred, LLC P.O. Box 6904 Yuma, AZ 85366	TEMPORARY OR EXPERIMENTAL DESIGNATION DA984-034SRR
		VARIETY NAME Expresso
NAME OF OWNER REPRESENTATIVE (S) Kim C. Shantz	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) WestBred, LLC P.O. Box 6904 Yuma, AZ 85366	FOR OFFICIAL USE ONLY
		PVPO NUMBER <b>#200800002</b>

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Kim C. Shantz  
Signature

October 4, 2007  
Date

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