



No.

202000298

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

University of Idaho

Whereas, THERE HAS BEEN PRESENTED TO THE

Administrator of the Agricultural Marketing Service

An application requesting a certificate of protection for an alleged novel variety of sexually reproduced, asexually 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 replenishment of viable germplasm material 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 above purposes, or using it in producing a hybrid or different variety there from, to the extent provided by the PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)



WHEAT, COMMON

'UI Cookie'

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 fourth day of June, in the year two thousand and twenty one.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Administrator
Agricultural Marketing Service

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE		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 FOR PLANT VARIETY PROTECTION CERTIFICATE <i>(Instructions and information collection burden statement on reverse)</i>		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 University of Idaho		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME IDO1405S	3. VARIETY NAME UI Cookie
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) University of Idaho, Office of Technology Transfer, Morrill Hall 414, 875 Perimeter Drive, Moscow, ID 83844-3003		5. TELEPHONE (include area code) 208-397-4181	FOR OFFICIAL USE ONLY
		6. FAX (include area code) 208-397-4311	PVPO NUMBER 202000298
			FILING DATE 7/14/2020
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) University	8. IF INCORPORATED, GIVE STATE OF INCORPORATION Idaho	9. DATE OF INCORPORATION 1889	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Karen Stevenson, Licensing Associate University of Idaho, Office of Technology Transfer Morrill Hall 414, 875 Perimeter Drive Moscow, ID 83844-3003 Jianli Chen, Breeder, University of Idaho R & E Center 1691 S 2700 W Aberdeen, ID 83210		11. TELEPHONE (include area code) 208-397-4181	FILING AND EXAMINATION FEES: \$ 4382.00 7/14/2020 DATE
		12. FAX (include area code) 208-397-4181	CERTIFICATION FEE: \$ DATE
13. E-MAIL jchen@uidaho.edu karen@uidaho.edu			
14. CROP KIND (Common Name) Wheat	15. GENUS AND SPECIES NAME OF CROP Triticum	16. FAMILY NAME (Botanical) Poaceae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="radio"/> YES <input checked="" type="radio"/> NO	18. DOES THE VARIETY CONTAIN ANY BIOTECHNOLOGY EVENTS? <input type="radio"/> YES <input checked="" type="radio"/> NO A biotechnology event is defined as a single insertion of a nucleic acid construct into a specific site in a plant's chromosome that is regulated under the U.S. Coordinated Framework for the Regulation of Biotechnology.	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) <input type="radio"/> YES (If "yes", answer items 21 and 22 below.) <input checked="" type="radio"/> NO (If "no" go to item 23) <input type="radio"/> UNDECIDED	
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="radio"/> YES <input type="radio"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
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"/> Filing and Examination Fee (\$4,382) <input checked="" type="checkbox"/> Make checks and money orders payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office) <input checked="" type="checkbox"/> Credit Card Payments (See instructions on Page 2 of 11)		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="radio"/> YES <input type="radio"/> NO IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. FOR EACH CLASS. ___ FOUNDATION ___ REGISTERED ___ CERTIFIED (If additional explanation is necessary, please use the space indicated on next page.)	
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 type="radio"/> YES <input checked="" type="radio"/> 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 next page.)		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="radio"/> YES <input checked="" type="radio"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on next page.)	
25. The owners declare that a viable sample of basic seed will be furnished directly to an acceptable depository in support of the variety within three months of filing. Seed will be replenished upon request in accordance with such regulations as may be applicable. For a tuber propagated variety or vegetative propagated parent of the variety, a tissue culture or vegetative sample will be deposited in a public repository within three months of the date of the certificate fee request letter. These will be 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) Dr. Jianli Chen		NAME (Please print or type) Dr. Karen Stevenson	
CAPACITY OR TITLE Professor	DATE 10 July 2020	CAPACITY OR TITLE Licensing Associate	DATE 13 July 2020

Continuation Page from ST – 470 (Application for Plant Variety Protection Certificate)

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

No Limit

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.)*

N/A.

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).)*

N/A.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE		FOR OFFICIAL USE ONLY
EXHIBIT A – ORIGIN AND BREEDING HISTORY ** Use additional pages as needed.		PVPO NUMBER
1. Name of Owner	2. Temporary Designation or Experimental Name	3. Variety Name
University of Idaho	IDO1405S	UI Cookie
4. Describe the genealogy (back to and including public and commercial varieties, lines, or clones used) and the breeding method(s). **		
<p>IDO1405S was developed from the cross A981085S-F-1//IDO624 using a modified bulk breeding method and selected in F4:6 yield plots. A981085S-F-1 is a breeding line derived from IDO495/P29//Treasure. Treasure (PI 468962, Sunderman and O'Connell, 1988) is a University of Idaho released SWS wheat cultivar in 1988. P29 is a common source of resistance to barley yellow dwarf virus (BYDV) (Sharma et al., 1997). IDO495 is a SWS wheat experimental line. IDO624 is a University of Idaho experimental line derived from the cross 'Centennial' (PI 537303) //IDO488/'Clark's Cream' (PI 476305). Centennial is a soft white spring wheat cultivar released by the Idaho Agricultural Experiment Station in 1990 with the pedigree 'Cowbird sib'(PI unavailable)/'Sterling' (Cltr 17859). Clark's Cream is a hard white cultivar with high tolerance to post-harvest sprouting (PHS) developed by Earl G. Clark at Kansas State University in 1972 (https://maswheat.ucdavis.edu/protocols/PHS/index.htm).</p>		
5. Give the details of subsequent stages of selection and multiplication. **		
Year	Detail of Stage	Selection Criteria
2004	Cross	None
2004	Greenhouse F1 Grow out	None
2005-2006	F2 to F3 Generations	Bulk harvest and plot seed increase (no selection)
2007	F4 Generation	100 heads selected based on head type and height.
2008	F5 Generation	7 headrows selected based on plant uniformity, height, and disease resistance. Flour protein, gluten strength, and SDS sedimentation.
2009 and 2010	Yield Plot Observation Trial (single rep)	Agronomic performance in yield plots. Milling and baking quality.
2011-2020	Elite Yield Trials (multiple locations, years, and reps)	
6. Is the variety uniform? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
How did you test for uniformity?		
<p>From the F5 generation, we select headrows that each had uniform growth habit, heading date, height, head color and head type, maturity, and seed color after harvesting. The selected headrows were planted into yield plots in subsequent years. The uniformity was assessed each year.</p>		
7. Is the variety stable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
How did you test for stability? Over how many generations?		
<p>We tested the stability by planting uniform lines (F7) in replicated trials in multiple locations for three to five years. The stable lines were selected that have reproducible agronomic traits, resistance to major diseases and insects as well as end-use quality.</p>		
8. Are genetic variants observed or expected during reproduction and multiplication? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, state how these variants may be identified, their type and frequency.		
<p>In the canopy, around 1% taller heads may be observed. Up to 1% plants with awnless or brown chaff is allowed during reproduction and multiplication. A variance up to 3, 6, and 9 red or hard-liked wheat seed per pound is allowed in foundation, registered, and certified classes of seed.</p>		

UI COOKIE SOFT WHITE SPRING WHEAT

General Description

UI Cookie has semi-erect juvenile plant growth. Plants are green in color. The flag leaves are erect and twisted without wax. Heads are awned, erect, and dense with a clavate shape. Glumes have a narrow beak that is acuminate. Shoulders are narrow and oblique with no pubescence. Seeds are opaque, white, and oval with rounded cheeks and a short brush. The average thousand kernel weight is 39g under irrigation.

Agronomic Performance in the UISWEYTs

UI Cookie was evaluated in 13 irrigated trials in the University of Idaho Soft White Elite Yield Trials (UISWEYTs) in southeastern Idaho over four growing seasons from 2015 to 2018. The data were summarized in Table 1. The average grain yield of UI Cookie was 108 Bu/A, which was 18 Bu/A higher than UI Pettit (90.3 Bu/A) and 5 Bu/A higher than UI Stone (103.4 Bu/A) and Alturas (103.1 Bu/A). In these trials, there was no significant difference in test weight between UI Cookie and the other three check cultivars. Grain protein content (12.4%) of UI Cookie was slightly higher than UI Stone (12.0%), Alturas (11.7%), and UI Pettit (11.8%). UI Cookie headed in an average 168.7 days from January 1, which was no different from UI Stone (168.3), but later than 'UI Pettit' (166.3, PI 620631) and earlier than 'Alturas' (170.5, PI 620631). UI Cookie had an average height of 36.3 inches, similar to UI Stone (36.9 in.) and Alturas (37.2 in.), but taller than UI Pettit (31.5 in.). Based on the average performance in four dryland trials in Soda Springs from 2015 to 2018, there was no significant differences in grain yield among UI Cookie (37.4 Bu/A), UI Stone (36.2 Bu/A), Alturas, (33.2 Bu/A), and UI Pettit (33.0 Bu/A) (data not presented).

Agronomic Performance in the UISWVYTs

UI Cookie was evaluated in nine irrigated trials in the University of Idaho Soft White Variety Yield Trials (UISWVYT) in southeastern Idaho over three growing seasons from 2016 to 2018 (Table 2). The average grain yield of UI Cookie in these trials was 118.8 Bu/A, which was 7.4 Bu/A higher than Louise (111.4 Bu/A) and 11.4 Bu/A higher than UI Pettit (107.4 Bu/A), although it was 4.1 Bu/A smaller than Seahawk (122.9 Bu/A) and 4.4 Bu/A smaller than SY Saltese (123.2 Bu/A). Grain yield of UI Cookie was not significantly different from that of UI Stone (121.5 Bu/A), Alturas (120.2 Bu/A), Melba (119.5 Bu/A), or Tekoa (119.2 Bu/A). Test weight of UI Cookie (61 Lb/Bu) was not significantly different from that of Louise (61.2 Lb/Bu) or UI Pettit (61.0 Lb/Bu), but slightly less than other cultivars tested. Its grain protein content (11.0%) was close to Louise (11.0%), Seahawk (10.8%), and SY Saltese (10.9%), but slightly higher than UI Stone (10.3%) and Alturas (10.3%). UI Cookie (June 17) headed similar to UI Stone (June 17), later than SY Saltese (June 15) and UI Pettit (June 15), but earlier than Seahawk (June 22), Alturas (June 20), Melba (June 23), Tekoa (June 21), and Louise (June 21). UI Cookie (34 in.) was similar in height to UI Stone (34 in.), Alturas (34 in.), and Melba (34 in.); shorter than Seahawk (35 in.), SY Saltese (35 in.), Tekoa (35 in.), and Louise (37 in.); but taller than UI Pettit (32 in.).

Resistance to FHB

UI Cookie has relatively good tolerance to fusarium head blight (FHB) compared to the known tolerant cultivar UI Stone (Table 3). FHB mean severity of UI Cookie was 2.5 based on a 0-9 reading scale, which was significantly lower than UI Stone (6.0), Seahawk (5.5), and UI Pettit (7.0) when tested in the Michigan State University FHB nursery in 2015. FHB mean severity of UI Cookie was 19.36% in the University of Idaho Soft White Spring Wheat Elite Yield Trials (EYT) over 2017 and 2018, which was lower than UI Stone (34.99%) and UI Pettit (44.18%), while UI Cookie (49.6%) had a similar level of FHB severity with the susceptible cultivar UI Pettit

(45.8%), but lower than UI Stone (62%) and Seahawk (73.0%) in the University of Idaho Soft White Spring Wheat Variety Yield Trials (VYT). The cause of the difference between EYT and VYT might be the different amounts of inoculum used in the two trials. The DON contents of the four cultivars were much smaller in the EYT than those in the VYT.

Resistance to stripe rust

UI Cookie has a high level of high-temperature adult-plant (HTAP) resistance to stripe rust, similar to Louise, but better than Alpowa and UI Stone based on the greenhouse tests in 2017 and 2018 (Table 4). In the seedling low-temperature test in 2017, UI Cookie was resistant (IT 2) to races PSTv-4 and PSTv-14, susceptible (IT 8) to PSTv-37 and PSTv-40, and had mix reactions (IT 2, 8) to PSTv-51, while in the adult-plant high-temperature test, UI Cookie was highly resistant (IT 1-2) to the tested three races. In the 2018 seedling tests, UI Cookie had mix reactions (most plants IT 2 and few plants IT 8), susceptible reaction (IT 8) to PSTv-14, PSTv-37, and PSTv-40, intermediate reaction (IT 5) to PSTv-51 and PSTv-198 (didn't presented in Table 4), while in the adult-plant high-temperature tests, UI Cookie was highly resistant (IT 2) to the tested three races.

UI Cookie also has good field resistance to stripe rust based on the readings from flowering to soft dough growth stages (Table 5). In all field experiments tested in 2016 – 2018, the susceptible check (AvS) was highly susceptible with IT 8 and severity 80-100%, while UI Cookie was rated as a MR and 3-4 using a 1-9 rating scale, similar to Louise but better than Alpowa and UI Stone in 2016 and 2017. In 2018, UI Cookie had varied readings, from mostly resistant (IT 3 and severity 10-30%) and moderately resistant (IT 5 and severity 10-30%) to moderately susceptible (IT 5 and severity 60%) and susceptible (IT8 and severity 90%). The susceptible reading in LOC4 might be

incorrect due to possible planting error as the data was not consistent with all other data (Dr. X. Chen, personal communication).

IDO1405S showed better resistance than UI Stone in field stem rust nurseries in Kenya (Dr. Matt Rouse, personal communications).

End Use Quality

UI Cookie has good to excellent end-use quality, like UI Stone. UI Cookie has high molecular weight glutenin subunit 2+12, which is a desirable trait for a SWS wheat (Ishikawa and Nakamura, 2007). In the UISWSEYTs over 11 irrigated environments and 3 rainfed environments (Table 6), the mean flour protein content of UI Cookie was 9.6%, which was slightly higher than that of Alturas (9.2%), UI Stone (9.1%), and UI Pettit (8.7%) (Table 5). The mean flour yield of UI Cookie was 64.0%, which was slightly smaller than Alturas (65.6%), UI Pettit (66.4%), and UI Stone (67.6%). The average break flour yield of UI Cookie (39.63%) was higher than Alturas (38.2%), but lower than UI Pettit (40.3%) and UI Stone (41.6%). UI Cookie has a mean cookie diameter 9.1 cm, which was not significantly different from the other three cultivars. In the UISWSVYTs over 5 growing environments of two years (Table 7), the average flour yield of UI Cookie was 64.5%, which was lower than other tested cultivars. The mean flour protein was 9.5%, which was higher than Melba (8.7%), but similar or smaller than other tested cultivars. The average break flour was 38.4%, which was smaller than UI Stone (41.2%), Melba (40.6%), and Tekoa (40.2%), but higher or similar to the other tested cultivars. Cookie diameter of UI Cookie was not significantly different from all other tested cultivars.

Solvent Retention Capacity (SRC) test is used in some industries to evaluate soft white wheat end-use quality (Kweon et al., 2011). Lactic Acid SRC (LA-SRC) greater than 90 is desirable (Baker, personal communication). UI Cookie, Alturas, UI Stone, Louise, and Seahawk had desirable LA-SRC (Table 8). UI Cookie's water SRC was 47.6, which was close to UI Stone (47.5), SY Saltese (48.3), and UI Pettit (48.4); higher than Tekoa (46.5); but less than that of Alturas (49.4), Louise (48.8), Melba (48.8), or Seahawk (49.0) (Table 8). For Sucrose SRC, UI Cookie was 85.4, which was not significant different from Alturas (85.4), Louise (83.9), Seahawk (84.2), and SY Saltese (85.1), but greater than the rest of cultivars. For sodium carbonate SRC, UI Cookie was 59.6, which was similar to Alturas (59.8), Louise (59.2), Melba (59.4), Seahawk (60.9), SY Saltes (59.4), and UI Pettit (58.6), but greater than UI Stone (57.7) and Tekoa (57.3).

UI Cookie had good falling number performance, like UI Stone (Table 9). Over seven data sets, UI Cookie had an average falling number of 328 seconds.

UI Cookie was evaluated in the 2018 Pacific Northwest Wheat Quality Council (PNWWQC) (<http://wwql.wsu.edu/wp-content/uploads/2018/11/2017-Meeting-Book-Final-for-Upload.pdf>).

UI Cookie had 28.3 % of break flour and 1.37 % of whole wheat ash, similar to 27.1% of break flour and 1.46% of whole wheat ash in UI Stone. Based on dough handling and product use, overall score of UI Cookie was in the top 5 out of 26 soft wheat entries. Overall quality was comparable to UI Stone. For the Philippine market testing (Philippines Foremost Milling Corporation), UI Cookie stood out for cookie (6th out of 27) and cake products (2nd out of 27). SRC values were also obtained from the PNWWQC from six participants.

Table 1. Average performance of UI Cookie for yield, test weight, grain protein, heading, and plant height under irrigated conditions in 13 environments in the University of Idaho Soft White Spring Elite Yield Trials (UISWSEYT) from 2015-2018.

Cultivar	Grain Yield	Test Weight	Protein	Days to Heading	Height
	bu/ac	lbs/bu	%	Julian	Inches
UI Cookie	108.0	59.3	12.4	168.7	36.3
UI Stone	103.4	59.8	12.0	168.3	36.9
Alturas	103.1	59.7	11.7	170.5	37.2
UI Pettit	90.3	59.1	11.8	166.3	31.5
Mean (n=13)	105.7	60.1	12.0	169.1	36.0
LSD (0.05)	8.8	2.0	0.4	0.7	1.1

Table 2. Average performance of UI Cookie for grain yield, test weight, grain protein, heading, and plant height in the University of Idaho Soft White Spring Variety Yield Trials (UISWSVYT) nine irrigated trials grown in southern Idaho over 2016 to 2018 (<http://www.extension.uidaho.edu/cereals/>).

Cultivar	Grain Yield	Test Weight	Grain Protein	Heading	Height
	(bu/a)	(lb/bu)	%	date	In.
UI Cookie	118.8	61.0	11.0	17-Jun	34
UI Stone	121.5	61.5	10.3	17-Jun	34
Seahawk	122.9	62.3	10.8	22-Jun	35
SY Saltese	123.2	62.2	10.9	15-Jun	35
Alturas	120.2	61.6	10.3	20-Jun	34
Melba	119.5	61.7	10.2	23-Jun	34
Tekoa	119.2	62.3	10.4	21-Jun	35
Louise	111.4	61.2	11.0	21-Jun	37
UI Pettit	107.4	61.0	10.3	15-Jun	32
Average (n=12)	117.9	61.7	10.7	19-Jun	34
LSD ($\alpha=0.05$)	3.9	0.3	0.5	0.5	0.7
CV %	8.1	1.2	6	0.7	4.7

Table 3. Fusarium head blight (FHB) severity and DON content of UI Cookie compared to the two known FHB tolerant cultivars UI Stone and Seahawk and the susceptible cultivar UI Pettit in two University of Idaho FHB nurseries UISWSEYT and UISWSVYT in 2017 and 2018 and one Michigan State University FHB Nursery in 2015.

Cultivar	Mean Severity (%) in 2017 and 2018		Mean DON in 2017 and 2018 (ppm)		Severity (0-9) 2015
	UISWSEYT	UISWSVYT	UISWSEYT	UISWSVYT	MSU
UI Cookie	19.36	49.6	0.38	3.65	2.5
UI Pettit	44.18	45.8	0.40	6.60	7.0
UI Stone	34.99	62.0	0.22	2.25	6.0
Seahawk	-	73.0	0.15	2.68	5.5
Trial mean	22.14	45.9	-	4.30	5.9

Table 4. Stripe rust infection type (IT) data of UI Cookie and other spring wheat cultivars tested with selected races of the wheat stripe rust pathogen in the seedling and adult-plant stages at different temperature conditions in a greenhouse in the 2017 and 2018 spring wheat regional cooperative nurseries.

Name	Seedling test (4-20°C)					Adult-plant test (10-30°C)			HTAP ^c
	PSTv-4	PSTv-14	PSTv-37	PSTv-40	PSTv-51	PSTv-14	PSTv-37	PSTv-40	
	13-268	12-116	16-45	09-78	17-005	12-116	16-45	09-78	
	2017								
Alpowa	8	8	8	8	8	6,6,6	6,6,6	5,5,5	Low
Louise	8	8	8	8	8	3,3,3	3,3,3	2,2,3	High
UI Stone	2(5),8(8)	8	8	8	8	2,3,3	5,5,5	2,3,3	Low
UI Cookie	2	2	8	8	2(7),5(7)	1,1,1	2,2,2	2,2,2	High
AvS (S. CK)	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
	2018								
Alpowa	8	8	8	8	8	5,5,6	5,5,5	5,5,5	Low
Louise	8	8	8	8	8	3,3,3	3,3,3	2,2,2	High
UI Stone	8	8	8	8	8	3,3,3	3,5,5	2,2,3	Moderate
UI Cookie	2(10),8(2)	8	8	8	5	2,2,2	2,2,2	2,2,2	High
AvS (S. CK)	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No

Table 5. Stripe rust infection type (IT) and severity (%) data of UI Cookie and other spring wheat cultivars tested in the Western Regional Soft White Spring Nursery (WRSWSN) in Washington State under natural infection of the wheat stripe rust pathogen in 2016-2018.

2016	LOC1		LOC3		LOC4		LOC5				LOC6		LOC7		Field	Overall
	6/29		6/28		7/6		6/2		6/28		6/20		6/16			
	L. flower.		L. flower.		S. dough		S. elong.		Milk		Milk		Milk			
Cultivar	IT ^a	%	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	summary	rating
Alpowa	5	20	5	20	5	20	8	20	5	50	8	10	8	20	MR-MS	5
Louise	3	1	3	10	2	10	7	30	5	30	5	20	3	15	MR	4
UI Stone	5	10	3	10	3	10	8	60	5	30	5	15	5	15	MR	4
UI Cookie	3	10	3	10	5	10	8	20	5	25	5	20	3	15	MR	4
AvS (S. CK)	8	90	8	90	8	100	8	80	8	100	8	30	8	70	S	9
2017	LOC1		LOC3				LOC5 ^b				LOC6*		LOC7			
	7/8		7/7		7/19		6/6		7/7		6/22		6/16			
	10.1-10.51		10.1-10.51		11.1		2.00		10.54		10.52		11.10		Field	Overall
Name	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	summary	rating
Alpowa	5,8	70	5	60	5	70	8	80	5	35	5	2	5	50	MS	6
Louise	5	10	5	10	5	5	7	80	5	40	2	2	2	10	MR	4
UI Stone	5,8	20	5	10	5	20	8	80	5	40	2	2	8	60	MS	7
UI Cookie	2,5	20	2	5	3	10	8	80	5	20	2	2	3	15	MR	3
AvS (S. CK)	8	90	8	90	8	100	8	80	8	100	8	30	8	100	S	9
2018	LOC1		LOC3		LOC4		LOC5				LOC6		LOC7			
	7/7		6/30		7/10		6/7		6/27		6/15		6/15			
	Fks 10.53		10.53		10.53		6		10.5		11.2		10.51		Field	Overall
Name	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	summary	rating
Alpowa	8	60	3	20	8	60	8	100	2	10	3	15	5	20	MS	7
Louise	5	15	5	15	3	10	6	80	5	20	3	10	5	20	MR	3
UI Stone	7	40	5	40	8	100	8	80	3	30	3	10	8	5	S	9
UI Cookie	5	30	5	60	8	90	8	80	3	30	3	15	5	10	MR, S	NA
AvS (S. CK)	8	80	8	90	8	100	8	100	8	100	8	30	8	40	S	9

Table 6. End-use quality of UI Cookie compared with three check cultivars grown in 11 irrigated environments and 3 rainfed environments over 4 years in 2015 - 2018.

VARIETY	Flour Protein	Flour Yield	Break Flour	Cookie Diameter
IDO1405S	9.59	64.00	39.63	9.05
Alturas	9.17	65.56	38.18	8.99
UI Stone	9.10	67.55	41.62	9.04
UI Pettit	8.74	66.41	40.25	9.08
LSD	0.40	1.20	1.01	0.10

Table 7. End-use quality of UI Cookie compared to eight check cultivars grown in the University of Idaho Soft White Spring Variety Yield Trials averaged over five irrigated environments of two years.

Cultivar	Flour Yield	Flour Protein	Break Flour	Cookie Diameter
	%	%	%	cm
UI Cookie	64.5	9.5	38.4	9.1
UI Stone	67.9	9.2	41.2	9.2
Seahawk	66.4	9.2	38.4	9.0
Alturas	66.8	9.4	37.8	9.0
Louise	66.3	9.6	38.0	9.1
Melba	68.9	8.7	40.6	9.1
SY Saltese	65.4	9.5	38.8	9.1
Tekoa	67.7	9.4	40.2	9.1
UI Pettit	66.7	9.2	39.1	9.1
Average	66.7	9.3	39.2	9.1
LSD (0.05)	0.706	0.346	1.040	0.139

Table 8. Solvent Retention Capacity of UI Cookie compared to eight check cultivars grown in the University of Idaho Soft White Spring Variety Yield Trials (UISWSVYT) averaged over four irrigated environments in 2017.

Cultivar	Solvent Retention Capacity			
	Water	Sucrose	Sodium Carbonate	Lactic Acid
UI Cookie	47.6	85.4	59.6	92.2
Alturas	49.4	85.4	59.8	95.5
UI Stone	47.5	83.1	57.7	92.6
Louise	48.8	83.9	59.2	92.6
Melba	48.8	78.1	59.4	66.1
Seahawk	49.0	84.2	60.9	91.4
SY Saltese	48.3	85.1	59.4	72.5
Tekoa	46.5	82.9	57.3	86.8
UI Pettit	48.4	82.2	58.6	76.5
Average (N=9)	48.3	83.3	59.1	85.1
LSD (0.05)	1.1	1.9	1.2	7.5

Table 9. Falling number (seconds) performance of UI Cookie compared to three check cultivars and other new experimental lines across 4 environments in Idaho over 3 years.

Line	Aberdeen			Kimberly		Tetonia	Soda Springs	Mean
	2018	2016	2015	2018	2015	2018	2018	
UI Cookie	375	266	273	321	311	400	415	328
UI Stone	370	276	309	339	321	390	428	339
UI Pettit	354	270	312	297	309	325	380	315
Alturas	346	273	301	327	284	341	274	302
IDO1403S	321	294	325	335	345	346	359	327
IDO1404S	353	285	267	285	282	354	334	305
IDO1702S	290	238	228	284	278	310	290	270
IDO1802S	325	263	278	283	295	341	383	304
Average	342	271	287	309	303	351	358	311

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Form Approved OMB NO 0581-0055

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

EXHIBIT C

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

NAME OF APPLICANT (S) Dr. Jianli Chen	TEMPORARY OR EXPERIMENTAL DESIGNATION IDO1405S	VARIETY NAME UI Cookie
LOCATION OF FIELD TRIAL (S) (NEAREST CITY, STATE, COUNTY, AND COUNTRY)		FOR OFFICIAL USE ONLY: PVPO NUMBER

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., 0 9 9 or 0 9) 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: _____.
- Please answer all questions for your variety; lack of response may delay progress of your application.

Morphology:

I. PLANT:

1. _____ Plant Kind:

- A. Common B. Durum C. Club
 D. Other (Specify) _____

2. _____ Market Class:

- A. HRW (Hard Red Winter) B. HRS (Hard Red Spring) C. HW (Hard White)
 D. SRW (Soft Red Winter) E. SW (Soft White)

3. _____ Vernalization:

- A. Spring B. Winter
 C. Other (Specify) _____

I. PLANT: (con.)

4. _____ Coleoptile Anthocyanin:

- A. Absent B. Present

5. _____ Juvenile Plant Growth:

- A. Prostrate B. Prostrate to Semi-Erect C. Semi-Erect
 D. Semi-Erect to Erect E. Erect

EARLY PLANT GROWTH HABIT:



Prostrate Intermediate Erect

6. _____ Plant Color: (Boot Stage)

- A. Yellow-Green B. Green C. Blue-Green
 D. Other (Specify) _____

7. _____ Flag Leaf Orientation: (Boot Stage)

- A. Erect B. Semi-Erect C. Recurved
 D. Other (Specify) _____

8. _____ Flag Leaf Type:

- A. Not Twisted B. Twisted

9. _____ Flag Leaf Glaucosity:

- A. Wax Absent B. Wax Present

II. EAR

1. 168.7 Ear Emergence (Number of Days)
 2. 2 Ear Emergence (Number of Days Earlier than* Alturas)
 3. _____ Ear Emergence (Same Number of Days as* UI Stone)
 4. 2 Ear Emergence (Number of Days Later than* UI Pettit)

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

III. ANTHHER:

1. _____ Anther Coloration:

- A. Yellow B. Purple
 C. Other (Specify) _____

IV. PLANT HEIGHT:

1. _____ Plant Height Class:
 A. Semi-Dwarf B. Standard
2. 92.2 Plant Height (cm)
3. 12 Plant Height (cm Taller than* UI Pettit)
4. _____ Plant Height (cm Same as* UI Stone)
5. 2 Plant Height (cm Shorter than* Alturas)

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

V. STEM:

1. _____ Stem Anthocyanin Coloration:
 A. Absent B. Present
 C. Other (Specify) _____
2. _____ Stem Waxy Bloom:
 A. Absent B. Present
3. _____ Stem Hairiness (Last Internode of Rachis)
 A. Absent B. Present
 C. Other (Specify) _____
4. _____ Internode Type:
 A. Hollow B. Semi-Solid C. Solid
 D. Other (Specify) _____

STEM INTERNODE CROSS SECTION:



Hollow Semi-solid Solid

5. 3 Internode: Number of Nodes
6. _____ Peduncle Type:
 A. Erect B. Recurved C. Semi-Erect
 D. Other (Specify) _____
7. 4 Peduncle Length (cm)
8. _____ Auricle Anthocyanin:
 A. Absent B. Present

V. STEM: (con.)

9. _____ Auricle Hairiness:

- A. Absent
 B. Present
 C. Other (Specify) _____

VI. HEAD:

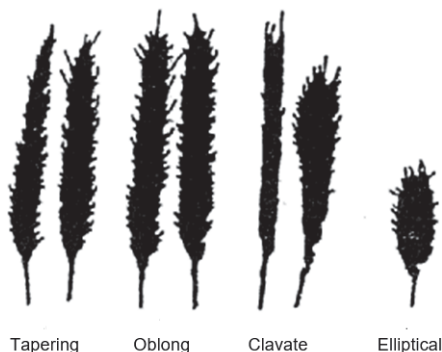
1. _____ Head Density at Maturity:

- A. Lax
 B. Middense (Laxidense)
 C. Dense
 D. Other (Specify) _____

2. _____ Head Shape at Maturity:

- A. Tapering
 B. Strap
 C. Clavate
 D. Elliptical
 E. Other (Specify) _____

SPIKE SHAPE:

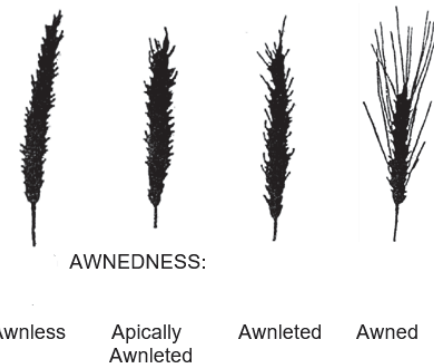


3. _____ Head Curvature at Maturity:

- A. Erect
 B. Erect to Inclined
 C. Inclined
 D. Inclined to Recurve
 E. Recurved

4. _____ Head Awnedness at Maturity:

- A. Awnless
 B. Apically Awnletted
 C. Awnletted
 D. Awned
 E. Other (Specify) _____



VII. GLUME:

1. _____ Glume Color at Maturity:

- A. White B. Tan
 C. Other (Specify) _____

2. _____ Glume Shoulder at Maturity:

- A. Wanting B. Oblique C. Rounded
 D. Square E. Elevated F. Apiculate
 G. Other (Specify) _____

SHOULDER SHAPE:



Wanting Oblique Rounded Square Elevated Apiculate

3. _____ Glume Shoulder Width at Maturity:

- A. Narrow B. Narrow to Medium C. Medium
 D. Medium to Wide E. Wide

4. _____ Glume Beak Shape at Maturity:

- A. Obtuse B. Acute C. Acuminate
 D. Other (Specify) _____

BEAK SHAPE:



Obtuse Acute Acuminate

5. _____ Glume Beak Length at Maturity:

- A. Very Short B. Short C. Medium
 D. Long E. Very Long

6. ¹ _____ Glume Beak Length at Maturity (cm)

7. _____ Glume Beak Width:

- A. Narrow B. Narrow to Medium C. Medium
 D. Medium to Wide E. Wide

8. ¹ _____ Glume Beak Width at Maturity (cm)

VII. GLUME: (con.)

9. _____ Glume Length at Maturity:

- A. Short (~7mm) B. Medium (~8mm) C. Long (~9mm)
 D. Other (Specify) _____

10. _____ Glume Width at Maturity:

- A. Narrow (~3mm) B. Medium (~3.5mm)
 C. Wide (~4mm) D. Other (Specify) _____
 E. Wide

11. _____ Glume Pubescence at Maturity:

- A. Not Present B. Present

VIII. SEED:

1. _____ Seed Shape:

- A. Ovate B. Oval C. Elliptical
 D. Other (Specify) _____

SEED SHAPE:



Ovate Oval Elliptical

2. _____ Seed Cheek:

- A. Rounded B. Angular

CHEEK SHAPE:



Rounded Angular

VIII. SEED: (con.)

3. _____ Seed Brush:

- A. Short
- B. Short to Medium
- C. Medium
- D. Medium to Long
- E. Long

BRUSH HAIR LENGTH:



Short Medium Long

4. _____ Seed Brush Collar:

- A. Not Collared
- B. Collared

BRUSH SIZE



Small Midsized Large Collared

5. _____ Seed Crease Width:

- A. 60% or Less of Kernel
- B. 80% or Less of Kernel
- C. Nearly as Wide as Kernel
- D. Other (Specify) _____

SEED CREASE WIDTH:



Narrow Mid-wide Wide

VIII. SEED: (con.)

6. _____ Seed Crease Depth:

- A. 20% or Less of Kernel
- B. 35% or Less of Kernel
- C. 50% or Less of Kernel
- D. Other (Specify) _____

SEED CREASE DEPTH:



7. _____ Seed Color:

- A. White
- B. Amber
- C. Red
- D. Other (Specify) _____

8. _____ Seed Texture:

- A. Hard
- B. Soft
- C. Other (Specify) _____

9. _____ Seed Phenol Reaction (See Instructions for More Information):

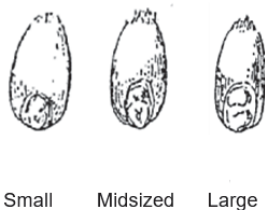
- A. Ivory
- B. Fawn
- C. Light Brown
- D. Dark Brown
- E. Black
- F. Other (Specify) not tested

10. 38 Seed Weight (g per 1000 Seeds, Whole Number Only)

11. _____ Seed Germ Size

- A. Small
- B. Small to Medium
- C. Medium
- D. Medium to Large
- E. Large

GERM (EMBRYO) SIZE:



IX. DISEASE:

1. Disease: Please Indicate the Specific Race or Strain Tested

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

<input checked="" type="checkbox"/>	Stem Rust (<i>Puccinia graminis</i> f. sp. tritici)	Race: 3, US
<input type="checkbox"/>	Leaf Rust (<i>Puccinia recondita</i> f. sp. tritici)	Race: _____
<input checked="" type="checkbox"/>	Stripe Rust (<i>Puccinia striiformis</i>)	Race: 3, PSTv-4 and 14
<input type="checkbox"/>	Loose Smut (<i>Ustilago tritici</i>)	Race: _____
<input type="checkbox"/>	Powdery Mildew (<i>Erysiphe graminis</i> f. sp. tritici)	Race: _____
<input type="checkbox"/>	Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>)	Race: _____
<input type="checkbox"/>	Dwarf Bunt (<i>Tilletia controversa</i>)	Race: _____
<input type="checkbox"/>	Karnal Bunt (<i>Tilletia indica</i>)	Race: _____
<input type="checkbox"/>	Flag Smut (<i>Urocystis agropyri</i>)	Race: _____
<input type="checkbox"/>	Tan Spot (<i>Pyrenophora tritici-repentis</i>)	Race: _____
<input type="checkbox"/>	Halo Spot (<i>Selenophoma donacis</i>)	Race: _____
<input type="checkbox"/>	Septoria spp.	Race: _____
<input type="checkbox"/>	Septoria nodorum (Glume Blotch)	Race: _____
<input type="checkbox"/>	Septoria avenae (Speckled Leaf Disease)	Race: _____
<input type="checkbox"/>	Septoria tritici (Speckled Leaf Blotch)	Race: _____
<input type="checkbox"/>	Scab (<i>Fusarium</i> spp.)	Race: _____
<input type="checkbox"/>	"Snow Molds"	Race: _____
<input type="checkbox"/>	Kernel Smudge ("Black Point")	Race: _____
<input type="checkbox"/>	Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.)	Race: _____
<input type="checkbox"/>	Barley Yellow Dwarf Virus (BYDV)	Race: _____
<input type="checkbox"/>	Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)	Race: _____
<input type="checkbox"/>	Soilborne Mosaic Virus (SBMV)	Race: _____
<input type="checkbox"/>	Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>)	Race: _____
<input type="checkbox"/>	Wheat Yellow (Spindle Streak) Mosaic Virus	Race: _____
<input type="checkbox"/>	Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)	Race: _____
<input type="checkbox"/>	Wheat Streak Mosaic Virus (WSMV)	Race: _____
<input checked="" type="checkbox"/>	Other (Specify) Fusarium Head Blight	Race: 4
<input type="checkbox"/>	Other (Specify) _____	Race: _____
<input type="checkbox"/>	Other (Specify) _____	Race: _____
<input type="checkbox"/>	Other (Specify) _____	Race: _____

IX. DISEASE: (con.)

2. Homozygous For Specific Disease Resistance Gene

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

3 Stem rust unknown

- 0. Not Tested
- 1. Susceptible
- 2. Resistant
- 3. Intermediate
- 4. Tolerant

3 Stripe rust unknown

- 0. Not Tested
- 1. Susceptible
- 2. Resistant
- 3. Intermediate
- 4. Tolerant

0 Leaf rust _____

- 0. Not Tested
- 1. Susceptible
- 2. Resistant
- 3. Intermediate
- 4. Tolerant

4 Other (Specify) FHB (unknown)

- 0. Not Tested
- 1. Susceptible
- 2. Resistant
- 3. Intermediate
- 4. Tolerant

X. PESTS:

1. INSECT: PLEASE SPECIFY BIOTYPE (Where Needed)

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

- 0 Stem Sawfly (*Cephus* spp.) (Specify) _____
- 0 Cereal Leaf Beetle (*Oulema melanopa*) (Specify) _____
- 0 Russian Aphid 1 (*Diuraphis noxia*) _____
- 0 Russian Aphid 2 (*Diuraphis noxia*) _____
- 0 Greenbug (*Schizaphis graminum*) (General) _____
- 0 Greenbug (*Schizaphis graminum*) Biotype A _____
- 0 Greenbug (*Schizaphis graminum*) Biotype B _____
- 0 Greenbug (*Schizaphis graminum*) Biotype C _____
- 0 Greenbug (*Schizaphis graminum*) Biotype E _____
- 0 Greenbug (*Schizaphis graminum*) Other (Specify) _____
- 0 Aphids (Specify) _____
- Other (Specify) _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype A _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype B _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype C _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype D _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype E _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype F _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype G _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype GP _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype H _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype I _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype J _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype L _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype M _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype N _____
- 0 Hessian Fly (*Mayetiola destructor*) Biotype O _____
- 0 Hessian Fly (*Mayetiola destructor*) (specify) _____

XI. ADDITIONAL INFORMATION:

1. High Molecular Weight Glutenin Subunit Profile (Check those that apply):

Glu-A1

- 1
- 2*
- null
- 1*

Glu-B1

- 6+8
- 7+8
- 7+9
- 13+16
- 13+19
- 17+18

Glu-D1

- 2+11
- 2+12
- 3+12
- 5+10
- null

2. Translocations

(1=Present, 2=Absent, 3=Heterogeneous, 4= Not Tested):

4 1BL/1RS

- 1
- 2
- 3
- 4

4 1A/1R

- 1
- 2
- 3
- 4

4 2NS/2AS

- 1
- 2
- 3
- 4

4 4DL/4AgS

- 1
- 2
- 3
- 4

3. Imidazolinone Herbicide Tolerance:

2 Als-1

- 1. Present
- 2. Absent
- 3. Not Tested

2 Als-2

- 1. Present
- 2. Absent
- 3. Not Tested

2 Als-3

- 1. Present
- 2. Absent
- 3. Not Tested

4. End Use Quality:

Grain Protein 11-12%

Flour Protein 9.5-10.5%

SDS NA

Farniograph NA

Other _____

[PLEASE ENTER ADDITIONAL VARIETY TRAITS ON NEXT PAGE]

XII. COMMENTS:

Additional traits was described in Ex. B

References:

- (a) L.W. Briggles 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) W.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.

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 AGRICULTURAL MARKETING SERVICE
 SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE
 APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

FOR OFFICIAL USE ONLY

PVPO NUMBER

EXHIBIT E - STATEMENT OF THE BASIS OF OWNERSHIP

1. Name of Owner University of Idaho	2. Temporary Designation or Experimental Name IDO1405S	3. Variety Name UI Cookie
--	--	-------------------------------------

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

5. Is the applicant a U.S. national or a U.S. based entity? **If no, give name of country.** YES NO

6. 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**

7. Additional explanation on ownership (*Trace ownership from original breeder to current owner*).

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.

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AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705**

**EXHIBIT F
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S) University of Idaho	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 875 Perimeter Drive, MS 3003 Moscow, ID 83844-3003	TEMPORARY OR EXPERIMENTAL DESIGNATION IDO1405S
		VARIETY NAME UI Cookie
NAME OF OWNER REPRESENTATIVE (S) Karen Stevenson Jianli Chen, Breeder	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 875 Perimeter Drive, MS 3003 Moscow, ID 83844-3003	FOR OFFICIAL USE ONLY
		PVPO NUMBER

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.

Signature

July 14, 2020

Date