

ATTACHMENT I

APPLICATION FOR APPROVAL OF CULTIVARS X ASSOCIATE CULTIVARS

(Please check appropriate type of application)

- 1. **Crop: Wheat**
- 2. **Experimental no. or name: GA 981621-5E34.**
- 3. **Pedigree and history: GA 981621-5E34 is AGS 2485 / PIO 26R61. The final cross was made in the spring of 1998. Individual spike selections were made in the F2 to F5 generations at Plains, GA. The pedigree method of breeding was used to advance the segregating populations. In 2003, a headrow in the F5 generation was harvested for preliminary evaluations in 2004. Agronomic evaluations were conducted from 2004-2006 in nursery trials and from 2007 to 2008 in Georgia's Small Grain State Performance Trials. It was evaluated in 2007 in the Uniform Eastern Wheat Nursery.**

Breeder seed: A small increase plot (5x10') of GA 981621-5E34 was planted from seed which originated from remnant seed of a headrow in F6 generation and was rogued thoroughly for aberrant types. The seed from this small plot was used to plant increase strips in 2007 at Plains, GA. Seed from the strips was planted in a ten acre field in 2008 at the Foundation Seed Farm in Plains and rogued to remove variants.

- 4. **Description: GA 981621-5E34 is a high-yielding, medium-late maturing, and good test weight soft red winter wheat line. It is resistance to leaf rust and stripe rust. Its maturity averages about 4 days later than AGS 2000 in Georgia. It has field resistant to current biotypes of Hessian fly in Georgia.**
- 5. **Station(s) where developed: Griffin Campus**
- 6. **Participating scientist(s): Jerry Johnson, G. David Buntin, James Buck**
- 7. **In what respect is the new cultivar superior to the cultivar now in use? or reasons for proposing release as an associate cultivar.**

GA 981621-5E34 will be released as an Associate Cultivar due to its good yield performance in Trials in north GA (Tables 6 and 8) and trials in the region and its late maturity which does meet the majority of the wheat production of Georgia. Three companies (Crops Production Services, AgSouth Genetics, and John Miller (AL) are interested in licensing GA 981621-5E34.

It is later in maturity than AGS 2000 (Table 1, 2, 4, 5, and 9). It has stripe rust resistance better than AGS 2000 which is require in the region (Tables 3 and 12). It has field resistance to current biotypes of Hessian fly in Georgia (Table 13). It is equal to or better

than the checks for grain yield outside of Georgia in AR (Table 10) and in NC, VA, KY, S. IN, and S. MO. (Table 11).

8. Method of propagation: Seed

9. Amount of breeder seed stocks available (if applicable): 20 bu.

10. Amount of foundation seed stocks available (if applicable): 800 bushel in summer of 2008.

11. Amount of cutting or bud material available for vegetative propagated material for nursery distribution (if applicable):

12. Is there likely to be unusual difficulty encountered in the production of any class of seed stocks? Explain. No

13. Three suggested names for the cultivar: GA 981621-5E34

14. Name approved by plant cultivar and germplasm release committee: GA 981621-5E34

15. Form of intellectual property protection: Plant Variety Protection

16. Is a royalty assessment recommended: Yes No

Table 1. Average Performance of GA 981621-5E34 and Checks in Elite Nursery Multilocations*, 2005.

Entry	Yield bu/A	Test Wt. lbs/bu	Head Date Julian	Height inches
GA 981621-5E34	93a	57ab	100a	40a
AGS 2000	83b	56b	96b	38a
PIO 26R61	87b	58a	98ab	41a

* Plains, Griffin, Marianna and Quincy, FL, and Belle Mina, AL
Numbers with same letters are not significantly different at the P0.05.

Table 2. Average Performance of and GA 981621-5E34 Checks in Multi-State* Performance Trials (5 Loc., GAWN), 2006.

Entry	Yield bu/A	Test Wt. lbs/bu	Head Date Julian	Height inches
GA 981621-5E34	97a	60a	105a	38a
AGS 2000	92c	60a	102b	33a
USG 3209	88b	59a	103a	31a

*Florida, Georgia, Arkansas, Louisiana, Virginia
Numbers with same letters are not significantly different at the P0.05.

Table 3. Average Agronomic Traits of and Checks in GA 981621-5E34 Multi-State* Performance Trials (5 Loc., GAWN), 2006.

Entry	Lodging 0-9	P. Mildew 0-9	Leaf Rust 0-9	Stripe Rust 0-9
GA 981621-5E34	0.1b	2.1a	0.7b	0.0c
AGS 2000	3.4a	1.0a	5.1a	6.0a
USG 3209	2.8a	2.0a	5.9a	2.0b

*Florida, Georgia, Arkansas, Louisiana, Virginia
Numbers with same letters are not significantly different at the P0.05.

Table 4. Average Performance of and Checks GA 981621-5E34 in Georgia's State Performance Trials in Georgia, 2-Yr Ave, 2006-2007.

Entry	Yield bu/A	Test Wt. lbs/bu	Head Date Julian	Height inches
GA 981621-5E34	83a	61a	95ab	41a
AGS 2000	76b	60a	92b	38b
PIO 26R61	77b	61a	92b	39a
AGS 2031	79b	61a	98a	39a

Numbers with same letters are not significantly different at the P0.10.

Table 5. Average Performance of and Checks GA 981621-5E34 in Georgia's State Performance Trials in Georgia, 2-Yr Ave, 2007-2008 (8 Yr-Loc).

Entry	Yield bu/A	Test Wt. lbs/bu	Head Date Julian	Height inches
GA 981621-5E34	81b	61a	104a	42a
AGS 2000	87a	61a	99b	38b
PIO 26R61	77c	62a	101b	43a
AGS 2031	75c	61a	104a	38b

Numbers with same letters are not significantly different at the P0.10.

Table 6. Average Performance (grain yield) of GA 981621-5E34 and Checks in Georgia's State Performance Trials in Georgia, 2-Yr Ave, 2007-2008 (8Yr-Loc).

Entry	South Bu/A	North Bu/A	Statewide Bu/A
GA 981621-5E34	80.7b	99.0a	85.5a
AGS 2020	86.7a	91.4a	88.4a
PIO 26R61	77.2b	84.4a	80.8b
AGS 2031	75.2b	94.1a	79.7b

Numbers with same letters are not significantly different at the P0.10.

Table 7. Average Performance (grain yield) of GA 981621-5E34 and Checks in Georgia's State Performance Trials in Georgia, in 2006 (5 Loc).

Entry	South Bu/A	North Bu/A	Statewide Bu/A
GA 981622-5E35	87.9	100.8	93.1
GA 981621-5E34	84.3	107.8	93.7
AGS 2000	71.3	107.9	85.9
PIO 26R61	76.3	91.7	82.4
AGS 2031	81.4	97.1	87.7
Coker 9553	78.7	97.8	86.3
LSD at 10% level	4.4	8.8	4.4

Table 7. Average Performance (grain yield) of GA 981621-5E34 and Checks in Georgia's State Performance Trials in Georgia, in 2007 (3 Loc)

Entry	South Bu/A	North Bu/A
GA 981622-5E35	89.0	Freeze damage
GA 981621-5E34	82.2	Freeze damage
AGS 2000	80.2	Freeze damage
PIO 26R61	78.4	Freeze damage
AGS 2031	77.0	Freeze damage
Coker 9553	73.2	Freeze damage
LSD at 10% level	4.8	

Table 8. Average Performance (grain yield) of GA 981621-5E34 and Checks in Georgia's State Performance Trials in Georgia, in 2008 (5 Loc)

Entry	South Bu/A	North Bu/A	Statewide Bu/A
GA 981622-5E35	84.4	79.5	82.5
GA 981621-5E34	79.2	90.2	83.6
AGS 2020	80.1	78.5	79.5
PIO 26R61	76.0	77.2	76.4
AGS 2031	73.5	91.2	80.6
Coker 9553	73.3	85.7	78.3
LSD at 10% level	4.0	10.2	4.7

Table 9. Average Performance of GA 981621-5E34 and Checks in Uniform Southern Soft Red Winter Nursery, 2007.

Entry	Yield bu/A	Test Wt. lbs/bu	Head Date Julian	Height inches
GA 981621-5E34	67.1a	59ab	113a	36a
AGS 2000	61.7b	59ab	108b	33b
PIO 26R61	56.1c	60a	110b	33b
USG 3209	57.4c	58b	109b	30c
McCormick	55.2c	59ab	113a	30c

21 locations in the Southern Region

Numbers with same letters are not significantly different at the P0.05.

Table 10. Average Performance (grain yield) of GA 981621-5E34 and Checks in State Performance Trials in Arkansas in 2008 (3 loc)

Entry	Bu/A	Head date
GA 981621-5E34	101.0a	4/18a
AGS 2031	97.6a	4/13b
AGS 2020	84.9b	4/09b

Numbers with same letters are not significantly different at the P0.10.

Table 11. Average Grain Yield Performance (Bu/A) of GA 981621-5E34 and Checks in Uniform Southern Soft Red Winter Nursery, 2007.

Entry	NC	VA	KY	S. IN	S. MO
GA 981621-5E34	63	85	62	74	49
AGS 2000	--	85	51	65	32
PIO 26R61	32	77	55	51	31
LSD 5%	12.3	9.3	7.5	7.3	2.3

Table 12. Average Agronomic Traits of GA 981621-5E34 and Checks in Uniform Southern Soft Red Winter Nursery, 2007.

Entry	Leaf Rust 0-9	Stripe Rust 0-9	P. Mildew 0-9
GA 981621-5E34	0.7c	0.0b	1.3a
AGS 2000	1.2bc	5.0a	1.2a
PIO 26R61	1.9bc	0.0b	1.5a
USG 3209	3.0b	4.0a	0.7a
McCormick	5.9a	0.0b	0.0a

21 locations in the Southern Region

Numbers with same letters are not significantly different at the P0.05.


Table 13. Evaluation of lines in the field to Hessian fly as % fly infestation at Plains and Griffin, GA in 2007 and 2008.

Entry	2007 Plains	2007 Griffin	2008 Plains	2008 Griffin
GA 981621-5E34	5.0b	6.7b	0.6b	2.5b
AGS 2000	1.7b	8.3b	11.6b	2.5b
PIO 26R61	5.0b	0.0b	0.0b	0.0b
Chesapeake	61.7a	36.7a	26.3a	22.5a

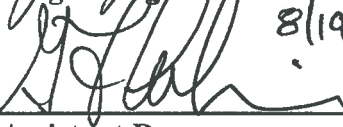
Numbers with same letters are not significantly different at the P0.01.

GA 961621-5E34

RECOMMENDED BY:

A. 
Originating Scientist
8/11/08

B. 
Department Head

C. 
Assistant Dean

D.  10/6/08
Chairperson, GAES Plant Cultivar
and Germplasm Release Committee

E. 
Associate Dean for Research

APPROVED:


Dean and Director
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