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Gent CI 17293 Winter Wheat



Intercrossing wheat and wheatgrass offspring in a program of breeding for winterhardiness in the South Dakota Wheat Commission greenhouse at South Dakota State University



Winter wheat increase plots at Highmore

Gent CI 17293

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Gent winter wheat is a Scout-type variety made by compositing nine selections developed at the Hays (Kansas) Branch Experiment Station by R. W. Livers. The selections were tested in South Dakota for several years for winter hardiness and nine of the better performing ones composited for an initial seed increase.

Gent is from the cross Agent/4°Scout. Agent was developed at the Oklahoma Agricultural Experiment Station from the cross Triumph//*Triticum* species/*Agropyron elongatum*. Agent was highly resistant to leaf rust at the time of its release in 1967 but is now taking some leaf rust in the Southern Great Plains. Agent/4°Scout derivatives have begun taking a little leaf rust in scattered locations. Scout was developed at the Nebraska Agricultural Experiment Station from the cross Nebred/Hope//Turkey/3/Cheyenne/Ponca.

Description, Agronomic Characteristics

Gent is a hard red winter wheat similar to Scout 66 in heading date, height, winter hardiness, and straw strength, but has been highly resistant to leaf rust in South Dakota while Scout 66 has been susceptible. Gent has high resistance to stem rust. It sometimes shows considerable leaf and stem necrosis. It apparently tolerates wheat streak mosaic as well as does Scout 66. Heads and straw are white and heads are bearded. Seed size is good, similar to Scout 66 and other Scout derivatives. Gent contains some brown headed rogues.

Gent is recommended for production in southwest

South Dakota or wherever growers have found Scout 66 or Scout well adapted.

Performance Data

Gent was one bushel or more higher in yield than the other four named entries over the 26 test sites (Table 1) in the 1972 and 1973 Northern Regional Performance Nursery. In this nursery (Table 2), grown near Presho in 1972, Gent ranked second among eight varieties and had a higher test weight than the other entries. In 47 locations of the Southern Regional Performance Nursery (Table 3) Gent ranked second among 10 entries. In Crop Performance Tests in South Dakota in 1972 and 1973, Gent ranked fourth, two bushels below Gage and one bushel below Eagle and Centurk. Test weight of Gent was 62 pounds per bushel which was among the highest. Gent is similar in yield to the best yielding varieties now in production but is somewhat different from them in rust reaction or breeding, thus broadening the available germ plasm represented by commercial winter wheat.

Quality Characteristics

Composited grain samples of Gent and other varieties have been tested for milling and baking performance (Table 5). Overall milling and baking properties are good although Gent may not be quite equal to Scout 66 in milling characteristics but it is similar to Scout 66 in baking performance.

The name "Gent" is derived from dropping the "A" from "Agent," a winter wheat variety used mainly for grazing in Oklahoma and which is a parent that donated leaf rust resistance and higher yield to Gent.

Table 1. Yield and other agronomic characteristics of Gent and of named entries in the Northern Regional Performance Nursery for 1972 and 1973 averaged over years.^{1/}

Entries	Yield bushels per acre	Test weight pounds per bushel	Days to head from Jan. 1	Plant height inches	Winter survival %	Lodging %	Leaf rust severity %	Stem rust severity %
Number of tests	26	25	8	20	5	6	4	2
Gent	45	58	152	33	90	34	2	1
HiPlains	44	58	154	33	95	14	9	1
Warrior	42	57	153	34	95	45	64	22
Kharkoff	39	54	154	35	95	33	36	24
Bronze	39	57	155	36	100	42	24	1

^{1/} Northern Regional Performance Nursery Trials are cooperatively grown each year at 14 to 18 locations, mostly in the Northern Great Plains. The trials contain 13 to 25 of the newest experimental lines and several standard varieties.

Table 2. Performance of Gent and commercial varieties in the Northern Regional Performance Nursery near Presho on the George Anderson farm, 1972, or in North Dakota.^{1/}

Entries	Yield bushels per acre	Test weight pounds	Necrosis	Lodging	Leaf rust	Stem rust	% Winter survival		
							Casselton ND	Williston ND	Brookings ^{2/} SD
HiPlains	56	59	MR	MR	MS	R	1	1	58
Gent	54	61	MS	MR	R	R	0	1	43
Centurk	52	60	S	MR	R	R	0	15	39
Warrior	47	58	MR	MR	S	S	0	30	63
Bronze	42	56	MR	MR	R	R	25	40	81
Kharkoff	42	55	MR	MS	S	S	1	60	61
Bezostaya	34	57	MS	R	S	S	0	1	9
Sundance	27	51	MR	MR	S	S	50	88	91

^{1/} The 1973 tests in South Dakota were destroyed by greenbugs or winter killing.

^{2/} In 1973 and 1974 there was not enough winter injury to test plots at Brookings to provide comparisons between the above varieties for winter survival.

Table 3. Yield and other agronomic characteristics of Gent and of named entries in the Southern Regional Performance Nursery for 1972 and 1973 averaged over years.^{1/}

Entries	Yield bushels per acre	Test weight pounds per bushel	Days to head from Jan. 1	Plant height inches	Winter survival %	Lodging %	Severity of leaf rust %	Severity of stem rust %
Number of trials	47	49	40	48	9	14	8	4
Sage	50	61	139	37	91	37	2	3
Gent	49	60	139	37	89	45	3	3
Centurk	49	60	139	36	89	34	15	3
Baca	48	61	138	37	91	42	23	5
Buckskin	47	60	139	38	91	27	27	21
Sentinel	47	59	139	34	90	30	34	12
Scout 66	46	60	138	38	86	47	36	7
Homestead	46	60	138	34	91	29	25	8
Trison	44	61	135	37	85	23	42	35
Kharkoff	37	59	145	40	95	59	28	58

^{1/} Southern Regional Performance Nursery Trials are grown cooperatively from South Dakota to Texas and New Mexico. Up to 25 of the newest experimental lines and standard varieties are grown of hard red winter wheat at 20 to 30 locations a year.

Table 4. Comparisons of Gent with commercial varieties in South Dakota in Crop Performance Tests.

Entries Years	Bison		Onida	Yields in bushels per acre			Quinn		Presho	Averages over 9 tests	
	1972	1973	1972	Garden City	Highmore		1972	1973	1972	Yield in bushels per acre	Test weight pounds per bushel
				1972	1973	1973					
Gage	41	30	36	47	33	37	47	41	49	40	61
Eagle	40	31	37	37	35	37	43	48	41	39	62
Centurk	48	30	32	46	30	33	46	40	42	39	61
Gent	45	35	35	42	37	30	42	42	34	38	62
Scoutland	42	34	38	40	28	30	41	48	41	38	62
Scout 66	30	36	37	40	31	35	40	45	38	37	62
Bronze	42	30	29	40	27	36	40	41	42	36	61
Trapper	38	30	31	36	33	35	37	40	38	35	61
Hume	43	26	24	40	30	33	43	38	41	35	61
Winoka	40	30	32	38	38	31	34	39	32	35	62
Lancer	43	33	31	45	22	28	38	38	36	35	62
Froid	45	27	26	41	32	27	36	41	35	34	59
Minter	43	23	27	41	31	31	36	34	33	33	60

Table 5. Chemical, milling, and baking data for Gent and check varieties, Hard Red Winter Wheat Quality Laboratory, Kansas State University, Manhattan, Kansas, 1972.^{1/}

	Wheat ^{2/}			Flour ^{2/}		Absorption %	Bread baking data ^{2/}			Loaf volume	
	Ash %	Protein %	Flour Yield %	Ash %	Protein %		Mixing time min. ^{3/}	KBrO ₃ requirement	Crumb grain	As recorded cc	Corrected to cc
South Dakota 1972 Crop Performance Test; composites from 5 locations											
Gent	1.47	14.1	72.3	.36	12.8	63.6	2 3/4	2-3	Q-S	931	912
Gage	1.42	13.6	73.8	.37	12.9	63.3	2 3/8	3	S	952	926
Scout 66	1.43	13.3	74.3	.35	12.4	63.7	2 3/4	2-3	S	932	939
Centurk	1.47	13.1	72.6	.38	12.0	65.7	4 1/8	1	S	900	933
Southern Regional Performance Nursery composites, 1972											
Gent	1.46	13.8	72.0	.33	12.4	64.4	3	2	S	939	912 ^{4/}
Scout 66	1.41	13.1	72.8	.35	12.2	64.0	3 1/8	2	S	923	909
Centurk	1.46	13.1	71.3	.36	11.9	65.8	5	1	S	898	905
Northern Regional Performance Nursery composites, 1972											
Gent	1.39	12.9	72.1	.32	11.8	64.6	3 3/8	2	Q-S	860	873
Bronze	1.36	12.9	73.8	.35	12.1	64.5	3 7/8	1-2	S	922	915
Centurk	1.37	12.0	71.4	.37	11.1	63.9	4 1/2	1-2	S	828	887

^{1/} Chemical data expressed on a 14% moisture basis.

^{2/} S, Q and U--Satisfactory, questionable and unsatisfactory quality with respect to property in question. A satisfactory rating is implied in the absence of a designated one. One unsatisfactory rating, in general, characterizes a variety as undesirable for hard wheat milling and breadmaking purposes. Crumb colors were satisfactory for all entries.

^{3/} Mixing time used in baking is evaluated in conjunction with other mixing properties obtained from the mixogram.

^{4/} Promising overall quality characteristics.