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TENDOY

A New Hard Red Winter Wheat for Dry Land Areas of Southern Idaho.¹

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TENDOY³ is a bunt (smut) resistant hard red winter wheat with plant type and grain quality characteristics similar to the variety Cheyenne. It is recommended for dry land areas in southeastern Idaho along with the varieties Itana and Columbia.

Development

Tendoy (C. I. 13426) was developed by making a series of crosses of the variety Cheyenne to a bunt-resistant parent and maintaining the bunt resistance by selection. The exact pedigree is (Rex-Rio, C. I. 12246 x Cheyenne) x Cheyenne) x Cheyenne) x Cheyenne). Tendoy has the M and R genes for bunt resistance from the Rex-Rio parent, and the M₂ gene from the Cheyenne parent.

The original cross was made in 1946 at Davis, California, by C. A. Suneson who was then the Western Regional Wheat Coordinator. The second to fourth crosses were made by W. K. Pope at Moscow, Idaho, in 1948 to 1951. In 1957, eight similar F₆ bunt-free lines were bulked and entered as

a variety in the regional yield testing program. Tendoy was named and approved as a variety by the Idaho Foundation Seed Committee in January 1960 for fall seeding that same year.

Description

Tendoy has an erect, bearded head with white chaff.

Plant height and maturity are about the same as for Itana.

Tendoy has a white straw that is weaker than the straw of Itana or Columbia and has a tendency to shatter in some locations.

Tendoy has red kernels that are midlong to long with a narrow crease, resembling those of the Cheyenne parent.

It is ordinarily not possible to distinguish between Tendoy and the parent variety Cheyenne except by differences in their reaction to bunt. This is shown in Table 1.

Bunt Resistance

The chief virtue of Tendoy is that it has greater bunt resistance than Itana and slightly more bunt resistance than Columbia. All three varieties are susceptible to the more virulent races of dwarf smut. The bunt resistance of these and other varieties is shown in Table 1.

¹ Cooperative investigations, Crops Research Division, Agricultural Research Service, United States Department of Agriculture, and the University of Idaho Agricultural Experiment Station.

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³ Named after Chief Tendoy of the Lemhi tribe in Salmon area.

Table 1.—Percent bunt with inoculations of races of *Tilletia caries* for races shown.¹

Wheat Variety	Bunt Race							
	2	6	11	12	13	15	16	18
Turkey.....	20	50	60	60	60	75	75	..
Cheyenne.....	72	68	30	63	59	82	84	..
Tendoy.....	0	T*	0	3	0	T	2	15
Columbia.....	0	T	0	1	1	2	2	50
Itana.....	12	15	0	0	0	34	0	75
Wasatch.....	0	0	14	0	80	2	0	R†
Cache.....	1	7	34	1	27	3	8	R

*—Trace †—Resistant

¹ Taken by permission from the annual reports of the Regional Smut Research Laboratory, Pullman, Washington, Crops Research Division, Agricultural Research Service, United States Department of Agriculture.

Yield

The yields of Tendoy, Itana, Columbia, Kharkof (a strain of Turkey) and Wasatch in southern Idaho are shown in Table 2 for the years 1956 through 1959. At

the high-yielding locations or where irrigation water was applied, Itana and Columbia were superior to Tendoy. At dry land locations Tendoy performed favorably. The test weight of Tendoy was satisfactory, averaging about the same as Itana and Columbia.

Table 2.—Average yield in bushels per acre of Tendoy, Itana, Columbia, Kharkof, and Wasatch, in the period 1956 through 1959.

Location	Growing Condition	Number of Station Years	Tendoy	Itana	Columbia	Kharkof	Wasatch
Aberdeen..	Sprinkler irrigation.....	4	56.8	60.0	65.1	56.0	54.7
	Gravity irrigation.....	3	79.6	81.5	78.7	74.4	62.0
	Dry land.....	2	16.9	14.3	13.1	17.9	16.0
Grace.....	Small plots irrigated....	3	57.6	57.9	65.6	55.1	50.0
	Drill strips irrigated....	3	67.1	71.5	71.6	60.4
Tetonia..	Dry land.....	1	31.1	30.5	32.6	19.4	16.0
Fairfield..	Small plots dry land....	1	41.3	45.7	38.9	33.9	28.9
	Drill strips dry land....	2	33.6	37.2	28.4	25.5
Rexburg..	Small plots dry land....	2	35.0	37.2	34.8	33.2	30.4
	Drill strips dry land....	2	25.2	28.9	25.7	25.5
	Average.....		49.3	51.5	51.5	48.0	42.4

Quality

The quality characteristics of Tendoy are very similar to those of Cheyenne. This was the purpose of repeating the Cheyenne parent four times in the production of

Tendoy. It mills well and produces a flour that has a long mixing time and high water absorption. Table 3 shows the quality characteristics of the 1957 and 1958 crops as grown in the Regional Nurseries.

Table 3.—Quality characteristics of the 1957 and 1958 crops of the varieties Tendoy, Itana, Columbia, Kharkof and Wasatch as grown in the Regional Nurseries¹

Characteristics	Tendoy ²		Itana ³		Columbia ³		Kharkof		Wasatch	
	1958	1957	1958	1957	1958	1957	1958	1957	1958	1957
WHEAT:										
Test weight, lbs. per bushel	61.8	62.3	62.2	63.2	62.1	62.9	61.7	61.3	62.2	61.6
Protein, percent	13.3	13.9	12.7	13.8	13.5	14.3	13.2	13.8	13.5	14.3
Flour yield, percent	74.2	73.0	72.9	72.1	70.8	70.4	72.2	70.8	70.8	70.5
Milling score	88.7	91.4	93.7	90.7	89.5	88.2	88.2	85.8	88.9	85.6
FLOUR:										
Protein, percent	12.1	13.6	11.8	12.5	12.1	13.5	12.4	13.0	12.5	13.6
Ash, percent	.37	.36	.32	.33	.33	.34	.35	.39	.35	.37
Absorption, baking, percent	72.0	71.0	74.0	67.0	74.0	69.0	73.0	70.0	72.0	67.0
Mixing time, minutes	5.0	3.5	7.0	3.5	5.6	2.8	2.6	1.8	1.9	1.2
Valorimeter reading ⁴	79	78	85	75	82	72	64	59	56	51
Loaf volume, c.c.	818	918	653	893	720	890	875	913	833	870

¹ Data from the U.S.D.A. Western Wheat Quality Laboratory, Pullman, Washington.

² The 1957 crop was an earlier bulk, C.I. 13261, which contained about twice the number of lines as in the final bulk of Tendoy, C.I. 13426.

³ 1958 samples for Itana and Columbia regarded as sub-normal in loaf volume.

⁴ A measure of dough strength.

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