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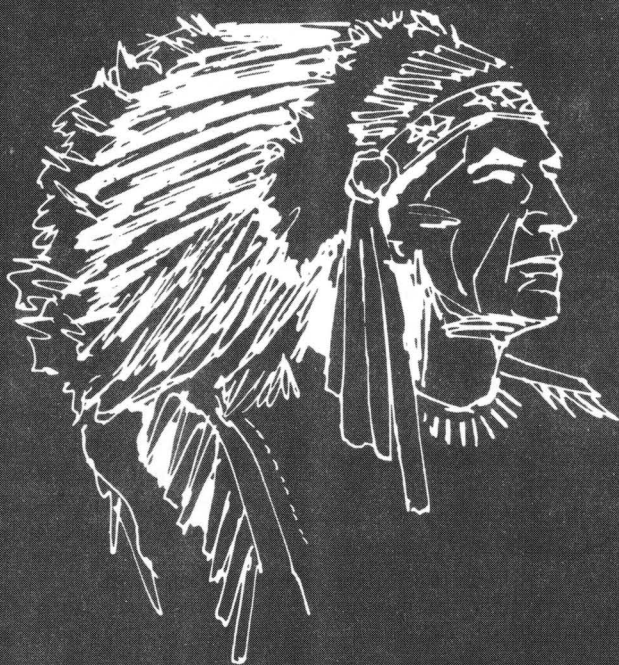
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Chief Oats



Plant Science Department
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Chief Oats

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Chief is a spring oat variety developed by the South Dakota Agricultural Experiment Station and released in December, 1971. It combines good straw strength and a wide area of adaptation with good grain quality and high yield. With these characteristics it should be a good oat variety for most of South Dakota. Seed was increased in 1971 by the Foundation Seed Stock Division, South Dakota State University. Other states also increased seed and participated in the joint increase and release of Chief seed.

Origin

Chief is a selection from the cross Clintland 64 x Garland made in 1963. The original selection was a single F₂ plant. In the next generation, the material was rogued to remove plants susceptible to crown rust and off-type plants. Yield tests of Chief were first run in 1966. The Crop Performance Testing Project grew Chief at all testing locations in South Dakota during 1970, 1971, and 1972. Its high performance in these tests and in the Uniform Regional Midseason Oat Nursery, which is coordinated by the U. S. Department of Agriculture, prompted its release.

Agronomic Characteristics

Chief is a midseason variety that heads about the same time as Garland. Straw strength is good. The

height is midtall with the plants growing 1 to 2 inches taller than Garland. A difference in plant height is recognized as taller plants are observed in field plantings. The kernels are yellow with up to 4% white kernels which fluoresce under ultraviolet light. The test weight of Chief is good, being equal to Garland. Preliminary milling tests have shown Chief to be a good milling oat. Protein content of the grain is good, slightly higher than Garland, which is known for its good protein level.

Yields of Chief in South Dakota have been very good. It has averaged 6 or more bushels per acre above other varieties listed in Table 1 for the 3-year period 1970 to 1972.

Disease Reactions

Data obtained from the North Central Region of the United States during 1968-1970 show Chief to possess a good level of resistance to crown rust. Chief is more resistant to crown rust than varieties such as Garland, Kota, and Burnett. Reaction to race 264B of crown rust is mixed, however most of the plants are resistant. Chief is resistant to oat smuts and possesses stem rust resistance equal to other oat varieties. All commercially grown spring oat varieties have only a moderate degree of resistance to stem rust.

Table 1. Performance of oat varieties in Standard Variety Oat Trials in South Dakota for 1970-72.

Variety	Average Yields, Bushels Per Acre							Test Weight lbs./bu. 1971 ave.
	Brookings	Watertown	Centerville	Highmore	Eureka*	Wall	Average	
Chief	82.5	82.1	85.3	71.1	73.4	54.4	74.8	36.6
Burnett	67.4	55.9	80.3	68.3	61.4	55.5	64.8	35.9
Froker	80.2	69.4	77.0	65.8	63.5	47.0	67.2	35.8
Garland	70.2	69.1	80.9*	71.8	65.2	54.0	68.4	36.3
Holden	74.1	70.9	75.9	70.7	63.6	56.6	68.9	36.5
Kota	67.9	58.3	76.9	71.3	67.5	51.8	65.6	35.2

*1970-71 only

Table 2. Agronomic and pathologic data on six varieties in the Uniform Midseason Oat Performance Nursery, 1969-1970.

	Test weight (lbs/bu)	Height (in.)	Lodging (%)	Date* Head (June)	Crown rust (coef.)
Chief	33.4	36.6	30.0	25	24.4
Diana	33.5	35.9	26.2	22	35.8
Clintland 64	33.9	37.3	36.6	25	19.8
Froker	33.7	38.5	23.2	30	18.4
Jaycee	33.8	32.9	38.8	22	44.7
Lodi	31.7	42.4	26.1	30	26.7

*Brookings data only.