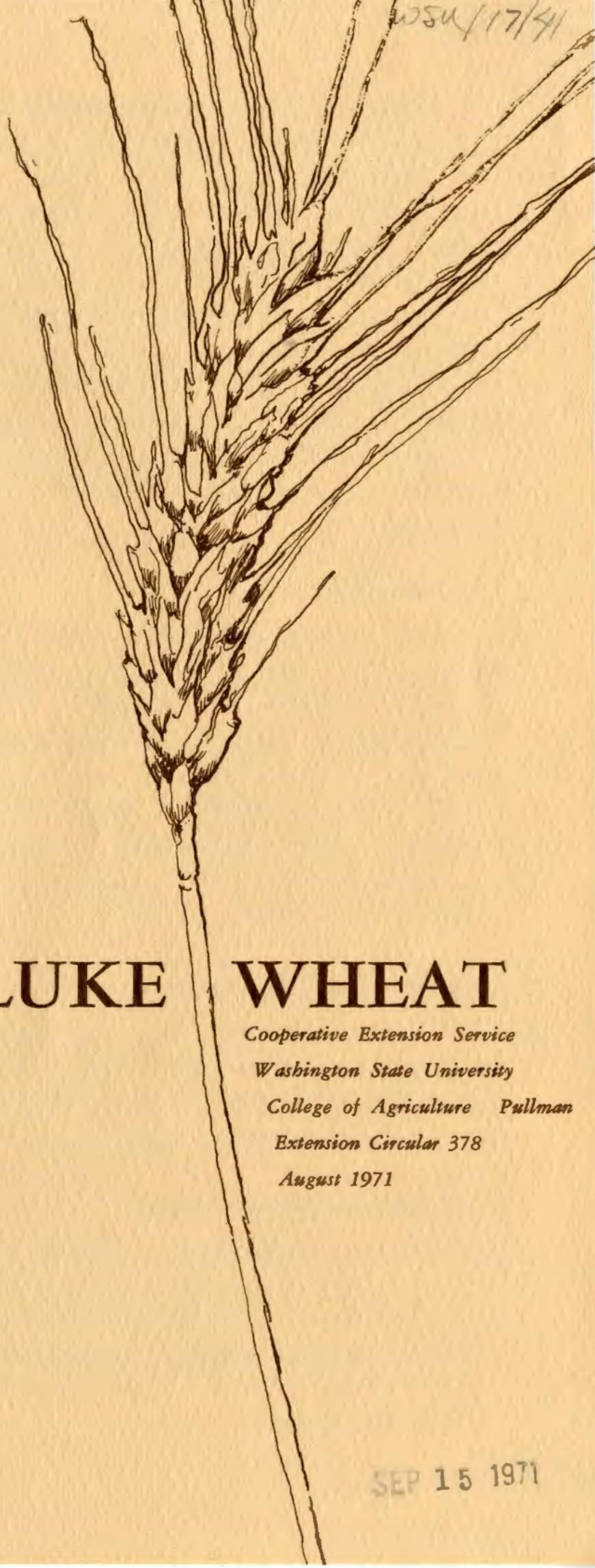


WSU/17/41



LUKE WHEAT

*Cooperative Extension Service
Washington State University
College of Agriculture Pullman
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Luke, C.I. 14586, is a semidwarf white winter wheat released primarily for use in areas of Washington, Oregon, and Idaho where dwarf bunt is a problem. The variety has a bearded, common-type head with white chaff. The kernels are soft and white. Test weight is slightly lower than that of Nugaines but above Moro. The culms of Luke are weaker than those of Nugaines and therefore have a greater tendency to lodge. It is similar to Nugaines in winterhardiness. Luke initiates regrowth more rapidly in the spring than Nugaines.

Disease Resistance

Luke has excellent field resistance to stripe rust and is superior to Nugaines in resistance. It is more tolerant to *Cercospora* foot rot than Nugaines. Luke has excellent resistance to all known races of common and dwarf bunt. It is more susceptible to flag smut than Nugaines. Luke has resistance to snowmold similar to that of Moro. It possesses moderate tolerance to *Fusarium* root rot.

Shattering and Threshability

Luke shatters slightly more than Nugaines. It is easy to combine and thresh, but the reel speed should be held to a minimum to avoid excessive loss from head snapping.

Milling and Baking Quality

Luke excels Nugaines in milling quality but is not as good as the soft white club wheats, Paha and Moro. Baking tests have shown that the flour has good quality for pastries, cookies, and soft white wheat products. The flour is not suitable for making bread.

Recommended Areas

Luke is recommended for all areas where dwarf bunt is a problem. In areas where snow-mold is a minor problem, Luke should be grown. As shown in the table, Luke yields about the same as Nugaines in the high rainfall areas and slightly better in the low rainfall areas of Washington. Luke produced more grain than Nugaines under conditions favorable to damage from foot rots.

Managing Luke

Luke can be seeded earlier than Nugaines because of its foot rot tolerance. Lodging may be more severe than with Nugaines. Luke may not emerge as well as some standard height varieties, such as Omar and Moro, but emerges better than Nugaines and Gaines. Luke requires good soil moisture for germination and emergence from deep seedings made in early fall. It can emerge through 3 to 5 inches of dry soil if the seed is placed in good moisture and the soil does not crust.

Seed Luke at the same rate as Nugaines. Treat the seed with hexachlorobenzene (HCB) at 2 ounces per 100 pounds of seed, primarily to reduce the development of new races of bunt. Treatment for flag smut is recommended if appropriate fungicides become available.

Fertilization

Luke produces favorable economic returns from high nitrogen levels. Use the same fertility program recommended for Nugaines. Soil testing is recommended to establish the proper level of fertilization. Avoid excessive fertilization because of the lodging and shattering tendencies of Luke. Early spring application of

Average Yield of Nugaines, Luke, and Paha (1967-70) in Washington Trials

	No. of Trials	Yield (Bu./Acre)		
		Nugaines	Luke	Paha
Pullman Foot Rot Nursery	3	53	61	42
Above 15" Precipitation	48	71	71	64
Below 15" Precipitation	21	41	43	40

fertilizer is needed because of the rapid spring recovery of Luke. With a well-balanced fertilizer program the plants tiller or stool adequately.

Weed Control

Luke will require the same weed control practices as Nugaines.

Development of Luke

Luke was developed by O. A. Vogel and C. J. Peterson, Jr. of the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture, in cooperation with the College of Agriculture, Washington State University. The variety was field tested primarily by the Washington Cooperative Extension Service, with supplementary testing conducted by Washington, Oregon, and Idaho Experiment Stations. The quality testing was conducted by the U.S. Department of Agriculture's Western Regional Quality Laboratory at Pullman, Washington. In 1970, the foundation seed was released cooperatively by the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture, and the Washington, Oregon, and Idaho Agricultural Experiment Stations.

The cross P.I. 178383/2*Burt was made by R. J. Metzger, ARS, USDA, Oregon State University. This selection was then crossed with C.I. 13438 in 1960 at Washington State University. The final selection was made by C. J. Peterson, Jr. in 1965.

Luke was named in recognition of a Nez Perce Indian who lived near the Snake River, south of Lewiston, Idaho. He was an early convert of Reverend H. H. Spalding and saved his life on one occasion.

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