

Paha (C.I. 14485) is a soft white winter club wheat developed by the Washington, Oregon, and Idaho AES and USDA. It was selected from an F<sub>4</sub> line of the cross Suwon 92/4 \* Omar at Pullman in 1964 and tested as experimental number WA 4966. Paha is most competitive with currently grown varieties in the 11 to 15 inch precipitation areas, especially under conditions that favor stripe rust and Cercospora foot rot injury to susceptible varieties such as Omar. However, it is more susceptible than Omar to powdery mildew and flag smut.

To continue the comparison, Paha excels Omar in resistance to lodging and shattering, is 4 to 8 inches shorter, and similar in growth habit, winterhardiness and reaction to dwarf bunt. The two varieties are similar also in kernel type, milling and baking qualities, and amylograph rating. The flour is low in protein and high in quality desired for both foreign and domestic soft wheat markets.

Seed for commercial planting will be available in the three States involved after the 1971 harvest.

Paha, C.I. 14485, is a short strawed club winter wheat developed for production in the 11- to 18-inch rainfall areas of Washington, Oregon, and Idaho. It is similar to Omar in appearance but shorter in plant height by 3 to 8 inches. Like Omar the variety is beardless and red-chaffed. Its test weight is comparable to Omar, but heavier than Moro. It is similar to Omar in growth habit, winter-hardiness, and kernel type. Paha is superior to Omar and Moro in resistance to lodging and shattering and is easy to combine.

#### Disease Resistance

Paha has excellent resistance to the current races of stripe rust in the Pacific Northwest. At least one race of stripe rust can attack it, however. This race has not been detected for several years. Paha has more resistance to *Cercospora* foot rot than Moro and Omar. It is comparable to Omar for resistance to common bunt, but like Omar it should not be grown in areas where dwarf bunt is prevalent. Paha is more susceptible to powdery mildew and flag smut than Omar. Like Omar, Paha has low tolerance to snow mold.

#### Milling and Baking Quality

Paha has the excellent milling and pastry baking quality characteristics typical of Omar and is superior to Moro in all respects for traditional club wheat quality. Flour from Paha is suitable for the pastry industry only and is not acceptable for bread making.

#### Recommended Areas

Paha is recommended primarily for the 11- to 15-inch rainfall areas, especially when grown under conditions favoring stripe rust and *Cercospora* foot rot. Tests show that Paha is

superior in yield to both Moro and Omar under these conditions (see the table). It has outyielded both Moro and Omar in the 16- to 18-inch rainfall area by 9 to 12 bushels per acre. Paha is not adapted to the areas above 18 inches of rainfall. Under these conditions Paha tends to lodge and generally yields less than either Nugaines or Luke.

#### Managing Paha

Because Paha has more tolerance to foot rot and resists lodging better than other club wheat varieties, it can be seeded slightly earlier than Omar or Moro. Paha emerges better than Nugaines and often as well as Omar. It generally does not emerge as well as Moro, however. Paha 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 Paha at the same rate as other club wheat varieties. Increase seeding rate of late seedings by 25 per cent. Treat seed with hexachlorobenzene (HCB) at 2 ounces per 100 pounds of seed, to reduce the possibility of infection by new races of common bunt. Paha should be treated for flag smut control when approved materials become available. Do not grow Paha in areas where flag smut is a serious problem.

#### Fertilization

Paha should receive the same fertilizer rates as used on other club wheat. Avoid over-fertilization to reduce lodging and excessively high protein levels that are not wanted in club wheat.

#### Weed Control

Paha will require good weed control practices. Since it is shorter than Omar and Moro,

Average Yield of Paha, Moro, Omar, and Nugaines in Washington Tests 1968, 1969, and 1970

Precipitation area	No. of Tests	Yield in Bushels Per Acre			
		Paha	Moro	Omar	Nugaines
Below 15"	16	43	39	40	42
16" to 18"	25	60	51	48	65
19" to 22"	24	58	48	42	71

careful management is required to control cheat grass (downy brome).

#### Development of Paha

Paha was developed by R. E. Allan and O. A. Vogel of the Plant Science Research Division, Agricultural Research Service, U.S. Department of Agriculture, in cooperation with the College of Agriculture, Washington State University.

Primary field tests of Paha were made by the Agricultural Research Service and the Washington State University Cooperative Extension Service, with supplemental tests conducted by the Washington, Oregon, and Idaho Experiment Stations. The Western Wheat Quality Laboratory at Pullman, Washington, carried out the extensive quality trials on Paha. Certain of the disease characteristics of Paha were determined by the Cereal Disease Laboratory at Pullman, Washington.

The original cross between Suwon 92 and Omar was made by Dr. E. H. Everson, formerly of the Agricultural Research Service, U.S. Department of Agriculture, Pullman, Washington. R. E. Allan made all subsequent crosses and made the final selection of Paha in 1964. Paha was named after a small farming community in Adams County, Washington.