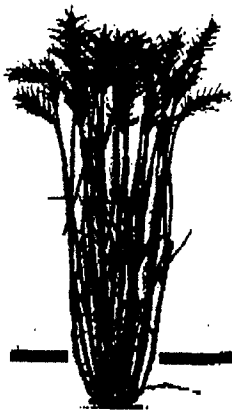


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# New Winter Wheat Varieties

## Rohde—A Winter Club Wheat

R.S. Karow and P.K. Zwer

Rohde is a winter club wheat jointly released by Oregon State University, University of Idaho, and Washington State University in 1993. It is an awned, bronze-chaffed club with excellent yield potential. It has adult plant resistance to stripe rust.

### Recommended Areas

Rohde, unlike many club wheats, appears to be widely adapted. It has been successfully grown in small and large-scale field plots in low rainfall, high rainfall, and irrigated environments. Rohde is susceptible to strawbreaker footrot. This susceptibility may make it unsuitable for fields with a history of severe footrot problems.

### Agronomic Characteristics

**Height and lodging resistance.** Rohde is similar in height to newer club wheats like Tres or Hyak, and is significantly shorter than the older clubs like Moro and Faro. It is taller than common wheat varieties like Stephens in high yielding environments, but may exhibit similar height under low yield, dryland conditions. Lodging resistance is superior to that of older club wheats. Under dryland conditions, little or no lodging has been observed. Lodging can occur in high yield environments, especially in fields where soil nitrogen levels are excessive.

**Maturity.** Rohde is similar to Stephens in maturity. It tends to be several days later than Hyak but is slightly earlier than Tres in dryland environments.

**Disease resistance.** Rohde has a good disease resistance profile. It has adult plant resistance to stripe rust. Its level of

stripe rust resistance is greater than that of any other currently grown club wheat. It has moderate resistance to cephalosporium stripe and common bunt, and is moderately susceptible to leaf rust, powdery mildew, and *Septoria* leaf blotch. Rohde is susceptible to strawbreaker footrot, and will need to be sprayed with fungicides for footrot control or be grown in fields where footrot has not been a problem.

**Test weight and quality.** Rohde test weights have been significantly better than those of other wheats, both common and club, across environments. This is unusual for a club wheat. A 1-pound test weight advantage is not uncommon. Grain quality (moisture, protein percent, and hardness) is comparable with currently grown club and common wheats. Milling and baking quality is adequate. Flour yield and cake volume/score tend to be lower than those of other clubs. Cookie quality is acceptable.

**Winter hardiness.** Rohde has a level of winterhardiness similar to that of Lewjain. This level of hardiness is adequate to allow production across all Oregon environments.

### Yield

Rohde has the potential to outyield commonly grown club wheats across environments. It has had yields equivalent to common wheats in many situations. It appears to have broad adaptation and has yielded surprisingly well under high rainfall and irrigated production. With proper management, Rohde has yielded over 100 bushels per acre.

### Development

Rohde was selected from progeny of the cross Paha/Selection 72//Daws. The initial cross was made by Bob Metzger, a USDA-ARS scientist located at Corvallis. Selection work was done by Chuck Rohde, long-time cereal breeder at the Columbia Basin Agricultural Research Center. Final purification was accomplished by Pamela Zwer, Rohde's successor.

Rohde was tested under the experimental designation OR855. Breeder seed was produced through a head row screening process. Rohde was officially released by Oregon State University in the spring of 1993. The first foundation seed field was planted in fall 1992. Funding for development of Rohde was provided by the OSU Agricultural Experiment Station and the Oregon Wheat Commission.

The name Rohde was selected to recognize Chuck Rohde's 36 years of service to Oregon State University and the cereal industries of Oregon.

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OREGON STATE UNIVERSITY EXTENSION SERVICE

FACT SHEET

Paha/Selection 72//Daws  
Selection OR855  
Club Wheat

Proposed Name: Rohde  
P.K. Zwer, C.R. Rohde, W.E. Kronstad, M.F. Kolding

Description

OR855 is a winter club wheat selection. It is a semi-dwarf with strong, yellow straw. The spike is awned, clavate, short, compact, and laterally compressed. The spike measures 4 to 5 cm. The awns measure from 4 to 6 cm. The glumes are glabrous and bronze. The kernels are small, white, and soft. The kernels are laterally compressed with a small, short brush, and narrow, shallow crease.

OR855 breeder seed may contain two <sup>variants</sup> ~~off-types~~: 1) plants with semi-compact spikes and buff coloration and 2) plants with white glumes. The semi-compact plants are the result of natural outcrossing, which occurs at a rate of 1 to 5%. Overall the semi-compact and white-glumed ~~off-types~~ may occur at a frequency of 0.02% or less. <sup>variants</sup>

Pedigree and History

Selection OR855 was selected from the cross, Paha/Selection 72//Daws at the Columbia Basin Agricultural Research Center (CBARC) by C.R. Rohde. The original population was generated from a cross by Corvallis-based scientists. Selection OR855 has been evaluated in yield trials grown in dryland and irrigated regions across northeastern Oregon since 1985. The line was submitted into the Western Regional Yield Nursery in 1988. Head rows were first sown in 1988 at the Pendleton Station. Representative rows were selected with the input of the Foundation Seed Project and harvested in 1989 to increase the seed. The seed from each head row was sown into 80 ft<sup>2</sup> plots to establish breeders seed the next year. After the Foundation Seed Project and Seed Certification Service inspected the plots, 105 uniform plots from a total of 400 were harvested. Seed from 82 plots were sown into drill strips in 1990. Approximately 28 drill strips were maintained for harvest. Spikes were selected from each drill strip (300 per drill strip) before harvesting with the small plot combine. The spike selections were sown at Pendleton in 1991 to produce breeders seed. The Foundation Seed Project will plant the breeders seed in 1992 to produce Foundation Seed in 1993.

The proposed name, Rohde, was selected to recognize Dr. Charles R. Rohde for his contribution to variety development in Oregon during his 36 years of service to the Columbia Basin Agricultural Research Center, Oregon State University.

Area of Adaptation

Selection OR855, unlike many club wheat cultivars, is adapted to both dryland and irrigated conditions. It has stiff straw and little or no lodging has

been observed except in extremely high yield situations (western Oregon and some irrigated situations) and where excessive soil nitrogen is present.

### Disease Reactions

Selection OR855 has a good disease resistance profile. It has adult plant resistance to stripe rust. Other current club wheat varieties are more susceptible to stripe rust than OR855. OR855 is moderately resistant to Cephalosporium stripe and common bunt, moderately susceptible to leaf rust and susceptible to strawbreaker footrot, powdery mildew and Septoria. Table 1 shows disease reactions of OR855 in comparison to Tres, Hyak and Moro.

### Agronomic Traits

Selection OR855 is similar in height to Hyak and Tres and 20 cm (8 in) shorter than Moro. The advanced line has excellent straw strength. OR855 is 1 to 2 days later than Hyak, similar to Moro, and 4 days earlier than Tres for heading date. Winter hardiness observations at the Hermiston Agricultural Research and Extension Center (HAREC) indicate OR855 is similar to the soft common wheat cultivar Lewjain. Table 2 summarizes the agronomic data.

### Grain Yield

Yield potential is a strong attribute of selection OR855. Table 3 shows data collected from eight locations in northeastern Oregon for the harvest years 1988, 1989, 1990, and 1991. Table 4 presents the same data by location so the performance can be evaluated in low and high yield environments. Table 5 summarizes the data collected from the Western Regional Yield Trial in the harvest years 1988, 1989, and 1990. Selection OR855 clearly has excellent yield potential in both low and high yielding environments.

### Milling and Baking

Selection OR855 has acceptable milling and baking attributes. Table 6 presents milling and baking evaluations completed by the Western Wheat Quality Laboratory, Pullman. Flour yield in OR855 tends to be 1% lower than Tres and Moro and .2% less than Hyak. However, the milling scores of OR855, Tres, and Moro are similar, indicating that lower ash content compensates for the lower flour yield. The average values for all characteristics except flour yield are equal or an improvement when compared to the check cultivars.