REGISTRATION OF CROP CULTIVARS

1575

A high population of medium-sized green stalks of average stalk weight.

CP 79-318 yields well on both light- and heavy-textured soils. Yield data from a total of 67 replicated trials in plant, first-ratoon, or second-ratoon cane indicated that CP 79-318 was equal to CP 70-321, the leading commercial cultivar, in yield of cane (t ha\(^{-1}\)), yield of estimated recoverable sugar (kg t\(^{-1}\)), and yield of total recoverable sugar (kg ha\(^{-1}\)) in all crops. Desirable attributes of CP 79-318 are: relatively high sucrose content (greater than 12.0% in normal juice) early in the harvest season, moderate fiber content (12.6%) and good juice extraction (80.6%). The cultivar is moderately erect; however, it is brittle and may break when machine harvested for planting or after recent lodging. Limited data indicated that CP 79-318 was equal to the commercial check, CP 65-357, in resistance to postfreeze deterioration of stalks following a light freeze (−2.8 °C).

Both cultivars CP 79-318 and CP 70-321 are considered moderately resistant to the spread of sugarcane mosaic virus in the field; however, a high level of mosaic infection can be found in CP 79-318 in areas of high mosaic incidence. CP 79-318 has adequate resistance to smut caused by *Ustilago scitaminea* Syd. in five inoculation tests, and appears to be resistant to rust caused by *Puccinia melanosephala* H. and P. Syd. under Louisiana field conditions. It is moderately resistant to injury by the sugarcane borer *Diaatraea saccharalis* F.

Seed cane of CP 79-318 will be maintained at the U.S. Sugarcane Field Laboratory, Houma, LA 70361.

H.P. FANGUY, D.D. GARRISON, AND B.L. LEGENDE* (3)

References and Notes


3. USDA-ARS, Sugarcane Research Unit, P.O. Box 470, Houma, LA 70361. Cultivar development is a cooperative effort of the USDA-ARS, The Louisiana Agric. Exp. Smt., Louisiana State Univ. Agric. Center, and the Am. Sugar Cane League of the U.S.A., Inc. Accepted 30 Apr. 1989. *Corresponding author.

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REGISTRATION OF ‘MADSEN’ WHEAT

‘MADSEN’ (Reg. no. 746; PI 511673) is a common soft white winter (SWW) wheat (*Triticum aestivum* L.) cultivar developed by the USDA-ARS Wheat Genetics, Quality, Physiology and Disease Research Unit at Pullman, WA. It was jointly released by USDA-ARS and the agricultural experiment stations of Washington, Idaho and Oregon in January 1988.

Madsen was selected in 1980 from an F1-derived F2 line from the cross VPM1/‘Moisson’ 951/2” Hill 81’. Madsen is a one-gene semidwarf (*Rht*), is medium early in heading date, and is similar to ‘Nugaines’. Spikes are awned, oblong, middense, and inclined. Glumes are glabrous, midlong, and midwide to narrow; shoulders are narrow and waning; beaks are narrow, acuminate, and 3 to 15 mm in length. Madsen is heterogeneous for glume color with 33 and 67% of its plants having white or buff colored glumes, respectively. Kernels of Madsen are white, midlong, soft, and ovate; the germ is midsized; the crease is midwide and middeep; the cheeks are rounded to angular; the brush is midsized to midlong.

Madsen expresses moderately high resistance to strawbreaker foot rot caused by *Pseudocercospora herpotrichoides* (Fron.) Deighton. Its resistance is presumably inherited from VPM1, which derives resistance from *T. ventricosum*. A gene for strawbreaker resistance was shown to be closely associated with the *EP-V1* endopeptidase gene on the long arm of chromosome 7D (1). Madsen is homogeneous for the *EP-V1* allele (D.E. Roberts, 1988, personal communication).

In eight replicated trials of disease (inoculated with *P. herpotrichoides*) vs. control plots (sprayed with benomyl fungicide, methyl 1-(butylcarbamoyl)-2-benzimidazolcarbamate) conducted during 1981 to 1988, Madsen, ‘Stephens’, ‘Daws’, and Nugaines have had mean strawbreaker-induced losses of 9, 24, 31 and 43%, respectively. Among the eight trials, significant (*P < 0.05*) yield reductions occurred for Madsen in only two trials, while significant reductions occurred for Stephens, Daws, and Nugaines in seven, seven, and eight trials, respectively. The overall mean yield of Madsen in the strawbreaker-inoculated trials was 7830 kg ha\(^{-1}\) compared to 4100, 5190, 5280 kg ha\(^{-1}\) for Nugaines, Daws, and Stephens, respectively.

During 1980 to 1987, Madsen has expressed field resistance to the prevalent northwestern USA biotypes of stripe rust (caused by *Puccinia striiformis* West.), leaf rust (caused by *Puccinia recondita* Rob. ex Desm. f. sp. *tritici*), and stem rust (caused by *Puccinia graminis* Pers. f. sp. *tritici* Eriks. & Henn.). Madsen has moderate resistance to powdery mildew (caused by *Erysiphe graminis* DC. f. sp. *tritici* E. Marchal). It is moderately susceptible to flag smut (caused by *Urocystis agropyri* (Preuss) Schroet.) and Cephalopsorum stripe (caused by *Cephalopsorum gramineum* Nis. & Ika.). Madsen resists some races of *Tilletia tritici* (Berk.)-wint. & *T. laevis* Kuhn. It is susceptible to the prevalent races of *T. controversa* Kuhn.

In the absence of strawbreaker foot rot, Madsen has generally yielded equal to or higher than other regional SWW cultivars. In 118 state of Washington trials conducted during 1983 to 1988, mean yields of Madsen, Stephens, Nugaines, Daws, and ‘Lewjain’ were 5010, 4620, 4570, 4840, and 5070 kg ha\(^{-1}\), respectively. From 1984 to 1987 in regional trials outside of Washington, the yield performance of Madsen was variable. In 32 regional trials, Madsen, Nugaines, Stephens, and ‘Dusty’ averaged 5990, 5110, 5420, and 5990 kg ha\(^{-1}\), respectively.

The grain volume weight of Madsen averages about 19 kg m\(^{-3}\) less than Nugaines and 13 kg m\(^{-3}\) more than Stephens. It has an average plant height of 80 cm, which is similar to Stephens. Straw strength of Madsen exceeds Lewjain and Dusty, but is less than Stephens. Spikes of Madsen have a tendency to shatter. It has seedling-emergence ability superior to Daws, but less than Stephens. Madsen did not have appreciable winter injury during its testing period in Washington State trials. A crown freeze test indicated Madsen was similar to Stephens for coldhardiness. Occasionally, florets of Madsen exhibit partial male sterility.

Tests by the USDA-ARS Western Wheat Quality Laboratory have rated Madsen as satisfactory to very satisfactory for overall quality traits. It was satisfactory in the Pacific Northwest Collaboratory Tests. Madsen usually rated superior to Nugaines and Stephens for cookie diameter, sponge cake score, and cake volume. It has equalled and exceeded the noodle scores of Nugaines and Stephens, respectively.

Breeder and foundation seed of Madsen is maintained by the Washington State Crop Improvement Association under supervision of the Agronomy and Soils Department, Washington Agricultural Research Center.

R.E. ALLAN,* C.J. PETERSON, JR., G.L. RUBENTHALER, R.F. LINE, AND D.E. ROBERTS (2)