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How ‘Madsen’ has shaped pacific northwest wheat and beyond

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Madsen, growing next to lines that have it as a parent, in the Palouse region of Washington State. Photo courtesy of Arron Carter.

A plant breeder's goal is to release cultivars that are commercially economical and environmentally sustainable. Breeders never know how well new cultivars will perform under commercial production until they are released and grown across different environments.

In an article recently published in the *Journal of Plant Registrations*, researchers examined the impact of the cultivar Madsen on Pacific Northwest wheat as well as on national and international breeding programs. Madsen has been grown in the Pacific Northwest for more than 30 years—it was the most widely grown wheat cultivar from 1991 until 2004. Many of the new cultivars that were replacing Madsen in production had it as a parent.

Madsen was released because of its resistance to the fungal diseases strawbreaker foot rot. Through subsequent research, Madsen was also found to be resistant to nematodes and wheat yellow mosaic virus and moderately resistant to common bunt and powdery mildew. Although not fully resistant, it was also less susceptible than other commercially available cultivars to stresses like low-pH soils and Cephalosporium stripe.

The excellent resistance to biotic and abiotic stress of Madsen contributed to its widespread success in the Pacific Northwest and has also allowed it to be used in breeding programs across the globe to protect the wheat crop against many diseases that threaten global food security.

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Carter, A.H., Allan, R.E., Shelton, G.B., Burke, A.B., Balow, K.A., Hagemeyer, K.E., … & Klarquist, E.F. (2020). How 'Madsen' has shaped Pacific Northwest wheat and beyond. *Journal of Plant Registrations*, 14. **https://doi.org/10.1002/plr2.20049**

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