

Wild potato germplasm holds key to disease resistance

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Wild potato germplasm that offers resistance to some major potato diseases has been identified by Agricultural Research Service (ARS) scientists.

Geneticists Dennis Halterman and Shelley Jansky pinpointed the resistant wild potato species in studies at the ARS Vegetable Crops Research Unit in Madison, Wis.

Halterman has identified a wild potato species called *Solanum verrucosum* that contains a gene with resistance to late blight, considered the most destructive disease of potato. The wild species can be crossed with cultivated potatoes, and efforts are under way to move the late-blight [resistance gene](#) into the cultivated potato [gene pool](#).

But the scientists aren't stopping there. They are using *S. verrucosum* to create a potato that's resistant to both late blight and early blight, a [fungal disease](#) that primarily affects the potato plant's leaves and stems but, if left uncontrolled, can lead to considerable reductions in yields.

To create the multi-disease-resistant cultivar, the scientists crossed *S. verrucosum* with another wild potato species that is resistant to early blight, and then crossed the wild potato hybrid with the cultivated potato. They currently have seedlings in the greenhouse waiting to be tested in the field.

Halterman and Jansky are also looking for resistance to Verticillium wilt,

another fungal disease that can linger in the soil for up to 10 years. Halterman developed a [molecular marker](#) to screen potato [germplasm](#) for resistance against this disease, saving the scientists time and effort. They found resistance in the wild potato species *S. chacoense* and crossed it with the cultivated potato. According to Halterman, this could be a good, durable gene that may hold up over the long term.

More information: The scientists' studies have been published in *Physiological and Molecular Plant Pathology*, *Molecular Breeding* and the *American Journal of Potato Research*.

Provided by United States Department of Agriculture

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