



Identifying pythium seed rot resistance in chickpea

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Different chickpea varieties and their disease reactions. Sierra, a kabuli variety, is the most popular

Different chickpea varieties and their disease reactions. Sierra, a kabuli variety, is the most popular chickpea grown in the U.S. and is susceptible to Pythium disease. Nash is an extra-large kabuli variety that is disease susceptible. Billy Bean is a popular small kabuli variety that is commonly used for making hummus and is also disease susceptible. Myles is a desi variety that is resistant to Pythium disease. Photo by George Vandemark.

Chickpea was one of the eight “founder crops” domesticated by Neolithic societies 8,000–12,000 years ago in the “Fertile Crescent.” Currently, chickpea is the second most important pulse crop in terms of global production, just after dry bean.

Chickpea producers have effectively used the fungicide metalaxyl for more than 30 years in the U.S. to control many soilborne diseases. However, isolates of the plant pathogen *Pythium ultimum* that are resistant to metalaxyl fungicide have recently been responsible for severe losses to chickpea production in Idaho and Washington.

Consequently, we need new approaches to control *Pythium* seed and seedling rot of chickpea.

New research in *Crop Science* evaluates more than 240 different chickpea lines for *Pythium* resistance. “Desi” chickpeas, which are small and dark colored, tended to be much more disease resistant than larger, beige-colored “kabuli” chickpeas. This is problematic because nearly all chickpeas produced in the U.S. are kabuli types, and it is difficult to transfer good traits from desi types to kabuli types.

Fortunately, six disease-resistant kabuli lines were identified that are being used as parents to develop new kabuli chickpea varieties with improved disease resistance.

Dig Deeper

Agarwal, C., Chen, W., Coyne, C., & Vandemark, G. (2021). Identifying sources of resistance in chickpea to seed rot and seedling damping-off caused by metalaxyl-resistant *Pythium ultimum*. *Crop Science*. <https://doi.org/10.1002/csc2.20424> (in press)

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