

Australian Weed Traits Beneficial to Soybeans

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Urbana - Hybridization research at the University of Illinois is overcoming biological barriers that will benefit soybean producers. Offspring from crossing soybean, *Glycine max*, and an Australian weed, *Glycine tomentella*, are producing fertile seeds that hold significant promise for increasing genetic diversity.

Dr. Ram Singh, agronomist and plant cytogeneticist with the Department of Crop Sciences, at the University of Illinois, is overcoming genetic obstacles by crossing soybeans and *G. tomentella*. *Tomentella* is a small, viney, perennial that originated from the Brampton Island off Queensland, Australia. This distant cousin to the soybean has useful traits that for the first time are being successfully transferred to soybeans. *G. tomentella* is resistant to soybean rust, soybean cyst nematodes, soybean aphids, and even viruses like bean pod mottle.



Dr. Ram Singh, University of Illinois agronomist, is overcoming genetic obstacles by crossing soybeans and with *G. tomentella*, an Australian weed.
(Photo courtesy of David Riecks, UIUC, College of ACES, ITCS)

Dr. Singh's research has involved taking pollen from *G. tomentella* and moving it to the flower of soybean. Creating a fertile plant has been a long process. When pollination was successful, pod abortion ensued. To overcome pod abortion, the immature seeds were rescued from aborting pods and cultured in artificial media to nurture the developing embryos and keep them alive. It has taken anywhere from six months to a year for one seed to germinate. Dr. Singh estimates that healthy, fertile, hybridized germplasm should be available to the soybean industry by 2010.

Under the leadership of Dr. Randall Nelson, USDA soybean geneticist, the exotic soybean germplasm coming from successful hybridization will enhance the genetic diversity of commercial soybean cultivars. This research and continued research efforts are supported by the USDA and the Illinois Soybean Association.

Hybridization of the soybean may generate important traits including drought tolerance, yield genes, seed composition genes, and other disease and pest resistance traits.

The National Soybean Research Laboratory is located on the University of Illinois Urbana Champaign campus and assists in expanding the scope, size, and profitability of the U.S soybean industry by creating, providing and facilitating strategic research, education and outreach programs.