

# Searching for a Hypoallergenic Soybean



Searching for a soybean that doesn't contain the P34 protein which is responsible for allergic reactions in 6 to 8 percent of children is like looking for a needle in a haystack. But the needle has been found.

"After screening over 16,250 plant types from the USDA germplasm collection in Urbana, two confirmed P34 null lines were found in the soybean collection, seven null lines were found in the wild annual soybean collection, and three null lines were found in the collection of wild perennial relatives of the soybean," said U of I plant geneticist Ted Hymowitz.

Because soybeans are used in baby formula, a hypoallergenic soybean would help reduce the percentage of infants who have allergic responses to soy formula. An allergic response may include hives, itching, diarrhea, and, in rare cases, anaphylactic shock. "The process we're using is looking for naturally occurring variants, so there's no question

about the safety of it. We're providing an alternate approach to genetically engineering for a P34 null line," Hymowitz said.

Although a soybean without the P34 protein could be produced using biotechnology, concerns about the use of transgenic ingredients in baby food may make people worry. "While there is no cause for concern in using biotechnology in baby food, people do worry and may not buy it," he said.

After all of the plant types have been tested, the next step will be to transfer the trait that suppresses the P34 protein into a high-yielding, disease-resistant soybean cultivar. The first soybeans to be tested were those that are currently grown commercially. They all contain the P34 protein.

Hymowitz noted that eliminating the P34 protein doesn't affect the nutritional content of the soybean.

The testing process is slow; only 100 plant types can be tested each day. "We're doing the qualitative analysis. Does it have the protein or doesn't it? It's a dominant protein, so it's rare to find ones that don't have it," said Hymowitz. "The ones we find with little or no P34 are sent to Eliot Herman's USDA lab at the Donald Danforth Plant Science Center in St. Louis, Missouri. They do the quantitative analysis."

