

## Glorious Goobers

By KATELYN S. CROW

For those suffering with peanut allergies, help may be on the way. A University of Florida scientist is working to create a hypoallergenic peanut that would be safe for all.

Maria Gallo, professor in the department of agronomy, is researching how to create a peanut that is edible for those with peanut allergies.

“Food allergens are a very important problem in the United States and worldwide,” Gallo said. “Food allergens account for about one-half of emergency room anaphylaxis.”

In screening of cultivated peanut, Gallo found that one of the genes that codes for a polypeptide was altered.

“In a limited study, when we examined blood from peanut allergic patients and exposed that to the protein, they did not respond the same way,” Gallo said. “In other words, the patient’s antibodies did not recognize the protein. So in theory, they are not as allergic to this protein.”

Peanut proteins are the instigators of an allergic reaction. Three major proteins cause allergic reactions in most allergic individuals – Arah 1, 2 and 3.

Regions on these proteins, called epitopes, are recognized by an allergic individual’s immune system as a foreign invader and attack the area. IgE antibodies are released, bind with the epitopes and signal the release of histamine, which can cause any range of discomforts from a skin rash to anaphylactic shock.

Gallo is looking to classical breeding and genetic engineering as ways to alter the peanut’s genetic structure in order to make it hypoallergenic.

“What we wanted to do was to investigate from the plant side of the equation,” Gallo said.

According to Gallo, approximately four million people are allergic to peanuts or peanut-based products including 600,000 children. Why and how people become allergic is still under scientific investigation.

“The hygienic hypothesis suggests that people, especially as children, are exposed to less and less allergens in the environment and that as the immune system develops further, they have a hypersensitive response to things that are normal,” Gallo said.

So the cleaner the environment is when you are a child, the more prone you are to allergens, Gallo said.

Hypoallergenic peanuts may be available to consumers in the next five to 20 years. Gallo said more research is needed to ensure that alterations of the genes do not change things that make a peanut a peanut.



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### Growing Up...From the Bottom

Although the name implies so, peanuts are not truly nuts. In other countries the peanut is more appropriately referred to as “groundnut.”

University of Florida professor Maria Gallo spends her days studying these misunderstood plants.

“Peanuts are not really nuts,” Gallo said. “Nuts grow on a tree and above the ground. A peanut is what is called a legume.”

Once a peanut plant has grown, yellow flowers bud for pollination and reproduction to occur.

“Normally, when a flower is pollinated and fertilized the fruit develops aerially or above the ground, but that is not the case with peanuts,” Gallo said.

Cell division produces a specific reproductive organ called a gynophore or peg.

This peg looks like a root, but it contains the fertilized ovules that will become the seed at the tip and it grows downward into the soil because of gravity, Gallo said.

Once in the soil, the peg turns horizontally and begins producing fruit or peanuts.

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Produced by the Scientific Thinking & Educational Partnership program at UF

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