



# Report on Research

College of Agricultural, Consumer and Environmental Sciences

## New Apple Resistant to Apple Scab

An apple a day may keep the doctor away, but what keeps the doctor away from the apple? And when that apple is infected with apple scab, the prognosis is grim for the entire tree.

Enter Juliet – an apple that showed so much potential that a French company created a cartoon character and advertising campaign to market it in Europe.

Juliet is a late-season apple that carries the Vf gene that provides a high level of resistance to apple scab disease triggered by a fungal pathogen, *Venturia inaequalis*. Juliet has also shown resistance to powdery mildew and fire blight and reduced susceptibility to another fungal pathogen that causes cedar-apple rust.

University of Illinois plant geneticist Schuyler Korban collaborated with researchers at Purdue and Rutgers universities to develop Juliet. “Because the original seedling was selected here, U of I holds the licensing rights to the variety,” said Korban.

Juliet is about 85 percent red, with some green undercolor. It has less sugar than the Fuji but enough balance of sugar and acid to be considered full-flavored. It also stays on the tree for a longer time without dropping off and can be kept in cold storage for six to seven months.

But its resistance to apple scab is what makes it most attractive to growers. “Apple scab is a problem around the world, and unfortunately the conditions in Illinois are perfect for apple scab,” said Korban. “Washington State has lower heat and humidity as in Illinois, but apple scab is still a problem worldwide.”

Korban said that growers typically have to spray 12 to 15 times per growing season. They mix a cocktail of pesticides and insecticides that isn’t always the same, but fungicide to prevent apple scab is in every application.

“The resistance to scab makes Juliet environmentally a better choice because it requires fewer chemical sprays than other apple trees,” said Korban. “And it ripens two weeks after Red Delicious, making it more marketable as a late-season apple.”

A nursery in France called Escande realized Juliet’s potential and acquired the rights to grow and market the variety in Europe. They are hoping to find apple growers in the United States that would be willing to abide by their rules for growing this apple. Because Juliet is being marketed as an organic apple, it would need to be grown by certified organic growers.

The marketing firm created a cartoon character whose likeness appears on brochures, packaging, and tiny apple stickers. “You can even become a ‘friend of Juliet’ on the website at [www.pomme-juliet.com](http://www.pomme-juliet.com),” said Korban.



Korban said that the fungus that causes apple scab is transmitted via infected leaves, even those left on the ground over the winter. The disease affects blossoms, leaves, and fruits, eventually killing the tree. The infected fruit can sometimes be used in processed products that include apples but the appearance renders it unsellable for the fresh market. Juliet is the fifteenth apple cultivar developed by the cooperative breeding program between the University of Illinois, Purdue University, and Rutgers University.