

# Roses get celery gene to help fight disease

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NC State University roses contain something extra to keep them safe from petal blight: a gene from celery. Credit: Becky Kirkland, NC State University

A rose by any other name would smell ... like celery?

North Carolina State University research intended to extend the "vase life" of roses inserts a gene from celery inside [rose plants](#) to help fight off botrytis, or petal blight, one of the rose's major post-harvest diseases.

Some [fungal pathogens](#), the bad guys that infect plants, produce a sugar alcohol called mannitol that interferes with the plant's ability to block disease like petal blight, which produces wilted, mushy petals – an effect similar to what happens to lettuce when it's been in the crisper too long.

In an effort to make roses live longer – and to get more value from your Valentine's Day gifts – NC State horticultural scientists Dr. John Dole and Dr. John Williamson lead an effort to insert a gene called mannitol dehydrogenase from celery into roses to "chew up" mannitol and allow the plant to defend itself from one of its greatest threats.

"This gene is naturally found in many plants, but it's uncertain whether the rose already has it," Williamson says. "If it does, it doesn't produce enough enzyme to help the plant fight against petal blight."

The genetically modified roses currently growing in NC State test beds look and smell like "normal" roses. Now the roses will be tested to see whether they're better able to withstand petal blight.

The research is just one part of an extensive NC State effort to build a better rose, Dole says. Other research thrusts include examining the types of sugars best suited for mixture with water to keep the plants thriving after they've been harvested; studying the variance in water quality across the country to see which water provides the best home for roses after they've been cut; and preventing various other important plant diseases.

The ultimate goal is to get roses to survive for three to four weeks after they've been harvested, Dole adds. Many of the roses in florists and grocery stores come from Colombia and Ecuador, so the longer shipping times can reduce vase life after purchase.

Provided by North Carolina State University

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