

## Column: The tradition of agriculture and its fruits is under fire in Florida

By Jack Payne, special to the Tampa Bay Times

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Tradition is under fire in Florida.

There's open speculation about the end of Florida orange juice. Disease is slaying Tampa's swaying palm trees. Family farms are going on the auction block. Not enough kids have access to 4-H clubs.

Perhaps, ironically, innovation is the way we'll save tradition.

Take orange juice. A disease called citrus greening threatens the demise of Florida's iconic oranges. Production is down about two-thirds in the decade since greening arrived. Juice processing plants are closing. Groves are being abandoned.

University of Florida scientists are trying to save citrus by steam-blasting trees, killing the bugs that spread greening, and using technology to breed a disease-proof tree.

Dr. Nian Wang is one of hundreds of UF Institute of Food and Agricultural Sciences employees working on greening.

He believes he has a promising response to greening through a new gene editing technique called CRISPR. By tricking a fruit into sending itself instructions to snip out the gene sequences that program it to welcome disease into its cells, Wang believes he's getting close to hitting a genetic off switch.

Theoretically, this technique could soon create a tree that conventional breeders could produce with a lot more time. But time is of the essence for citrus, and we need the technological tools and innovative approaches Wang employs. Incidentally, his technique does not rely on any of the elements of genetic engineering that consumers find most objectionable.

Tampa has been forced to cut down majestic palm trees because of a lethal infection. UF/IFAS just hired an entomologist fluent in DNA barcoding and using fluorescent dye to visualize what's going on inside cells. His first job in his Fort Lauderdale lab will be to figure out which insect is spreading the disease among our palms.

UF/IFAS has used interactive video to reach far-flung Panhandle farm families to enable the difficult kitchen-table conversation on how to keep the family farm in the family when Mom and Dad retire or die. Without this succession planning, too many rural farms will turn into subdivisions.

In Cedar Key, UF/IFAS perfected clam aquaculture techniques and helped retrain a community's fishermen when a gill net ban marked the end of mullet fishing. The community not only became one of the nation's leading clam producers, but it preserved its way of life.

Putnam County Extension has 4-Hers using a mobile app to distinguish among 1,000 shades of green in the leaves of the biggest local crop, potatoes. Then the kids use petiole sap analysis equipment to measure nitrate levels and see if they can make correlations between plant color and nutrients. It's not only been a new way to get middle schoolers interested in agriculture; the students' demonstration of their project has also introduced local growers to the technology.

As state agriculture's discovery and innovation arm, UF/IFAS brings together scientists, high-tech equipment, and new techniques.

We want Florida to grow. That means change. That means serving 20 million people with our science.

We also want some things to stay the same. Like Florida OJ on breakfast tables. Like palm trees on our beaches and along our roadways. Like family farms that protect wide open spaces and give you a chance to buy food from your neighbor. Like kids knowing that their vegetables aren't grown on the roof of a supermarket.

UF/IFAS scientific expertise and outreach responds to the ever-changing needs of a growing number of people who call Florida home. Whether they're fifth-generation or snowbirds, they all need to eat. So the UF/IFAS commitment to the science of agriculture will continue to underpin the health of the state.

Because science expands what we know, it creates a lot of change. At the same time, UF/IFAS puts a great deal of its science to use on preserving the things that make a place special.

Our goal isn't to freeze the farm in time. It's to make sure we can still farm in Florida as the world changes around us.

Our commitment to innovation in the service of agriculture gives us a much better chance of meeting that change on our own terms. That means protecting as much as we can of what's good about Florida, whether that's oranges, skiffs bobbing along the Nature Coast, or kids showing pigs at the county fair.

*Jack Payne is the University of Florida's senior vice president for agriculture and natural resources and leader of the Institute of Food and Agricultural Sciences.*

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