



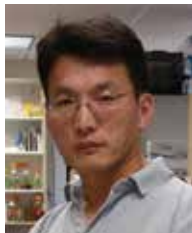
Small space, big ideas

By Jack Payne, jackpayne@ufl.edu, @JackPayneIFAS

Nian Wang's office is so small that to get behind his desk, he has to move a visitor's chair blocking the narrow path. Across the hall in what was supposed to be his office, he has six post-docs and Ph.D.s crammed into a 12-foot-by-12-foot room with cinder block walls.

Welcome to the Wang lab in Lake Alfred, the hub of one of the most promising areas of research on citrus greening. Wang is an international leader in applying to citrus a new gene editing technique known as CRISPR.

By tricking a fruit into sending itself instructions to snip out the gene sequences that program it to welcome HLB bacteria into its cells, Wang believes he's getting close to finding an off switch for the disease. It would rapidly produce a tree that theoretically could eventually be created through conventional breeding, but with none of the elements of genetic engineering that consumers find most objectionable.



Wang

FUNDING THE SCIENCE

Wang has no complaints about his facilities. In fact, he repeatedly extols the support he gets from the Citrus Research and Development Foundation and the Florida Legislature, which have funded his cutting-edge work.

It's up to Wang's employer, the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS), to make sure the funding also keeps the lights on in his lab.

Research is an expensive proposition before you ever get to the salary and benefits of the researchers. Wang's work is possible — he can concentrate on science, not administration — because UF/IFAS provides air conditioning, payroll and expensive gizmos such as the microinjector needed for CRISPR work. If we sometimes have to cut corners on space, our researchers know that it's because we're trying to put as much of the money into the science as we can.

COLLABORATING AGAINST CHALLENGES

We lured Wang here from Berkeley nine years ago because, fortunately, he was more interested in confronting

a daunting scientific challenge than enjoying a well-appointed office.

He has also benefited from the collaborations afforded an ambitious scientist surrounded by other high performers. UF is one of the nation's largest public university research operations. And there is not a single challenge that commands more attention from its agricultural arm than the fight against HLB.

CRISPR has been a game-changer in Wang's research. He was inspired by the potential of the technology to propel his work forward through the learning and examples he encountered in his professional community. Conversations with colleagues, seminars and workshops at conferences (again, an overhead expense that makes the best science possible) convinced him that he could go into a citrus gene and edit out susceptibility to HLB.

He has had tremendous success in hitting the off switch for canker. He now believes he's done it for HLB. There are still greenhouse and field tests to be done to validate the lab work.

Wang has, of course, overcome many obstacles that we'll never know about in the long, steady march toward a solution. But you see him and his team cheerfully overcome the physical obstacles. His scientists giggle about standing up from their desks to make room for a visitor. Wang offers no complaints, just a sheepish apology, as he clambers past a visitor's chair to get to his own desk.

Florida agriculture depends on the discovery and innovation of minds like Wang's. For his part, Wang depends on the equipment, services and administrative support that comes from UF/IFAS. It's not a Cadillac setting. After all, the goal isn't to get there in style. It's just to get there — the place where HLB is no longer a threat. 🍊

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