

Future of US citrus may hinge on consumer acceptance of genetically modified food

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University of Illinois agricultural communications professor Taylor Ruth was a member of a research team that studied American consumers' attitudes toward genetic modification science in hopes of saving the US citrus industry from citrus greening disease. Credit: L. Brian Stauffer

A tiny insect, no bigger than the head of a pin, is threatening to topple

the multibillion-dollar citrus industry in the U.S. by infecting millions of acres of orchards with an incurable bacterium called citrus greening disease.

The battle to save the citrus industry is pitting crop producers and a team of agriculture researchers—including agricultural communications professor Taylor K. Ruth of the University of Illinois—against a formidable brown bug, the Asian citrus psyllid, which spreads the disease.

Trees infected with the disease, also called Huanglongbing or HB, bear small, misshapen, bitter-tasting green fruit and often die within five years. Currently, there's no known cure for the disease, which has cost the U.S. citrus industry billions of dollars in crop production and thousands of jobs since it was first identified in Florida in 2005, according to agriculture experts.

Among other solutions, scientists are exploring the possibility of breeding genetically modified trees that are resistant to the disease.

But given the controversy over the safety of genetically modified food, scientists need to know whether producers will adopt this technology and whether shoppers will buy and consume GM citrus fruit.

A recent study, funded by the U.S. Department of Agriculture, provides some encouraging answers.

Ruth was on a team of scientists from several universities that surveyed a representative sample of U.S. consumers and conducted [focus groups](#) to better understand American consumers' attitudes about GM food and agriculture.

About half of the 1,050 people who responded to the survey had positive

attitudes toward GM [science](#), the researchers found. Nearly 37 percent of the consumers surveyed felt neutral about GM science and 14 percent had negative perceptions of it.

Most of the people who were receptive to GM science were white males who were millennials or younger, the data indicated. They were highly educated—most held a bachelor's degree or higher—and affluent, with annual incomes of \$75,000 or greater.

Women, on the other hand, constituted 64 percent of the group with negative feelings about GM science. Baby boomers and older adults were nearly twice as likely to fall into this group. People in this group also were less educated—about half reported some college but no degree.

The findings were published recently in the journal *Science Communication*. Co-authors of the paper were Joy N. Rumble, of Ohio State University; Alexa J. Lamm, of the University of Georgia; Traci Irani, of the University of Florida; and Jason D. Ellis, of Kansas State University.

Since social contexts influence [public opinion](#) on contentious issues, the survey also assessed respondents' willingness to share their opinions about GM science, their current perceptions of others' views on the topic and what they expected public [opinion](#) about it to be in the future.

The research team was particularly interested in exploring the potential impact of the "spiral of silence" theory, a hypothesis on public opinion formation that states in part that people who are highly vocal about their opinions in public encourage others with similar views to speak out while effectively silencing those who hold opposite views.

"If people believe the majority of others disagree with them on a topic,

they will feel pressure to conform to the majority opinion," Ruth said.

"People aren't going to be supportive of something if nobody else is supportive of it—no one wants to feel like they are different from the group. That's the reality of the world that we live in today."

By contrast, people surveyed who rejected GM science were more likely to express their opinion when they believed others held the opposite view. But people with positive feelings about GM technology were less likely to speak out when they believed others supported it too.

"The way others express their attitude has an indirect effect on what our attitude ends up being," Ruth said. "We might fall in the actual majority opinion about some of these complex topics, but if other people aren't vocalizing their opinions, we don't know that others out there are like-minded.

"Then we start to think 'Well, maybe I should realign my attitude to what I'm seeing in the media.' What we see in the media is just reflective of the most dominant voice in the conversation, not necessarily the majority opinion. And I think sometimes people don't quite understand that."

Like climate change, GM science is among the complex challenges that some researchers call "wicked issues—societal problems that are often poorly understood and fraught with conflict, even when the public is provided with relevant science and facts, Ruth, Rumble, Lamm and Ellis wrote in a related study.

That paper was published recently in the *Journal of Agricultural Education*.

"We must have these conversations about these wicked issues," Ruth

said. "If scientists let other people who don't have a scientific background fill the void, we're not going to be a part of that conversation and help people make decisions based upon all of the facts."

More information: Taylor K. Ruth et al, Are American's Attitudes Toward GM Science Really Negative? An Academic Examination of Attitudes and Willingness to Expose Attitudes, *Science Communication* (2018). [DOI: 10.1177/1075547018819935](https://doi.org/10.1177/1075547018819935)

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