

# 'Plant inventor' makes black-and-white cucumbers

September 20 2011, By Stacey Shackford

---



Farmer's Daughter melon

By age 4, Michael Mazourek was already fascinated by bell peppers, squash and sugar peas, the vegetables that featured prominently in his first garden.

Now, decades later, the newly designated Calvin Noyes Keeney Professor of Plant Breeding is engineering his own organic varieties in his lab and in Freeville fields, using a combination of traditional and cutting-edge techniques.

Among recent releases from his lab: the Habanada pepper, a mild habanero that still packs a powerful flavor punch; the Farmer's Daughter melon, which tastes a little like pear and slips off the vine when ripe; and

the black-spined white Salt and Pepper cucumber, which has garnered awards for its unexpectedly sweet flavor.

Current projects under way include purple snap peas and miniaturized vegetables with vivid colors, stripes and polka dots that he hopes will charm children and serve as "delicious, cleverly disguised vitamins."

Mazourek says there is a growing market for unusual vegetables. One of his biggest advocates is celebrity-chef Dan Barber, who introduces diners at his famous Blue Hill restaurant to Cornell creations like curled snap peas and Honeynut squash. Barber's input has also informed Mazourek's research, as he uses the chef's suggestions to create new varieties.

Other [organic growers](#) also play key roles in developing and testing products from Mazourek's lab. The Peacework pepper was named after one of Mazourek's most active partners, the Peacework [Organic Farm](#) in Newark, N.Y. Mazourek says industry and grower input is vital and has allowed him to provide for underserved markets whose needs no one else is addressing.

Beyond the funky [flavors](#) and colors, Mazourek's vegetables have practical purposes: [nutritional content](#), disease and [pest resistance](#), and suitability for organic and regional growing conditions.

"We're interested in the whole package -- something that provides quality for the consumer and performs well for the farmer, with the minimal environmental impact," Mazourek said. "In organic farming, in particular, you have fewer crutches. It is largely up to the plant to be able to succeed on its own."

## **The Calvin Noyes Keeney Professorship**

Calvin Noyes Keeney was an entrepreneurial seed grower in Genesee County, N.Y., who bred the Stringless Refugee Wax, the first stringless variety of green beans. He did so by breaking the pods of many plants of the Refugee Wax variety, until he eventually found two without strings; he then crossed the stringless wax bean with stringy green beans.

Between 1887 and 1911, he introduced 17 new bean varieties. According to a history written by C.D. Jarvis in 1908: "The seedsmen when in need of something new are in the habit of calling on Mr. Keeney.

"[He has] undoubtedly has done more along the line of bean breeding than anyone else in America," Jarvis wrote.

Keeney's daughter, Ruth Keeney, bequeathed one-fourth of her estate to Cornell to support its plant-breeding program. She died in 1974 and part of the fund was used to support graduate assistantships. The rest was invested and has recently reached an amount sufficient to endow a professorship, leading to the appointment of Michael Mazourek as the first Calvin Noyes Keeney Professor of Plant Breeding.

Although his subject matter may seem varied, cucumbers, squash and peppers have surprising similarities. Some of the same metabolic pathways that make peppers spicy also control the color of peas or the fibrous texture of squash. And they also share common killers -- funguslike oomycete pathogens such as late blight and downy mildew.

So biochemistry plays a crucial role in Mazourek's breeding program, especially when it comes to flavor, which is not as easy to select for as visual traits.

"How do you get new chemistries to develop in a plant and react with other organisms -- in humans, as nutrients, in pests, as defense

mechanisms?" Mazourek said. "We want to come up with ideal new trait packages to help growers and consumers, by understanding the biochemistry and genes controlling it."

Mazourek, who joined the faculty as an assistant professor in 2009, is following in the footsteps of many visionary breeders at Cornell, and is one of only a handful left in the public sector. His immediate predecessor and graduate adviser, Molly Jahn, spearheaded organic breeding at Cornell and made breakthroughs in understanding what makes peppers pungent. And supermarkets are full of the fruits of Henry Munger's efforts -- he introduced more than 50 types of cucumbers, as well as many popular varieties of melons, onions, squash and carrots. Calvin Noyes Keeney, for whom Mazourek's professorship is now named, worked with Liberty Hyde Bailey to develop the first stringless variety of beans.

Mazourek, who grew up on a farm in nearby Newfield, N.Y., says he is fulfilling his boyhood dream -- but not exactly the way he expected.

"I always thought I wanted to be a mechanical engineer. But [plant breeding](#) lets you build new plants. I get to spend all day, every day, being an inventor," he said.

Provided by Cornell University

Citation: 'Plant inventor' makes black-and-white cucumbers (2011, September 20) retrieved 24 April 2024 from <https://phys.org/news/2011-09-inventor-black-and-white-cucumbers.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--