

As America Rediscovered The Sweet Potato, A Variety Takes Root

North Carolina State University



Traditionally served just once a year on American's Thanksgiving Day dinner tables, sweet potatoes are starting to pop up everywhere, from pancakes and salsa to fine dining and fast food restaurant menus.

Reaping the benefits of the vegetable's growing popularity — and a superior variety of the root vegetable called the Covington — are North Carolina farmers, who began planting the new sweet potato released by the [Sweetpotato Breeding and Genetics Program at North Carolina State University \(NCSU\)](#) in 2005.

With higher yields, a longer grocery shelf life and a uniform size, the Covington has become a preferred variety of farmers, wholesalers and retailers.

"Throughout my career, I've seen over a million seedlings planted and most of the time, they fail," says Craig Yencho, Ph.D., NCSU professor and leader of the breeding program. "We hit a homerun with the Covington."

Sweet Potato Love

In 2010, Americans purchased nearly 12 million pounds of sweet potatoes — up from 7 million in 2008. Nearly half of all sweet potatoes grown in the United States come from North Carolina, the country's No. 1 producer of the crop.

But in 1997, North Carolina farmers were feeling desperate. The main sweet potato variety they had been planting and harvesting for years, the Beauregard, was no longer performing.

"After growing successfully for years, the Beauregard was giving way to disease and just wasn't growing well," says Kenneth V. Pecota, M.S., researcher and cobreeder with NCSU's sweet potato breeding program.

One in a Million

Yencho and Pecota quickly went to work on a new variety, combining one sweet potato plant's parent with another plant parent to identify the best progeny. The multiyear process involves growing seeds produced in the crosspollination yearly by the tens of thousands in a greenhouse and then transferring cuttings from the plants to fields, a process aided by funding from the [North Carolina SweetPotato Commission](#), [North Carolina Certified Sweet Potato Seed Growers Association](#), and the [North Carolina Crop Improvement Association](#).

"In a breeding program, the goal is to find a needle in a haystack, the plant that will withstand all of our testing," says Yencho. "It takes 1 to 2 million seeds to establish a major cultivar."

In 1999, the fledgling plant that would become the Covington caught the attention of breeders by thriving in a tough growing season. Yencho and Pecota decided to fast-track the plant, asking commercial growers to plant 50, then 150 acres and then 500 acres of the potential new variety over three years. Throughout the breeding process, NCSU evaluated the yield in on farm and research-station experiments, testing the roots for their disease resistance and nutritional profile and conducting baking and processing trials — all of which the Covington passed with flying colors.

Sweet Deal

“In 2005, the Covington became the first commercially successful plant-patented sweet potato variety in the world. In addition to filing the plant patent, NCSU's [Office of Technology Transfer](#) helped structure a nonexclusive licensing agreement for farmers and seed growers, which included an annual fee plus a royalty on acreage grown or percentage of seed sold.

"The Covington is one of the crown jewels of the plant breeding program," says Kultaran Chohan, Ph.D., licensing associate at NCSU. "Over the years, it has consistently been one of NCSU's highest royalty earners."

Today, the Covington accounts for 90 percent of the sweet potatoes grown in North Carolina and is gradually displacing the Beauregard in California. According to Yencho, the variety represents about 20 percent of all sweet potatoes grown nationwide — generating more than \$250 million in U.S. farm revenue in 2012 — and is the No. 1 sweet potato exported out of the country.*

Size Matters

"Once we introduced it, the Covington quickly became a preferred variety," says Pecota. "It may not be spectacularly pretty like the Beauregard, but it's dependable and it produces high yields."

Sue Johnson-Langdon, who joined the North Carolina SweetPotato Commission as executive director after spending 25 years as a sweet potato farmer, says the hospitality industry really appreciates the Covington's uniform size.

“A restaurant can’t deliver a large sweet potato to one customer and then a small one to the customer at the next table,” she explains.

Major food processors are also embracing the sweet potato — converting the orange root into frozen French fries, pie filling, soups and purees — as are fast food restaurants, which have experimented with sweet potato fries as a menu item.

“I don’t think we’ll ever replace the potato but the sweet potato offers a more complete nutritional package,” says Johnson-Langdon. “I think we’ve just touched the potential of the sweet potato.”

Cash Crop

The introduction of the Covington in combination with improved agricultural, curing and storage practices have boosted the entire state’s farming economy according to Johnson-Langdon. Since 1995, North Carolina’s sweet potato acreage has increased by 194 percent, yields are up 133 percent and prices are up by 26 percent.

“The Covington is a super variety that’s been a real gift in terms of commercialization,” she says.

“I know a lot of growers and their families so it feels great and humbling to see them be successful,” adds Yencho. “It’s been a big hit for us and it has helped a lot of growers become profitable.”

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