

Illinois at forefront of 'soybean revolution'

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FITHIAN, Ill. — — Longtime central Illinois farmers Pat and Mike Marron don't look like revolutionaries.

They spend these early spring days inputting computer data for their GPS-driven tractor and fine-tuning equipment. Giant bags and bins of seed are stacked to the ceiling for the day when they can get out in their fields to plant.

But the father-son team farming 2,500 acres near this small town between Champaign and Danville are part of what scientists call "the soybean revolution," an explosion in worldwide demand for the protein-rich plant used primarily to feed livestock.

The Marrons represent the fourth and fifth generation of their family on this land since 1867. They are among an estimated 45,000 farmers who made Illinois the top soybean-producing state in the country last year, according to the U.S. Department of Agriculture. Iowa followed closely behind, along with Minnesota and Indiana.

The winter's lingering chill has farmers hoping they can get into the wet fields by early May. Plenty is riding on their success. With the soybean crop covering more than one-quarter of the 35 million acres that make up the state, it's a major industry, and one that promises to become even more important, experts say.

Illinois farmers raised more than 461 million bushels of soybeans last year on 9.4 million acres.

A little bean — once an obscure plant in Eastern Asia more than 100 years ago — is now a highly demanded global source of protein.

"When we say in the summer that it's way too humid, the soybeans are happy. Illinois is very humid, and that makes for very good quality soybeans," said Hans Stein, professor of animal science at the University of Illinois at Urbana-Champaign and at the National Soybean Research Laboratory on the university campus.

"We also have the farmers, the crushers (companies that process the seed), the elevators, the river for export and a sizable pig industry here," he said. "We have all the components for growing and using soybeans."

Jeff Squibb, spokesman for the Illinois Department of Agriculture, says it's important to understand that while farmers make up less than 2 percent of the state population, two crops — corn, followed by soybeans — are the foundation of an industry that generated almost \$20 billion in state revenue in 2012.

"Our soybean production is the foundation of a much broader, more diverse industry that affects the livelihood of most everyone in Illinois," Squibb said. "Illinois ranks No. 5 in the country for food processing plants, and first in food processing sales. ... Most people think of just beans in a field, but agriculture is not just a rural activity."

Nineteenth-century historical accounts from the Illinois Soybean Association tell how soybeans, then called "Japan peas," were first brought into Illinois in the 1850s. It wasn't until the early 1900s that farmers started planting the crop.

A century ago, 2,000 acres were planted in Illinois, the soybean association says. From 1924 to last year, the harvest grew from 115,000 acres to 9.4 million. The average yield increased from 12 bushels per acre to 49, and the price went from 85 cents a bushel to last year's \$12.90. Economists predict it will continue to increase.

Brian Diers, a U. of I. professor of crop sciences, doesn't see evidence of the yield going down and predicts it will increase to at least 80 bushels per acre.

Diers' most recent study compared soybean varieties from the 1920s with the present. He grew them together to see how much better the new are over the old and found that two-thirds of the increases in yield are the result of improved varieties, he said. The other third was because of agronomic management.

Research like his is partially supported by the state soybean association, which is celebrating its 50th anniversary. The group is challenging farmers to increase their yields even more, offering a financial reward for topping 100 bushels per acre.

Mike Marron, 37, is vice chairman of the association. He and his father harvested more than 60 bushels per acre last year and sometimes have reached 70-plus bushels, he said.

"It's exciting to be a part of it all, with the demand growing," Marron said. "We have some of the best soil in the world here in Champaign and Vermilion counties. Our soils are so forgiving. And now there's soy in practically everything."

The United Soybean Board's 2014 Soy Products Guide lists more than 800 products containing soy, from plastics to food products, lotions to crayons. But the growth is mainly fueled by an increasing demand for meat, particularly chicken and pork in Asia, Stein said.

"China is by far the biggest reason," he said. "There are a lot of people, and they all have to eat. If you can only afford to eat rice and your income increases, you are going to buy some meat. As more and more people can afford to eat meat, the demand for chicken and pork increases."

Ninety-seven percent of the soybean that is split and crushed into meal is turned into animal feed, according to the United Soybean Board. Sixty-eight percent of soybeans made into oil is for human food, the rest for products like biodiesel, cleaning supplies, inks and hand lotions.

Roughly half the [beans](#) grown in the U.S. are processed in Illinois. The rest are exported. China, the top international destination for American-grown soy, imported more than 800 million bushels of whole beans last year.

Marengo farmer Duane Dahlman plants soybeans and [corn](#) on 800 acres that his great-grandfather farmed in 1901. He uses equipment that he says his grandpa would never recognize. The beans he grows and sells are shipped whole to Asia.

Dahlman's grandfather, like others in years past, originally grew soybeans for forage, cutting the plant in the green stage and harvesting it for livestock.

Now fewer [farmers](#) have livestock to feed and tractors have replaced horses, so land that once supported hay and oats is planted primarily in soybeans.

Dahlman, vice chairman of the Illinois Soybean Association's marketing committee, has been farming since 1975. He finds it important to stay current with soybean technology and news. "Tractors are the fun part of this [business](#)," he said. "The hard part is the business part."

Much of his news is generated at the National Soybean Research Laboratory, where researchers study every side of the plant's story, from increasing productivity and profitability for farmers to improving human and animal nutrition. The story also includes the [international](#) development of the crop, said the research laboratory's executive director, Craig Gundersen.

Gundersen and others work to bring soy's nutritional benefits to developing countries.

"We have to feed 9 billion people in the world by 2050," Gundersen said. "There are currently about 1.5 billion who almost never eat meat, possibly for religious reasons or cultural reasons, but more often than not it's because they don't have enough money to [purchase](#) meat. Soybeans are a very inexpensive way to get them protein."

Peter Goldsmith is director of the food and agribusiness management program at the [University](#) of Illinois. He leads research supported by a \$25 million grant aimed at increasing food supply in sub-Saharan African countries by helping them develop a soybean crop.

"These are some of the poorest people in the world," he said.

Emerson Nafziger, a University of Illinois extension agronomist, has studied soybean growth for years.

It's the only crop in history, he said, that went from being virtually unknown in Eastern Asia to becoming a remarkable commodity in the U.S. and the world.

"No other crop can compete," he said.