



Bar-coded tags identify experimental varieties of sugarcane. (K7089-1)

DAVID NANCE

Sugarcane for Cooler Climes

The fields of Newton Cane Co. in Bunkie, Louisiana, are green and thick with rustling leaves of sugarcane. Taller than any human, the plants make a shadowy canopy against summer's sultry heat. Grower Blake Newton has a smile on his face when he talks about harvesting an anticipated 34 tons of cane to the acre.

There was a time when Newton wasn't smiling, however. In the 1980's, he was farming corn and soybeans. But corn prices became unstable and beans had tumbled from \$10 to \$4 per bushel. In fact, his

family was dipping into cash reserves to replace farm equipment.

Newton's reversal of fortune stems from a switch from grains to sugar, a change made easier with new varieties developed by the Agricultural Research Service.

The Newton family has farmed for generations and done well with many commodities. But before 1986, the land hadn't been used for sugarcane since Blake's father, Pete, grew it in the 1950's.

So Blake and other farmers in the northern extreme of the Louisiana sugarcane belt decided to attend

"sugar schools" hosted by the extension service and taught by ARS agronomist Benjamin L. Legendre.

"Blake Newton and his father Pete looked on sugarcane as a potential savior," says Legendre. "But they needed to know about new varieties that had been developed since Pete last grew it."

For Newton, going back to sugar was a decision made of necessity. But it wasn't an easy change. Equipment had to be bought or upgraded—costing almost half a million dollars. And sugar demanded time as well as money.



Sugarcane harvested and loaded into high dump trailers in Bunkie, Louisiana, will be transferred into trucks for shipment to a sugar mill. (K7089-3)

In Louisiana, sugarcane needs to be re-planted every third year, on average. To restart sugarcane from scratch, Newton had to buy seed cane of the recommended varieties from fellow farmers in south Louisiana.

He then had to increase his supply of seed cane for several years before he could plant a harvestable crop for the mill.

Even though raising sugarcane in Louisiana isn't easy, the demand for sugar is growing, especially since labor costs and the price of land have slowed production in Hawaii. Northern Louisiana now has 20,000 acres in sugarcane compared with 13,000 acres two decades ago. Statewide, 390,000 acres are planted to sugarcane.

"Nationally, we're not self-sufficient in sugar," says Peter Buzzanell, who is with the USDA's Economic Research

Benjamin Legendre (right) with farmers Pete Newton (center) and his son Blake Newton of Bunkie, Louisiana, examine the regrowth from cane used for seed. Released 2 years ago, this variety, HoCP85-845, is the latest developed by ARS at Houma. (K7089-2)



Service. "We import more than a million tons annually."

Florida is the top U.S. producer, with 1.8 million tons per year worth about \$775 million. Louisiana's smaller family farms come in second with over 1 million tons valued at \$441 million.

"One interesting thing about Louisiana is the level of technology that lets farmers get through hurricanes, freezes, and other problems," says Buzzanell. "They have become really very resilient."

But freezes are a special worry in northern Louisiana, where colder temperatures usually mean shorter growing seasons and, in extreme cases, total crop loss.

"When we started contacting Ben, no one had raised cane in this area since 1981, when the Meeker sugar

mill closed,” says Newton. “We had to start finding out about varieties—what was recommended for planting this far north.”

Legendre told prospective growers about the varieties developed through cooperative research between ARS sugarcane scientists at Houma, Louisiana, and Canal Point, Florida, and researchers with the Louisiana Agricultural Experiment Station at Baton Rouge and the American Sugar Cane League at Thibodaux.

New varieties had been developed since the Newtons left cane, including CP 70-321, the variety now found on 43 percent of Louisiana sugarcane acreage. “CP 70-321 has been our best variety. It just holds up better after a freeze,” says Newton.

“We were so dependent on Ben’s work that we let him have some of our land for test plots—land we rent from someone else.”

The experimental plots allowed Legendre to see how potential new varieties he developed on ARS’ 300-acre farm in Houma responded to the acid test of Bunkie winters.

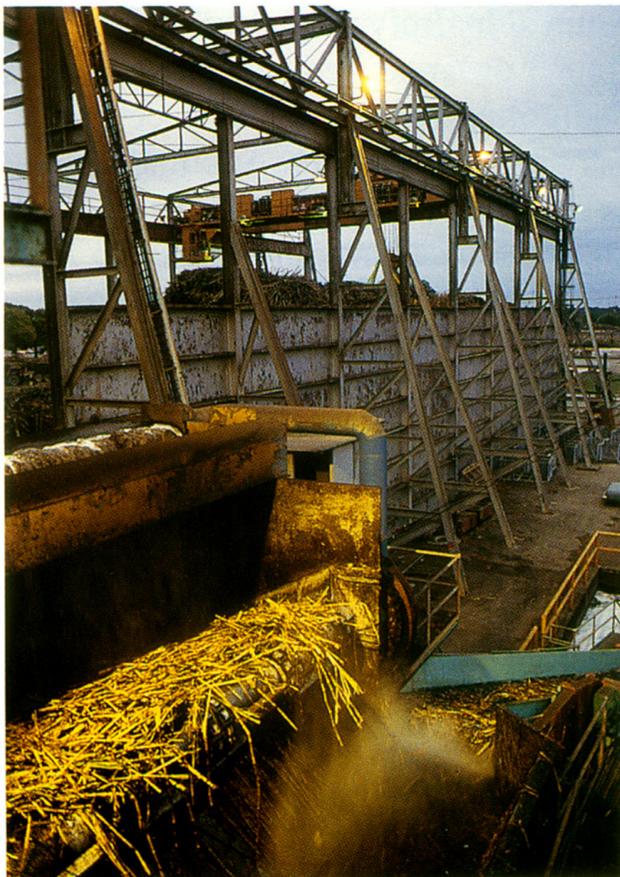
Legendre says the colder northern areas of Point Coupee, Avoyelles, Rapides, and St. Landry parishes provide an ideal setting for developing cold-tolerant varieties. There have been no freezes near his Houma lab since 1989.

Other Improvements Under Way

Legendre and his team of scientists at Houma do more than look for cold-resistant cane. For one thing, they are working to develop varieties that need less insecticides, allowing farmers to shave costs while reducing possible environmental harm.

“What’s really exciting at Houma now is the work of entomologist William H. White,” says Legendre. “He has established a selection

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Sugarcane on the wash table before entering the mill for processing. (K7089-4)

program for varieties resistant to the sugarcane borer, which is the main problem insect.

“It’s not something we can do overnight. But someday we may have varieties that require little or no insecticide to control the borer.”

“The beauty of borer-resistant cane,” says White, “is that you can plant it close to subdivisions or schools—places off limits to pesticide spraying—without significant crop loss. We encourage growers to plant resistant varieties, as they will use less insecticide and have less yield damage.”

It’s easy to see how new varieties developed from these resistance clones will help farmers as well as the environment. Spraying for sugarcane borer with synthetic pyrethroids—a safer alternative to guthion—has to be done by air and costs \$12 to \$14 an acre.

On average, it is done twice during the growing season. But in warm, wet seasons common in Louisiana, three or four spray applications might be necessary, adding significantly to the cost of production.

The sugarcane borer, which cost Louisiana growers over \$50 million in 1994, tunnels into plants, reducing both cane and sugar yields and making the cane brittle. Heavily infested cane is too brittle to take mechanical harvesting and becomes essentially worthless. The borer can also be a pest in Florida and Texas.

White says that in 1993 the Houma lab released five clones with superior resistance to the sugarcane borer. He credits Jimmy Miller, an ARS geneticist at Canal Point, with helping him develop these new resistant clones.

But not all of these clones give acceptable yields. Instead, they are crossbred with commercial types to get productive hybrids with good resistance.

It takes some time to accomplish this, however. Each of the new varieties coming out of the cooperative research program requires 12 to 14 years of development.

To find out how adaptable new varieties are, they are tested at 10 off-station sites away from the Houma lab.

Plant breeders and researchers in Texas, Louisiana, and Florida have contacted Houma to get seed cane from these clones, in hopes of developing new borer-resistant commercial varieties for their growing conditions.—By **Jill Lee**, ARS.

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