

Giving Okra a Second Chance

Michael Vincent, Pike County, Illinois

Integrated Cultural Production Methods for Maximum Okra Seed Yields

Coordinator: Michael Vincent

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Michael Vincent experimented with row spacing, nitrogen application, and pest control to make okra productive on his farm. He also worked with an engineer to develop an okra-friendly mechanical harvester.

When most people think of okra, they picture a hearty southern gumbo. But

Michael Vincent sees more, for he is interested in the nutritional value of the mature seed.

According to Vincent, okra seed is 25 percent protein and 21 percent oil. The protein profile is similar to soy and the oil is 69 percent unsaturated. What's more, okra also is drought resistant and has fewer pests than soybeans.

People are so used to thinking of okra as a novelty crop that they ignore its potential, Vincent says. But he was hoping that he could give this overlooked crop a second chance through a SARE grant. In particular, he wanted to find out what works best for seed production.

Vincent was introduced to okra in his family's garden, for okra has been traditionally raised as a fresh vegetable instead of allowing it to mature for seed production. Therefore, he didn't give it much thought until a study in Alabama showed that okra seed out-produced soybeans 4,500 pounds to 3,000 pounds



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on the same acreage. And this was okra that hadn't been selectively bred for seed production.

"There is still the potential for serious gains," he says.

However, reaching that potential has meant a lot of work on his Pike County farm. Vincent has experimented with row spacing, nitrogen application, planting date, and pest control. He's also working with an engineer in Wisconsin to develop an okra-friendly mechanical harvester.

"We're trying to thrash the seed pods while leaving the stems standing; that way we won't pull all of the plant material through the harvester, which will ease the separation of the seed from the stover and lower power requirements." Vincent says.

Despite a few setbacks, such as storms destroying test plots and seedling-munching voles, the results have been promising.

Okra has few natural predators, Vincent says. He had trouble with grasshoppers

and stinkbugs but never enough to justify pesticides. Okra also avoids the rusts and nematodes that plague soybeans.

However, he has had to deal with infections by rhizoctonia, which plug up the plant's vascular system similar to way cholesterol plugs people's arteries. Dry weather stress at planting caused this infection, but later-planted okra did not show symptoms. Vincent planted on three different dates—May 17, June 7, and June 28—and he found the middle planting date to be the highest yielding because of the absence of disease.

If selective breeding can increase seed yields, Vincent sees a lot of economic potential. Okra seed oil doesn't degrade at high heat and could replace expensive cottonseed oil in factory food fryers.

Okra could even be added to corn and soybean rotations to reduce certain insect pests and other pathogens.

According to Vincent, okra has several mechanisms that allow it to survive and produce seed in drought conditions: a large taproot system for extracting moisture and nutrients from greater depths; and an "indeterminate growth nature" that allows the plant's reproductive stage to be spread over a longer time period.

All of the seed yield does not have to be filled at one time, and the okra can go completely dormant if conditions are very harsh; then it can come back and produce seed when it rains.

"These properties have broadened my horizon on the suitability of okra as an oilseed crop," he says.

By John Marlin