

Fairfield University Engineering Students Help Farm with Whole Foods Grant

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A group of recent graduates of Fairfield University's School of Engineering has developed a device to help Stone Gardens Farm in Shelton, Connecticut. 'SpinLeaf' - an electric powered greens spinner - was designed and built by the young engineers to help small-scale farming operations like Stone Gardens. One of the farm's important and time-consuming tasks is the process of cleaning loose-leaf greens. Enter SpinLeaf. The device's main function is to not only clean but also dry the greens, all in one cycle. Whole Foods awarded the Fairfield students a \$500 grant for the project.

It began last fall as part of the School's yearlong "Senior Design" course, which asks seniors to develop a device, vehicle or tool that is needed in the marketplace but hasn't been invented yet.

Stone Gardens had been using a greens spinner that its own farmers built. A SpinLeaf prototype the students developed has shown great promise, and the farmer is now using the device at the farm. It works on a horizontal axis with an electrically powered rotating drum fabricated from sheets of stainless steel mesh that has a large sliding door with an optional water delivery system.

"When some of my farmer friends have seen it, they are all very impressed by it," said Fred Monahan, of Stone Gardens Farm. "I think there is a need for a spinner like this on all farms who want to market direct to the consumer."

"We're in the testing phase with SpinLeaf," said Colin Nerich, of Chevy Chase, Maryland, a member of the School of Engineering's Class of 2014. "We want to patent the device in the hope to mass market it to other small scale farms. We will be working with Stone Gardens and Farmer Fred [Monahan] to get it operational."

Nerich worked on the project throughout the academic year with fellow mechanical engineering majors Sharoz Seyal, of Fairfield, Conn., and Claudele Pierre, of Bridgeport, Conn., as well as Robert Governale, an electrical engineering major from Wallingford, Conn.

There is no commercial product currently available to address the daily needs on the farm. "What is available on the market is too small [to clean loose leaf greens], so farmers like Stone Gardens have to build their own [spinners]," said Pierre. A device like Spinleaf would help many other farms, since ninety percent of farms in the United States are considered small-scale farms.

Whole Foods Market is interested in supporting local businesses, big and small, and is a partial sponsor of the SpinLeaf project. Liz Giegerich, marketing team leader for Whole Foods Market/Fairfield, said, "We were so impressed with the students' design and forward thinking for the future of the food industry. The project aligns perfectly with our core value to serve and support our local community, and we're incredibly happy to be a sponsor."

Fairfield University Assistant Professor Shanon M. Reckinger, Ph.D., the Clare Booth Luce Professor in Mechanical Engineering, is the students' advisor. The 'Senior Design' course instructor was Shahrokh Etemad, Ph.D., chairman and associate professor of mechanical engineering at Fairfield. Monahan, of Stone Gardens, was their mentor.

Dr. Reckinger explained how SpinLeaf can play a crucial role. "When loose leaf greens like kale, lettuce and spinach are harvested, they are extremely sensitive to heat and risk wilting or drying out quickly and easily," she said. "Greens are first treated by rinsing to remove dirt and debris. After rinsing, all water must be removed in order to preserve fresh, crisp produce. A large-scale 'salad spinner' such as SpinLeaf is essential for this industry."

In addition to this initial cleaning and drying, loose greens often need a cold rinse to rehydrate the leaves before they go to market. The

SpinLeaf device provides this next step, again using the right amount of rinsing and drying to prepare produce for sale and preserve it in the interim.

Stone Gardens Farm grows 50 acres of vegetables annually and raise poultry, pork, and beef. Fred and Stacia Monahan founded Stone Gardens Farm in 1998, after expanding from a roadside vegetable stand where they sold vegetables and flowers at Shelton's Dairy on Birdseye Road in Shelton. The couple steadily grew their business, planting more varieties of vegetables on mostly leased land.

The farm's current spinner lacks many features that SpinLeaf has.

Monahan was pleased with the students' device. "There are few fabrication adjustments to make, but that is normal for a project like this," he said. "When it is finished, this spinner will cut our prep time in half, at least."

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