



Mom-daughter local farming team Donna and Liz Wagner of Crooked Row Farm in New Tripoli, PA, work with HERShovel and HERSpadingfork, designed scientifically for women by Green Heron Tools.

# GREEN HERON TOOLS

It's no secret that farmers are the fuel that keeps America running, providing food and sustenance to its 320 million citizens. There are just over 3 million farmers in the United States sharing that load, and thirty percent of those farmers are women. Yet, women farmers have had to adapt to bulky and sometimes dangerous farming equipment that was designed primarily for men, whose upper body strength and muscle mass greatly exceed that of women.

### PHASE III SUCCESS

Green Heron Tools sells its line of HERS digging tools online and at select retailers in the U.S. and Canada.

### AGENCIES

USDA

### SNAPSHOT

Realizing that women would benefit from gardening and farming equipment designed to build on their strengths, Green Heron used a USDA SBIR grant to help develop a specialized line of ergonomic and sustainable tools, including HERSpadingfork™ and HERShovel™. The company is currently re-imagining the standard walk-behind tiller, taking into account the physiological and anthropometric characteristics of women.

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Green Heron Tools co-owners Ann Adams and Liz Brensinger, who operated a small farm part-time for 13+ years, set out to change all that. With an idea and their motto – “Women’s bodies are different from men’s; our tools should be, too,” they cornered the niche market of female farmers by creating the first farming and gardening tools scientifically designed for women. They used a U.S. Department of Agriculture (USDA) Small Business Innovation Research (SBIR) grant to provide some critical funding to conduct research and development.

“With our Phase I SBIR grant, we researched women farmers and gardeners around the country via an online survey, focus groups and interviews,” recalls Brensinger, who has a master’s degree in public health. “We assessed which tools women wanted re-designed, and number one was a shovel. That was the first tool that we came out with.”

HERShovel™, as it would eventually be named, is the first HERgonomic® shovel spade hybrid designed with a woman’s body in mind. The company coined the term to mean “ergonomic for women” and designed for maximum comfort, efficiency, safety and ease of use. Features include an enlarged step to capitalize on women’s lower-body strength; a light weight design; a patented ergonomic grip that allows for two-handed digging; and even an angle that complements the way most women dig. The HERShovel is still Green Heron’s most popular tool, selling over 4,000 units to date. At a price point of about \$66, it provides gardeners, farmers, and even part-time hobbyists with an affordable replacement for this home and garden staple.



◀ Patty Neiner, farmer and staff member at the PA Women's Agricultural Network, tests an early version of Green Heron Tools' tiller

Owners Liz Brensinger (left) and Ann Adams ▶



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**ANN ADAMS  
CO-OWNERS**

HERSpadingfork™ was the next product to launch. It offers a wide, non-slip step and the same ergonomic grip as the shovel. Both HERShovel and HERSpadingfork come in three shaft sizes to match the user's height, are made in the U.S., and carry a 10-year warranty.

“The fact that we created and commercialized a product from a Phase I grant is somewhat unusual, but we did, and we had it on the market just over two years from the time we received the grant,” says Adams, who has a master's degree in nursing.

The company's Phase I research also identified walk-behind tillers as a high priority for redesign; in fact, tillers were the top priority of the farmer/market-grower subset of women surveyed. Since a woman's strength is usually in her lower body, one disadvantage of existing tillers is that most require significant upper body strength to maneuver and control. Women also cited heavy vibration, excessive weight, poor handle design and difficult-to-start engines as problems with existing tillers. Additionally, rototillers tend to be rough on the soil and typically run on polluting gas-powered engines.

By identifying the problems, and then convening a design team of engineers from Penn State and an inven-

tor, Adams and Brensinger didn't just modify existing tiller design – they created a brand new technology. “We wanted to create something that would do serious work,” says Brensinger. “We wanted this to be a robust, powerful machine that could work for any farmer or serious gardener. The result is a lighter machine that utilizes battery power and is much gentler to the soil and the operator.”

The new tiller uses counter rotating blades to till or cultivate with little to no vibration. At just 100 pounds and with a power-assist front wheel and transport mode, the tiller can be easily transported from shed to field or field to truck. With the Phase II grant deemed a success, the team continues to refine the prototype while they await a patent. Their goal is to make the tiller affordable and available to small farmers nationwide, possibly through licensing the technology to a larger company. With a target unit price of \$1,500-\$1,750, their tiller would be in the median price range for competing machinery, but in a class all its own for comfort and ease of use.

With two products on the market, a manure fork in development, the tiller in the offing and their sights set on re-imagining equipment used for lifting and carrying heavy materials on the farm, Green Heron Tools is certainly poised to not only shift perspectives in this specialized market, but improve industry standards by demanding sustainability, quality and attention to true scientifically based ergonomics.