Aquaponics Combine Fish, Tomatoes, and Ingenuity

Lori Bahre, Oakdale, Illinois

Growing Fish and Plants in an Aquaponic System

Coordinator: Lori Bahre

Location: Oakdale, Illinois

SARE Grant: $4,848

Grant Year: 2004

Project Number: FNC04-533

Lori Bahre developed an aquaponics system, which is housed in a 30- by 50- foot greenhouse. The system proved successful, producing significantly more vegetables than her traditional garden.

Fresh fish and homegrown tomatoes sound like the beginnings of a perfect summer meal. They're also the ingredients of a productive aquaponic system, and many growers are finding that the challenge of developing such a system is well worth the effort.

Lori Bahre of Oakdale, Illinois, is one of them.

"We had as many tomatoes from the 12 plants in our aquaponic system as we had from 50 plants in our garden," said Bahre. She received a SARE grant in 2004 to develop her system, which she houses in a 30- by 58-foot greenhouse on her property. She is amazed with her results

"The tomatoes in the greenhouse were ready by the end of April, while the garden tomatoes weren't ready until the first of June," Bahre says. "The greenhouse tomatoes also grew faster and taller than the ones in the garden and no one could tell the difference in taste."

Aquaponics integrates aquaculture (the cultivation of fresh fish) and hydroponics (supplying nutrients and water directly to the roots of plants, without soil) in a recirculating "closed water loop" cycle. Fish waste that accumulates in the water as a byproduct of an aquaculture system is collected and channeled to the grow beds.

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The nutrient-packed fish waste, rich in nitrogen and other byproducts, fertilizes the planted grow beds. The grow beds, in turn, digest the waste, reducing or eliminating the toxicity before the water is returned to the fish tanks clean and recycled.

However, Bahre's system is not hydroponic in the strict sense of the word because she plants her grow beds with an inert material.

"I tried rock wool at first and it kept the roots too wet," she says. "They didn't survive. So I planted them in perlite only and they grew wonderfully."

Bahre also grew green peppers. "The peppers grew well in the rock wool and directly in perlite as well."

Bahre's grow beds are 14 by 16 feet and she has tried different combinations each planting season.

"At first I just had everything in separate beds," she remembers. "Last year I tried planting the tomatoes in the center and the peppers on the outside. It definitely worked better having them intermixed. You utilize the whole space."

Bahre sold her produce at the local farmer's market from early May to late August and found that "having produce early makes people come back every week." Bahre plans to increase sales by introducing other types of produce into the system.

Although an aquaponic system requires a good deal of work, Bahre believes the results are worth it.

"Everything tastes as good or better than the traditional garden vegetables, and they're healthier," she says. "People like the idea that there aren't pesticides on their produce. Besides, the plants produce more and they produce longer."

Bahre hopes to be able to share the lessons she's learned with the community at large.

"One of the professors at Southern Illinois University is excited about the greenhouse because he can teach his students about aquaponics and it's close by," she says. "We also plan on having FFA groups come out, and whoever is interested in bringing their class can do so.

"We'd be excited to show anyone how an aquaponic greenhouse works," Bahre says.

By Leanne Lucas

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