Aeroponic Food: A Super Food?

By Ann Gates Weaver

Could aeroponic food be more nutritious than food grown by other methods? Research performed by founder of AgriHouse, Richard Stoner, in conjunction with NASA in the late '90s seems to indicate that it is. In 1998, NASA held a series of experiments comparing aeroponic systems with other growing systems. One experiment involved a comparison of the final product. When lettuce nutrient films were compared, the results showed that the aeroponic lettuce had an 80-percent increase in dry weight biomass per square meter over the other methods while using 75 percent less nutrients and water.

"Plants need oxygen as well as CO_2," says Richard Stoner, "and even when you add it to your system, nothing can compare to the oxygen exposure plants get when their roots are surrounded by air." This in turn allows quicker, and therefore, increased uptake of nutrients during plant growth. In fact, according to Stoner, plants have a 90 percent uptake of minerals and vitamins. Perhaps in the future, aeroponic food will become a new type of super food sought for by those looking to increase their own nutrient uptake.

Organic Disease Control For Earth and Beyond

"Hey, no blue!" This was the comment of many Colorado chefs when Larry Forrest first presented them with samples of his aeroponically grown microgreens. What they were referring to is a common symptom of greenhouse plants treated with copper sulfate: a blue tint and a penny-like aftertaste. Unfortunately, copper sprays are one of the few organic options for greenhouse growers, but lucky for Larry, he just so happens to have his own Organic Disease Control (ODC). The ODC that Larry uses is a formula called Beyond, developed by his buddy and long time greenhouse grower, Richard Stoner.

Back in the 1980s when Richard Stoner was growing aeroponic greenhouse basil, every time he'd get a couple of cloudy days mold and fungus would take over his crop. "There's no way to totally eradicate all pests because most plants carry insects and diseases with them in the seed," Stoner explains. However, plants have the genetic ability to overcome those diseases, but when the disease pressure gets to high when the plant is overly stressed, pathogens spread faster than plant immune systems can handle. This constant battle in his past was the catalyst for seeking something better after AgriHouse was formed.

In 1992 Stoner enlisted some researchers from Colorado State University to begin development on an alternative to copper sprays. The technology that they came up with stimulates the existing ability of plants to fight off disease. Not a true pesticide itself, Beyond elevates enzymes in plants increasing their efficiency in nutrient and moisture uptake, making crops hardier, increasing yields, and making the plant stronger and less susceptible to pests.

In 1997 NASA caught wind of the project and sponsored further experiments on the MIR Space Station using adzuki beans and adzuki bean seedlings. Those treated with the ODC method grew more robustly and exhibited less fungal infection, both on the MIR as well as in the concurrent earth crop. Further post-biochemical analysis showed that these plants continued to retain their fungal-fighting abilities later, even throughout their entire life cycle. Now AgriHouse sells the shellfish-derived product to growers everywhere who swear by its results.

By the time Larry Forrest started the Grow Anywhere indoor farm, copper sulfate wasn't even a consideration. Larry doesn't know much about copper sulfate, but he does know that Beyond helps him provide his customers with what they want: microgreens that both look and taste green.

Rick Stoner, founder and president of AgriHouse Inc. demonstrates the Inflatable Flex-Aeroponic System developed under his NASA research grant. This inflatable system was designed and built using materials found in the space suits used by space shuttle astronauts. The Flex-Aeroponic material that supports the small delicate seeds was developed and manufactured by AgriHouse. The Flex-Aeroponic material holds no water allowing the aeroponic mist to have complete access to the developing seed. It provides potential growing conditions for plants to germinate and grow to maturity. Grow-Anywhere licensed the materials and technology from AgriHouse.