JMAK Farms, *Gadsden County*

Submitted by Extension Agent(s): Alex Bolques, Henry G. Grant

Mr. Gerald Hubbell of JMAK Farms, a retired landscape professional, began farming hydroponically in Gadsden County in 2011. As a first generation farmer, Gerald had a lot to learn about the hydroponic industry, including the art and science of growing produce using soil-less cultural methods. He initially got started by attending a "Starting a Successful Hydroponic Business" in 2009 at the UF/IFAS North Florida Research and Education Center-Suwannee Valley Farm in Live Oak. He has since begun to grow an assortment of greenhouse vegetables using a vertical growing system (VERTI-GRO) that consists of column (tower) planters that are irrigated and fertigated via a trickle-down container leaching method, meaning that the crop is fertilized through the irrigation line with a pH balanced complete nutrient solution.

Initially, Gerald began growing peppers, tomatoes, lettuce and other leaf greens in an 18' x 48' greenhouse production system consisting of 74 vertical growing towers. Each tower was modified by expanding it from five planters per tower to seven planters per tower, thus increasing the number of growing planters by 148 and thereby increasing production efficiency. Using this system, he has grown a variety of tomatoes, peppers, onions, strawberries, leafy lettuce and other leafy crops for the fresh markets. However, what makes Gerald an innovator in the field of hydroponics, is the use of multiple soil-less culture media systems to grow other vegetables not typically grown using conventional hydroponic systems.

As in his greenhouse operation, he uses coconut fiber in container pots as the growing media for his open field production area. The open field production area consists of drip irrigation, similar to what one would encounter at a container plant nursery operation. Gerald is growing okra, corn and a variety of peppers in full sun. The crops are watered and fertilized through the irrigation line. A hydroponic injector system, aka an injector board, accurately mixes the nutrient fertilizer solution. Clock timers are used to program the irrigation and fertigation events.

This year Gerald has expanded his operation to include a shade structure production area. Again, a complete nutrient solution is delivered via drip irrigation but instead of coconut fiber as his growing media, he is experimenting with a 40:60 mix of coconut fiber over pine bark mulch as his growing media. And, rather than the standard black plastic containers used in his open field production system, he is experimenting with grow bags in the new shade production area. The shade structure provides him the ability to grow shade tolerant crops, particularly vining plants, by using the shade structure overhead to support a trellis system. He is currently growing tomatoes, peppers, squash and cucumbers under shade.

Besides the greenhouse VERTI-GRO, open field and shade structure hydroponic production systems, Gerald also utilizes other hydroponic production growing methods such as flood & drain and bench top growing techniques. He has a 12' x 24' propagation greenhouse, which he uses to grow his vegetable seeds. This greenhouse has a 'flood and drain' system used to flood and feed young seedlings in styrofoam trays. He also has a table top hydroponic system consisting of 1/4 gallon containers.

While JMAK sits on 96 acres of land, its hydroponic operation takes up less than an acre. Located on-site are 30 bee hives for honey production.

Improving Agriculture through Extension Involvement

Gerald has served as a member of the Gadsden County Extension Plant Science Advisory Committee. He provides a leadership role in the Gadsden County Beekeeping Club whose membership includes Gadsden, Leon, Liberty and Jackson Counties, as well as Grady County in south Georgia. He has assisted in Extension educational programs including FAMU/CAFS Cooperative Extension Farm Fest field days demonstrating hydroponic production systems and an IPM lettuce production demonstration project. For the IPM demonstration, Gerald provided over 800 lettuce seedlings and other leafy greens for a raised bed production system. He also assisted and was instrumental in the renovation and irrigation reconfiguring efforts of the Gadsden County Extension production greenhouse. Annually, Gerald provides area schools and Northwest Extension county faculty with vegetable seedlings for school and community garden projects.

Impacting Agriculture in Northwest Florida

Once you get to know Gerald you will find out that he is a caring, thoughtful, and generous individual. He has helped several individuals to get started in beekeeping and assisted them in making connections to others in the panhandle beekeeping trade. Gerald has developed a mutually beneficial relationship with another hydroponic grower in an adjacent Florida county. Together they are expanding their hydroponic operations and have provided letters of support for University sponsored research proposals. A good, trustworthy individual, Gerald is always willing to lend a hand. In the Fall of 2011 and again in 2012, Gerald assisted Gadsden County agents in mentoring two EARTH University students from the Central American country of Costa Rica on hydroponic production, at the request of the county director. As part of their internship program with the UF/IFAS Extension, the students gained firsthand knowledge of soil-less production through hydroponics. ■

Gerald Hubbell
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