

Miller Family Aquaponics, *Escambia County*

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George and Rachel Miller, along with their children, Sarah, Josiah, and Jesse, became farmers almost by accident. Their aquaponic farm began as a humble homeschool project, developed into a supplemental income, and has helped to provide the majority of the family's income since George lost his job two Christmases ago. Aquaponics is the practice of raising fish and recycling the water and nutrients to produce fruits and vegetables in a hydroponic setting. The Millers raise catfish in six free standing, self-designed and built tanks that hold nearly



1,100 gallons of water and approximately 300 catfish in each tank. They also keep one tank with clean water to purge the fish they will eat. These tanks are in a protected shed that has been retrofitted to safely raise the fish. In an effort to keep the water temperature stable and the fish active throughout the year, George insulated the building. The water is moved from the tanks inside the building through PVC pipes to 50 gallon barrels outside of the building. One of the tanks is to help "de-gas" the water. The water then goes through a second tank where there is netting interspersed in the tank to catch the solids of the fish waste. Nutrients aren't lost- they are in the water solution that is then fed to the three grow beds that are 100ft by 8ft long. These beds are also protected from the elements by having a shade cloth over the beds. The shade helps the Millers grow their lettuce further into the summer and also helps to keep birds and other pests off the plants. The water is recirculated maintaining proper water quality for both the fish and the plants.

As of early June, the Millers were growing five kinds of lettuce, herbs (basil, parsley, cilantro, dill, marjoram, thyme, and fennel), different kinds of peppers, swiss chard, kale, cucumbers, beans, and tomatoes. They also have a





traditional garden where they are growing zucchini, squash, and spinach. Through all their successful crops, they have learned a few things. "Tomatoes will overgrow the system," say George. "Now we grow them in pots in a traditional growing media and use the hydroponic water to water the tomatoes." Although watercress does well in their system, they've had issues with spinach, arugula, and strawberries.

Lettuce remains their main cash crop. The Millers sell all of their product at the Pensacola Farmers Market held downtown on Saturdays. They've built quite a clientele that come directly to them weekly to get fresh lettuce and other herbs and vegetables. They keep in touch with their clients through Facebook to let everyone know what they'll have at the market. Rachel says she "falls in love with all of my customers. I bring special items for them- I remember what they like and don't like."

Along with the vegetables and herbs, the Millers have an additional draw to their booth: homemade baked goods. Their oldest child, Sarah, is at Pensacola State College and is majoring in Culinary Management. Her parents describe her as self-starter and said she raised goats and milked them herself for six years. Sarah's baked items often include products grown at the Millers' Farm that is in suburban Pensacola. She is generally on-hand to help at the farmer's market, along with the youngest son, Josiah. Josiah enjoys meeting and greeting their customers. The middle son, Jesse, is also at the market, but he works with the vendor across from the Millers' booth helping to sell baked goods.

Improving Agriculture through Extension Involvement

Being new to agriculture, the Millers haven't had a long history with Extension. Extension agents first met them at homeowner vegetable production meetings and have been called in when there were various issues with the crops or the fish. Aquaponics is a unique system, even George says

that no one had really heard of aquaponics 10 years ago. The Millers have probably taught Extension agents almost as much as we have been of assistance to them because we are learning the process along with them.

Impacting Agriculture in Northwest Florida

The Millers have been an integral part of the establishment of the Pensacola Farmers Market. They are and continue to be one of the stable producers that is constantly there selling product. They are dependable vendors- something the market greatly needed to get a foothold in our community. Without a steady supply of produce, buyers would become disinterested in the market. They are also a positive, youthful face for agriculture. People enjoy buying from Rachel and her children because they are so open and accommodating. They also share their story of their products and farm with customers and passers-by, thereby educating a populace very disconnected with agriculture. They are also a real American story because Rachel is a first generation American, the child of Italian immigrants who always grew a garden. She is proof that people can still come to America and make their living off of the land (or through hydroponic systems) and raise a wholesome family. They have encouraged other people to learn to grow food in their own backyard to supplement the family's food supplies and help people reconnect to nature. ■

