

Aquaponics

Aquaponics Survival Communities Magazine
& Trade Publication



SCHOOL GROWN AQUAPONICS

ASC Magazine & Trade Publication

February 2015 Magazine Cover: School Grown Aquaponics

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This Month's Cover Story



SCHOOLGROWN AQUAPONICS

SchoolGrown Brings Resilient Aquaponics To YOUR Neighborhood School

Story by: Sundown Hazen

The first time I taught an aquaponics class, Jon Parr was one of my students, sort of...

I'm Sundown Hazen, father of four wonderful daughters and an aquaponics enthusiast. A few years ago, while approaching a 10-year career at Apple Stores Stanford Shopping Center, Palo Alto CA, I put my thoughts toward starting a charter school where students would have exposure to all the education that is typical, plus a focus on sustainability and hands-on learning.

A business mentor told me that I could gain experience in an unfamiliar realm by finding some peers of common interest and rub some elbows.

So...I started a MeetUp group. Our first gathering was November 8, 2012, at Silicon Valley Debug's office in San Jose, CA.

A dozen faces met that evening for the first time and among them was Jon Parr. Jon shared the aquaponics passion that I did and was a few years ahead of me in aquaponics experience. We've been friends ever since.





Early in 2013, I attended a class about greenhouse construction that Jon was teaching at his house in the Soquel hills in California.

Jon's laptop was connected to a flat screen on the coffee table with Sketch-Up drawings pulled up on the screen. After a pause, Jon looked up at us and stated with his signature mischievous grin, "I've figured out a design that will support an aquaponics program for schools." This idea resonated well with me.

That summer, I watched Jon pull together a team of people and resources to launch his creation of a commercial aquaponic farm in Watsonville, CA. The site was an 8-acre greenhouse that formerly housed a 3rd generation rose grower.

By early summer of 2014, a little less than one year after the greenhouse was purchased from the rose grower,

Jon had over an acre of floating rafts in aquaponics DWC beds, and over 3 acres of repurposed Bato buckets of tomatoes, cucumbers, peppers, and so on. Halfway into the total space, it was perhaps the first success of its kind and scale; a multi-acre commercial aquaponics farm, certified Organic, Food Safety certified, producing as predicted and growing fast.

Jon parted ways there in June 2014 to pursue the *aquaponics in schools* idea full time by forming the non-profit company SchoolGrown.

Jon was looking for help from like-minded, open-hearted, honest and passionate folks. I was happy to join and together we have been busy, to say the least. In August 2014, I quit my day job to join Jon Parr and launch SchoolGrown to the world.



SchoolGrown, a non-profit based in Monterey, CA, is dedicated to promoting sustainable agriculture, savvy water use, and resource conservation through advocacy, education, research, and service. The LEAF (Living Ecosystem Aquaponics Facility) greenhouse lab is one tool we use to accomplish the mission.

The LEAF

Gardens and greenhouses are not uncommon in American schools today. The presence of a school garden helps bring the teachers, students, and even the community together. Indeed, gardening is therapeutic for all ages and is bonding for all who share.

However, gardens in schools are often started with eager participation and zeal, only to fall into disuse when the original champions graduate and move on.

The SchoolGrown LEAF greenhouse is different. The LEAF is intended to be an educational asset, not a penalty on the time of teachers or the students. The LEAF model is designed, funded, built, and managed by SchoolGrown, so as to keep the schools budget of time and money available for other things.

Demonstrations of aquaponics are also becoming more common in schools. I recently heard that there are over 1,000 aquaponics systems in schools. This is wonderful news. These aquaponic systems are usually small enough to fit on a tabletop, but can also be big enough to warrant a greenhouse. Often they are designed and built by students. Other times, they may be built by someone wanting to help from the community or even purchased off the shelf.

The LEAF, however, is much more than just a demonstration. It is a 30' x 60' high performance aquaponic farm. Each LEAF can yield over 1,200 lbs of produce every week and thousands of pounds of fish per year.

The produce is offered on a donation basis to the students, student families, and the community. These donations support SchoolGrown efforts, including operations, maintenance, curriculum, and expansion. Therefore the LEAF can eventually be offered to schools across the world, ***paid for by the merits of the produce grown.***

Enhanced Education and Community Building

Each LEAF provides an educational experience for students by bringing classroom concepts to life. At the heart of the LEAF lab is an aquaponic growing system that combines aquaculture (raising fish) and hydroponics (soilless plant growth).



Preschool student planting carrots with the vacuum seeder

SchoolGrown works with universities to establish accredited internships for LEAF supervisors, mediating between students and staff, with paid internships for summer LEAF management. LEAF units can produce 85 boxes of vegetables per week that are offered to student families and the community.

As students participate in growing and harvesting produce, they learn science, biology, ecology, nutrition, agriculture and a work ethic. The experience they gain prepares them for the rapidly growing aquaponics industry, controlled environment agriculture, and other sustainable living careers.

Equally important is learning good work ethics that will translate to any profession each student pursues.

The construction of the LEAF greenhouse is also a community event where parents are invited to participate and learn about sustainable practices.

Spreading knowledge in the community

Public aquaponics workshops are conducted on a monthly basis at the Half Moon Bay hub and, periodically, in ever expanding locations. Courses cover how aquaponics systems work, how to care for the fish, plants, microbiology, and how to build an aquaponics system using sound construction methods and re-purposed materials.

Other sustainable living workshops are held covering alternative energy, ethanol distillation, greenhouse design, composting, vermiculture, probiotics, and homesteading livestock.



For 2015, SchoolGrown has started a guest speaker series, which includes: tomato breeder Fred Hempel of Baia Nicchia Farm & Nursery and educator Ben Eichorn, owner of Grow Your Lunch. The schedule of events and ticket purchases can be found at: schoolgrown.com/calendar.

Connecting Sustainability Educators To Aquaponics

February 17th, 2015, SchoolGrown is launching quarterly conference calls for teachers and curriculum writers to share their work and collaborate on connecting aquaponics to their existing lesson plans.

SchoolGrown has connected with multiple organizations to support and contribute to the effort. **These organizations include:** The RootStock Foundation, Strategic Energy Innovations, Grow Your Lunch, EVOfarm, and Mustard Seed, as well as many talented and passionate educators from pre-school teachers to college professors and post-doc students.

You can get the conference call information and other resources for the classroom at: <http://www.schoolgrown.com/classroom-resources>

Funding the LEAF

For all good intentions, public or private, commercial or non-profit, there is still the need for money. The LEAF concept was founded on the intent for the value of the produce to support the program. However, like all start-ups, there is some amount of capital needed to start the flywheel turning.

SchoolGrown is actively seeking resources in all forms, from materials and vendors to personnel, to donations, grants, and loans. If you like what we are doing and would like to help, please contact us.

Layers of the funding package include: business and organization sponsorships, grants, existing allocations and eligible rebates, in-kind donations for materials, crowdfunding, and CSA subscriptions

(CSA: community-supported agriculture, a way for consumers to support their local farm by buying a subscription for a weekly box of produce).

The crowdfunding campaign and the “rewards” offered there are designed to engage the community in the project, learn about aquaponics, and participate in the CSA program.

Barnraiser Campaign

In March 2015, SchoolGrown is launching Barnraiser crowdfunding campaigns for communities interested in having a LEAF. Teams are forming to be part of the first round of campaigns.

We chose Barnraiser as our crowd funding platform because of their dedication to local food systems and their ability to craft a unique crowdfunding campaign tool. SchoolGrown is working with Barnraiser to be part of their new way of connecting the developments, progress, and combined impact of SchoolGrown as an organization of projects, as well as providing each community a space to connect their local community to the overall mission.

Communities interested in adding a LEAF can start preparing for the crowdfunding campaign now. When the time is right, the campaign will be added to the SchoolGrown Barnraiser.

This can happen after the initial launch so we focus on creating a quality campaign that represents the needs and goals of the community for which the LEAF unit is designed. You can start putting the team together in your community.

SchoolGrown suggests certain type of skills and qualities needed for a successful campaign:

Team leader - experience with fundraising, knows people of influence around the community, can connect the team to SchoolGrown’s mission.

Social butterfly - this person is respected and connected to many people on multiple social networks.

Business liaison - this person is respected and connected to local business people

Teacher sponsor - at least one teacher from the school that believes a LEAF will benefit their school.

Student film crew - a group of students than can film, edit, and produce a compelling video for the crowdfunding campaign.

Additional Aides and Support

PTA representative - PTAs are filled with engaged and passionate parents and may have connections for additional resources to get the LEAF off the ground.

Administration representative - School administration must be onboard to provide a green light for the LEAF.

Facilities representative - The last thing we want to do is burden the facilities crew or damage existing infrastructure so we work with facilities for panning and assurance on how the facility will be maintained by SchoolGrown.

School District - As early in the process as possible, we want to keep the School District informed and invite their participation in the project.

Adult Ed program - Local community college, job training, ROP program to partner for the internship program at the greenhouse.

Local food bank and soup kitchen organizations - In many communities, the produce provided by the greenhouse can contribute to existing food services for families in need.



From left to right. Fish tank, sump tank, lava filter wicking bed, dead-end wicking bed, four-DWC raft troughs, and seedling table.

ROP leader - many schools have a Regional Occupational Program, or similar, where construction students are looking for projects

After-school or elective class garden program a bonus!

Progress Report

Multiple LEAF sites have started to develop. We hope the list of participating schools will grow, perhaps explode. There is a page on our website that chronicles the progress: schoolgrown.com/leaf-growth.

Full-scale demonstration LEAF at SchoolGrown's community greenhouse in Half Moon Bay.

San Lorenzo Valley High School, Felton, CA is set to be the first school to place a LEAF greenhouse on campus. At SLVHS, SchoolGrown is partnering with the existing ROP program at San Lorenzo Valley H.S. to extend their existing aquaculture program.

Groundbreaking for the SLVHS LEAF is tentatively set for the end of February 2015.

Cupertino Rotary is facilitating a community LEAF at Cupertino's educational agriculture properties of Stockmeir Farm or McClellan Ranch. This collaboration also includes teachers from Cupertino Middle School, Homestead High School, and local 4H.

Sacramento State University is considering adding a LEAF and possible other collaborations at their upcoming 5-acre STORC (Sustainable Technology Outdoor Research Center) property.

Woodland High School is working with SchoolGrown to upgrade and update their existing 30-year agriculture greenhouses to incorporate SchoolGrown designed aquaponics system and support.



Troops of seedlings, awaiting transplant

Full Circle Farm, a project of Sustainable Community Gardens, is in early discussions about the possibility of adding aquaponics to their existing 11-acre educational farm at Peterson Middle School, Sunnyvale, CA.

YouthBuild working with The RootStock Foundation and YouthBuild charter schools, site planning and funding has begun for their LEAF at the Lennox, CA site.

For information about SchoolGrown, support the organization and get involved.

Visit our website here: schoolgrown.com

Join Our Facebook Page

Or email us: info@schoolgrown.com



Sundown Hazen, Secretary,
Communications



Tank window with sturgeon and catfish swimming, and strawberries hanging over the edge
Below: Jon Parr, President, CAO (Chief Aquaponics Officer)

