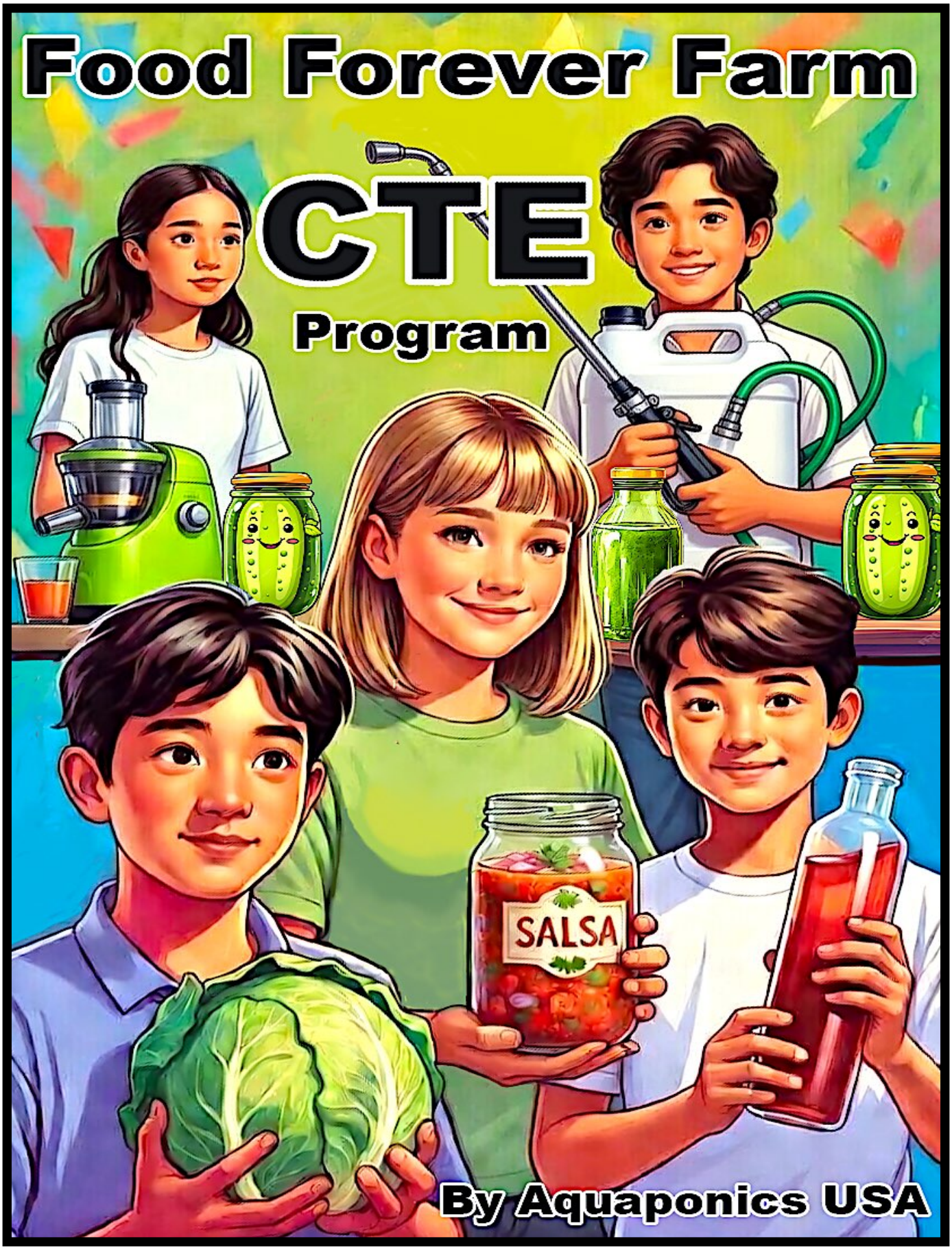


Click the image for an Amazing Video

FOOD FOREVER FARM™ CTE PROGRAM

There are several Activities involved in the Food Forever Farm™ CTE Program that include:

1. Operating & Maintaining the **Food Forever Farm™**, which means continuous Planting & Harvesting the Veggies & maintaining Grow Beds, Fish Tanks & the Greenhouse.
2. Dealing with the Harvested Vegetables and Fish, which means delivering some to the School Cafeteria, but also creating your own **Food Forever Farm™** Store.
3. Branding & Packaging the fresh Veggies that the Store sells.
4. Processing the Veggies that are going to become Products like Juices, Salsas, Pesto and Chips.
5. Pricing and Inventorying the Products in the Store.
6. Tracking Sales compared to Expenses for P&L Figures.
7. Learning about the differences between USDA Organic Food, Food grown with Pesticides, GMO Food, Hydroponically grown Food and Food grown in a **Food Forever Farm™**, which starts on Page 24.

The **Number 1 Activity** your CTE Students will be participating in is learning to Operate and Maintain their Food Forever Farm™, with Detailed Instructions in the Training Protocols that will be taught with Training Documents to your Teachers, Staff and Cafeteria personnel by AUSA once the Food Forever Farm™ is fully operational.

Click to see a short Video

The **Number 2 Activity** your CTE Students will be participating in is learning how to Harvest the Vegetables, giving them a first rinse in the Greenhouse stainless steel sink, delivering them to the School Cafeteria and harvesting the Fish.

Click the image to see a short Video

The **Number 3 Activity** your CTE Students will be participating in is Packaging and Labeling the Veggies they want to sell in their Food Forever Farm™ Store.

The **Number 4 Activity** your CTE Students will be participating in is Processing the Veggies that are going to become Products in their Food Forever Farm™ Store.

Click to see a short Video

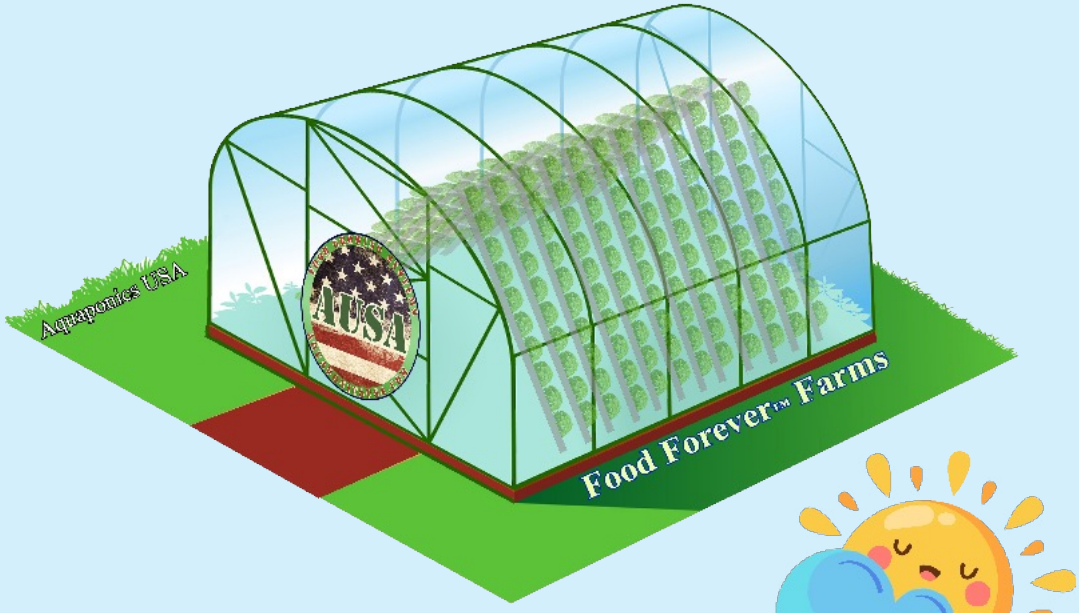
The **Number 5 Activity** your CTE Students will be participating in is Pricing and Tracking the Food Forever Store™ Inventory, keeping the Store's Cooler full with the fresh Tomato & Kale Juices, packaged Lettuce, Leafy Greens, Celery and jars of Pickles, Salsa and Pesto.

The **Number 6 Activity** your CTE Students will be participating in is Tracking their Food Forever Farm™ Sales and comparing them to the Expenses and creating Profit & Loss Reports.

Click to see a short Video

This CTE Program is designed to not only teach Students how to operate their Food Forever Farm™, but it also teaches some of the important aspects of running a Business like Branding, Marketing and Operations.

Let's start with Branding. Aquaponics USA has developed a well thought out Branding Plan for their Food Forever Farms™ that they share with your CTE Students. The idea behind this Plan is that School Food Forever Farm™ Products could actually become a recognizable Brand within the local community based on School Staff, and Students' Families getting Products from the Farm Store. The following are two of the Main Images that define Food Forever Farms™, which often appear with the happy sun face. These two images define the Farms and emphasize Lettuce Walls.



The School Cafeteria Staff will be having fun figuring out what to do with all of the Food your Food Forever Farm™ is producing, and it's inevitable that the word will get out about how different everything tastes like how sweet the Tomatoes and Celery are, how crisp and fresh and super GREEN the Lettuce is and how crunchy and tender the Chard and Kale are.

When that happens, your CTE Program Administrators will understand why a Food Forever Farm™ Store could be a big success, and they will want to start an Educational Agri-Business by Teaming up with the Culinary Arts Teachers to sell Packaged Products in that Store just like AUSA has described.

Then Staff, Students and their Families can buy Farm Products and make wonderful, healthy meals at home while your CTE Students learn about Business.

A School Currency could be created called **Farm Funds™** that Students could earn by helping in the Farm or this Currency could be given for Academic Achievement, Good Behavior or any number of other reasons so no actual money would be exchanged in the Store while still allowing for all of the Educational Agri-Business and Lessons about Currency to happen.

Lessons about Economics and the history of Money could be created using Farm Funds™ as the symbolic Currency. Agriculture was one of the primary drivers that made money necessary and possible. The following are four key evolutionary developments of the relationship between Agriculture and Currency that would make a great CTE Lesson.

1. Agriculture Created the Surplus That Made Money Useful

Before farming, hunter-gatherer societies lived in small groups with little surplus. Once humans domesticated plants and animals (the Neolithic Revolution, ~10,000–8,000 BCE), they could produce far more food than they needed to survive.

- This **food surplus** allowed people to specialize (some farmed, others became potters, tool-makers, priests, or traders).
- Specialization created the need for **exchange** — but direct barter (a cow for pottery) was inefficient because of the "double coincidence of wants" problem where each party must have what the other party wants to be able to barter..
- Surplus grain, livestock, and other storable agricultural goods became the earliest forms of proton-money (a unit of account, store of value, and medium of exchange).

2. Early Agricultural Goods Literally Became Money

Many of the world's first standardized "money" systems were based directly on agricultural products:

- **Mesopotamia (Sumer/Babylon, ~3000–2000 BCE)**: Barley and wheat were used as money. Temples and palaces kept detailed clay-tablet records measuring debts and taxes in fixed volumes of grain (e.g., "60 shekels of barley"). This is one of the earliest known accounting systems.
- **Ancient Egypt**: Grain (emmer wheat and barley) was the primary unit of value; workers were paid in grain rations.
- **Ancient China**: Rice, cowrie shells (sometimes traded alongside grain), and later bronze tools shaped like farm implements served as early currency.
- **Cattle as money**: In many Indo-European cultures (including early Rome), livestock was the standard. The Latin word *pecunia* (money) comes from *pecus* (cattle). In parts of Africa and India, cattle remained a form of wealth & bride-price into modern times.

These agricultural commodities worked well as early money because they were:

a. Durable (grain could be stored)
b. Portable (relatively)
c. Universally desired (everyone needed food)

3. Agriculture Drove the Invention of Coins and Banking

- As agriculture scaled up and cities grew, rulers needed better ways to collect taxes and pay armies. This pushed the shift from commodity money (grain/livestock) to metal coins (first in Lydia, 600 BCE, then Greece and Rome).
- Early coins often featured agricultural symbols: ears of wheat on Greek coins, cattle on some Roman coins, or farming tools.
- Land ownership and agricultural output became the foundation of wealth, taxation, and credit systems. Feudal systems in Europe were essentially organized around agricultural land and its produce.

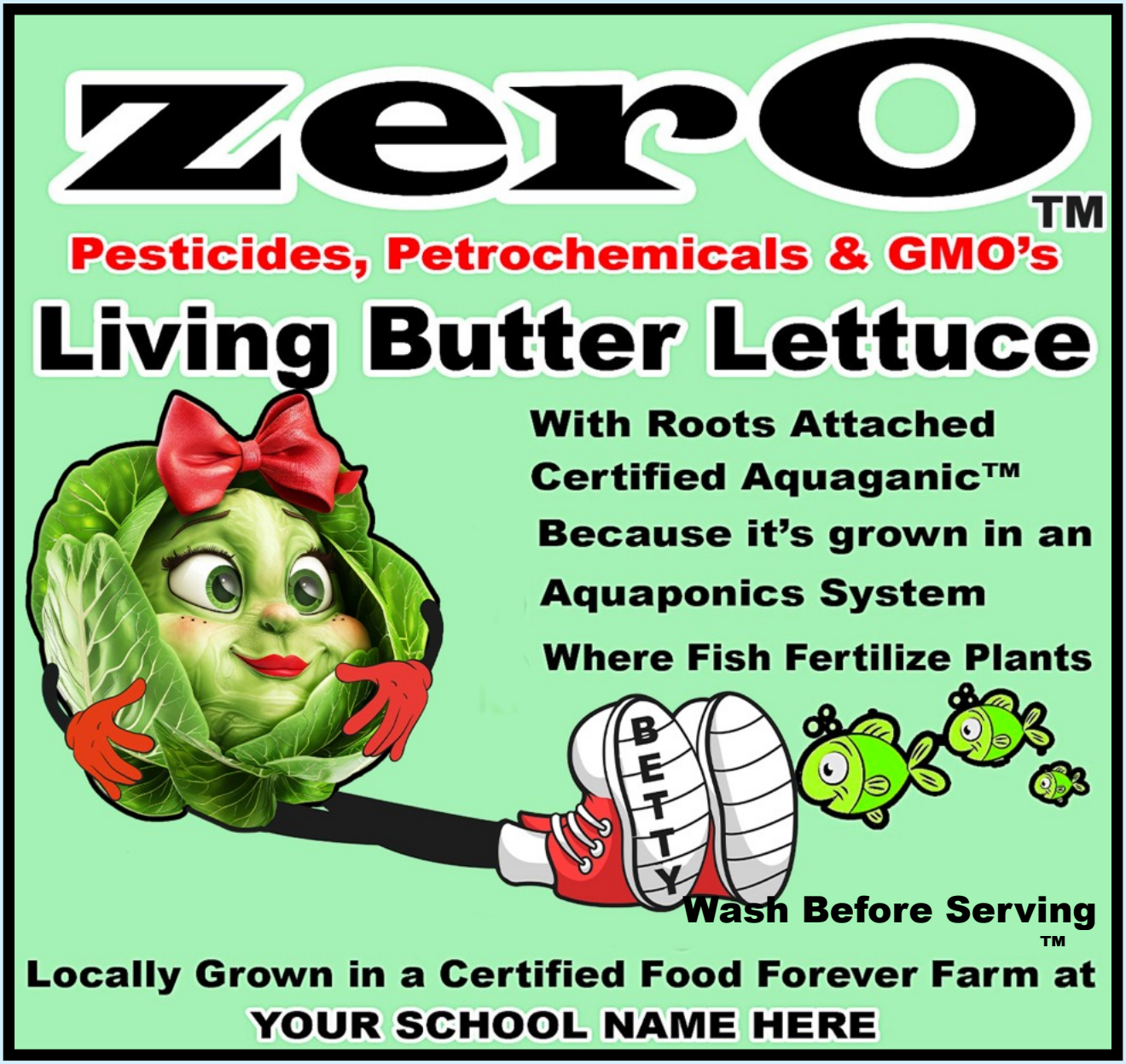
4. Later Agricultural Revolutions Shaped Modern Money

- The Agricultural Revolution in Britain (1700s) and the later Green Revolution (mid-20th century) dramatically increased food production. This freed up labor for industry and trade, accelerating the growth of banking, paper money, and fiat currencies.
- Today, agricultural commodities (wheat, corn, soybeans, rice, livestock) are still major drivers of global financial markets through futures exchanges (Chicago Board of Trade, etc.). Weather, harvests, and crop failures can directly affect inflation, currency values, and interest rates.

Given how intertwined Agriculture has been with Money, this History Lesson should be mandatory in all Agriculture Classes. Without the ability to grow reliable surpluses of food, complex economies and sophisticated monetary systems could not have developed. Money, in turn, allowed agriculture to scale even further by enabling long-distance trade, credit for seeds/tools, and investment in irrigation, machinery, and research. In short, Money, as we know it today, exists largely because agriculture created the economic conditions that required it.

Now, let's talk about running your Food Forever Farm™ as a Business with Lessons that can be taught in your CTE Program. With that in mind, Aquaponics USA is writing a **Cook/Recipe Book and has Branding & Packaging** ready to share with every School that has a Food Forever Farm™. On the next few Pages are some of the things that are part of their **Food Forever Farm™ CTE Program** for Schools. Notice your School Name would be at the bottom of the Labels. However, your Students could design their own Labels & Packaging as well.

BRANDING:



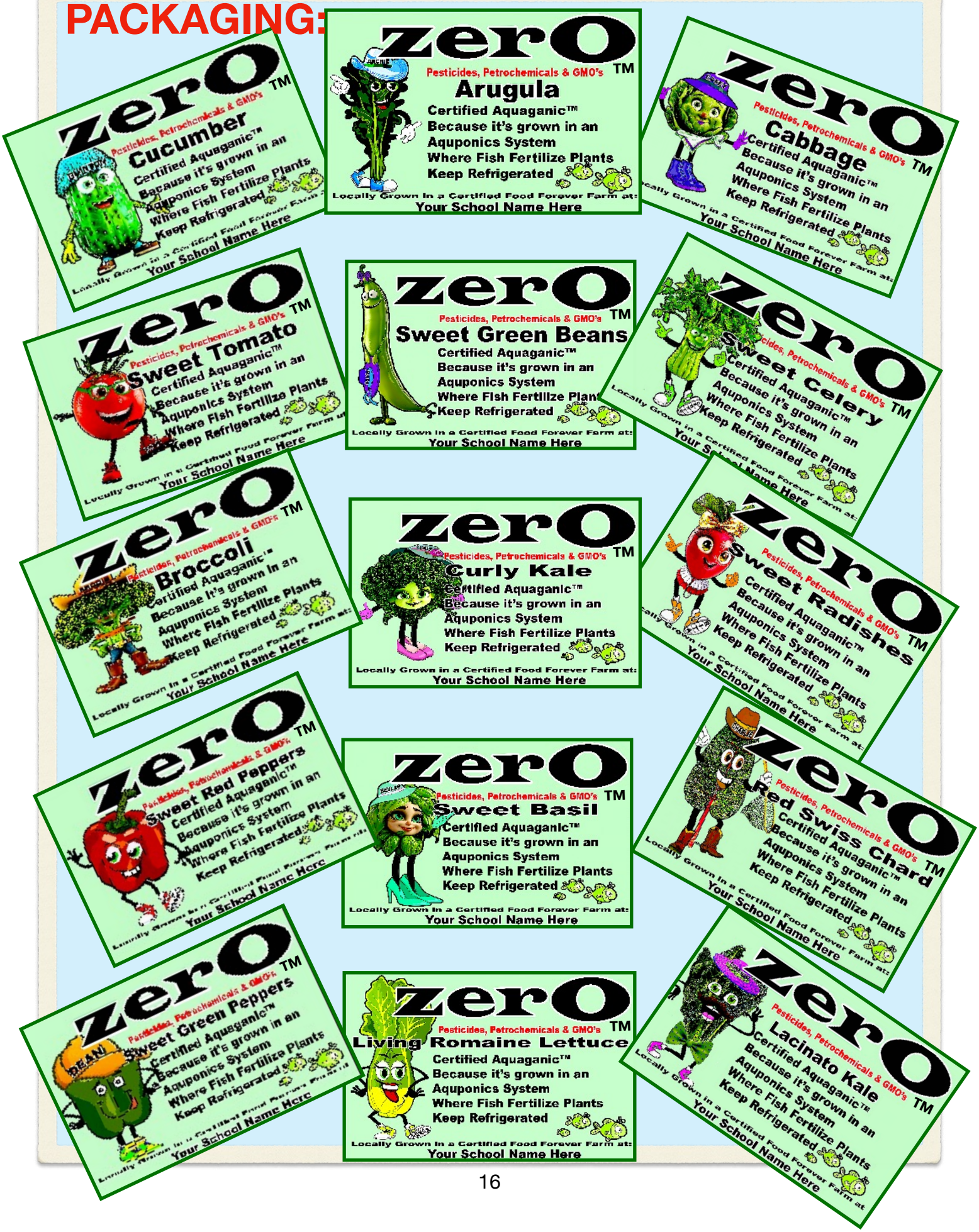
zerO™ is the Brand Name, and the way it is written is unique. You can get USPTO (United States Patent and Trademark Office) Registered with a Name or with a Name created in a certain style. This Label is recreated for all of the Food Forever Farm™ Vegetables and Products. So it is considered the Farm's **Standard Label.** The Title & Cartoon Veggie Images change according to which Vegetable is in the Bag, the Bottle or the Jar. The Aquaponics information is the same for all Vegetables.

The Cartoon Vegetables on the Labels are all in **Part 4** of the Curriculum that comes with the Food Forever Farm™**. Part 4** shows their Taxonomy Charts, their Country of Origin and shares a lot of Nutritional information about the Vegetables. Aquaponics USA also has a **Red Bubble Store** with fun Products decorated with these Vegetable Characters. Your Students learn about them in the Curriculum, use them in packaging their Products and can wear them making for a coordinated presentation in three domains.

Before you see the other Vegetable Characters, let's talk about what is called "Common-Law" in the Trademark world. All businesses have the right by "Common-Law" to put the Trademark Designator, t**he TM**, on their Product Names without having to jump through a lot of USPTO Hoops and spend thousands of dollars. But in order to get ultimate, un-refutable ownership of your Common-Law Trademarks, you need to Register them at the USPTO, which can be very costly. Once that process is complete, you can put the ®, which stands for Registered, on your Product Names.

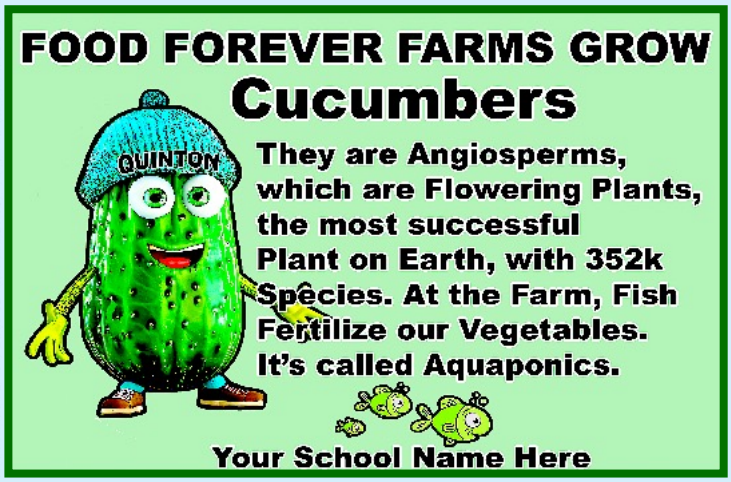
Going through the Process of Registering a Product could be a worthwhile Teaching Unit for your CTE Program, but it would not be free, and would only be worthwhile if your School actually wanted to have a Registered Product. Notice Aquaponics USA does not have ® s on their Products at this time. But because they have a lot of proprietary Agri-Tech and Product Names, they have a lot of Products with the **TM** designator. On Page 13, are 15 Sample Labels, and now we have moved to Packaging.

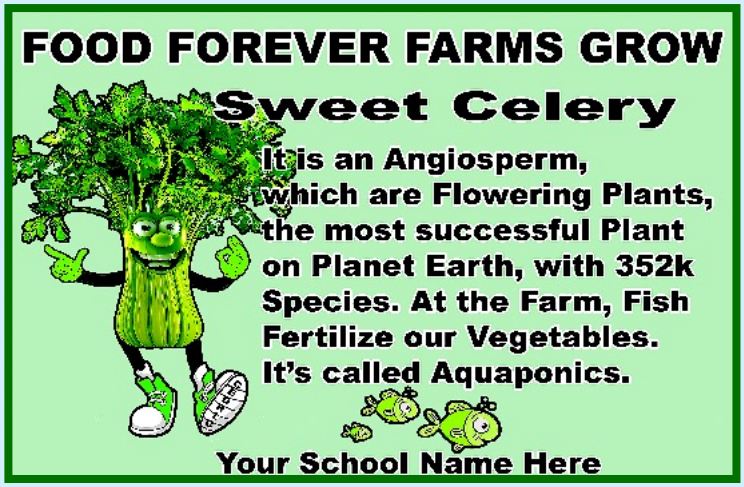
PACKAGING:


zerO
Pesticides, Petrochemicals & GMO's
Cucumber
Arugula
Cabbage
Sweet Tomato
Sweet Green Beans
Sweet Celery
Broccoli
Curly Kale
Sweet Radishes
Sweet Red Peppers
Sweet Basil
Red Swiss Chard
Sweet Green Peppers
Living Romaine Lettuce
Lacinato Kale
Certified Aquaganic™
Because it's grown in an
Aquponics System
Where Fish Fertilize Plants
Keep Refrigerated
Locally Grown in a Certified Food Forever Farm at:
Your School Name Here

What you see on Pages 13 are **miniaturized Package Labels** for the Food Forever Farm™ Vegetables. But the packaging is also available as Identity Cards. The Cards are sized like the ones you see below except with verbiage that identifies the individual Vegetable and says something about it.

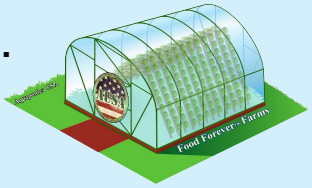
SAMPLE EDUCATIONAL/PROMOTIONAL MATERIALS:





Here are 3 Examples of the Packaging that has been turned into either Flash Cards for your Elementary Students to practice identifying Vegetables, or they can just be used like a Business Card for Middle and High School Students to pass out to Friends & Relatives sharing what incredible Food Growing Agri-Tech is happening at their School.

For High School Students participating in the **Agri-Business CTE Program**, the Cards could be used to drum up Business for the Food Forever Farm Store, or to Invite Visitors to come for a Tour and/or to Donate to the Program.



Below is a photo of two packaged heads of Butter Lettuce. The bag is a standard 2 Lb. Zip Lock, which is quite large. It needs to be that big because Food Forever Farms™ grow BIG HEADS OF LETTUCE.

The Blue Sticker says **Aquaganic**™ which is an Aquaponics USA Trademark that is described like this: **"Beyond Organic, Certified Pure Aquaganic"**. More about the **Aquaganic Trademark** on Page 22. Food Forever Farms™ are able to produce a Lettuce Wall every 8-9 Weeks from Seed.

Because the Roots Are Attached, this Lettuce stays fresh longer in the refrigerator. One of the Accessories included in a Food Forever Farm™ is a dedicated refrigerator to hold recently harvested Lettuce and other Vegetables until they go to the Cafeteria or the CTE Food Forever Farm Store.

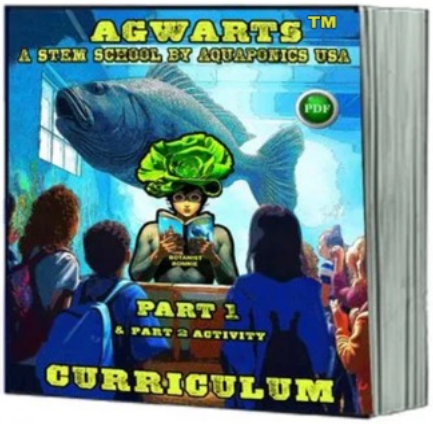
Reminder: The Food Forever Farm™ Curriculum and the CTE Program are coordinated with one another. **Part 4** of the Curriculum focuses on **the 20 most popular and easiest to grow Vegetables in a Food Forever Farm**. The Cartoon Characters on the Packaging are the same Characters that are in **Part 4** of the Curriculum.

The Betty Butter Lettuce Character on Page 15 was upgraded to a 3D Image, seen on Page 11, after the original 2D Betty was created.

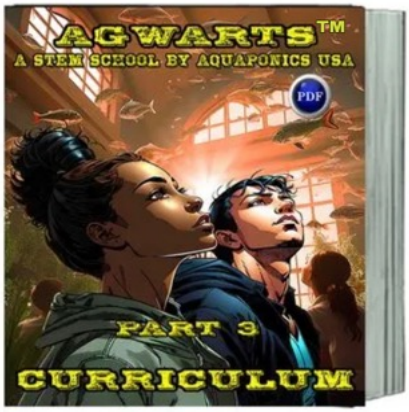
Notice the Label on the Butter Lettuce says: **“Living Butter Lettuce with Roots Attached”**. Food Forever Farms™ can grow and sell their Lettuce with the Roots attached because **the Lettuce Wall™ makes that possible**. When the Lettuce Seedlings are placed into the Lettuce Wall™, they are already in bottomless Net Pots. So when they are harvested, they can easily be removed from the Net Pots with the Roots attached.

Below is a photo of four Food Forever Farm™ Vegetables, packaged and in a Cooler at a Local Specialty Market. There is Curly Kale, Lacinato Kale, Red Swiss Chard & Basil. Like Betty, three of the four Cartoon Characters have been 3D upgraded since this photo was taken. Now we’re segueing to the 688 Pages of Science Curriculum that comes with a Food Forever Farm™.

AUSA's AGWARTS™ Curriculum



Parts 1&2 with 219 Pages



Part 3 with 210 Pages

Part 4 with 259 pages

AUSA Has Curriculum For All Grades

1. The Curriculum is totally unique starting with its Name, which, of course, is a take off from the popular story by J.K. Rowling about a magical world called Hogwarts.

AGWARTS is also a magical world in which Agri-Science is the Magic. In fact there's an original Song in Part 1 of the Curriculum called "The Magic Of Science", which your Students can learn to Sing together along with two other Songs about Aquaponics.

2. The Curriculum is a Compilation of Open Source Science Curriculum available to Teachers. It is woven into a uniquely written storyline about AGWARTS—the Principal, the Teachers, the Students, the Teacher Liaisons and their Mascots— that mimics Graphic Novels and is full of these wonderfully weird Cartoon Characters who populate it.

3. Part 2 of the Curriculum is an Optional Activity that allows your Students to choose to become one of these many Characters within an Aquaponics Teaching "PUPPET THEATER KIT" that includes the Paper Puppets and the Stand alone Theater.

(See "Curriculum Tour" Doc)

This Activity, by its very nature, puts Elementary & Middle School Students into gleeful excitement. High School Teachers will explain how their Students can produce, write and practice their "Aquaponics Teaching Puppet Shows" and then take them on the Road to teach Elementary & Middle School Students about Aquaponics or create Social Media Videos to share.

Part 4 of the Curriculum is where all of the wonderfully weird Vegetable Characters are introduced by **Botanist Bonnie**, one of the **AGWARTS** Teachers who is famous for her Butter Lettuce Bonnet. Curriculum Narrators are introduced with their Names and Images. There are 3 Student Liaison Co-Teachers, each assigned to a different Grade Level. Botanist Bonnie is a Senior Staff Member who dominates **Part 4** and loves Taxonomy, the Scientific Method for classifying Plants and Animals, so there are a lot of Taxonomy Charts to study.

BOTONANIST BONNIE: This is an example of how the Curriculum is structured. There is always a Narrator introducing different parts of the Curriculum. Bonnie passes the Narrator position to the Student Liaisons when it is time to go to Lessons, Videos, Labs and Definition Boxes.

Part 4 is also where the fun talking Animated Characters show up. Besides Vegetables, the **AGWARTS**™ Curriculum has Students, Teachers and Animal Mascots that are often in trouble. One of the Best Animated Characters is Angie, the Angiosperm. Angiosperms are Flowering Plants, and all 20 of the easiest and most popular Plants to grow in an Aquaponics System are Angiosperms. Angie tells their fascinating evolutionary story.

[(See "Curriculum Tour" Doc)]

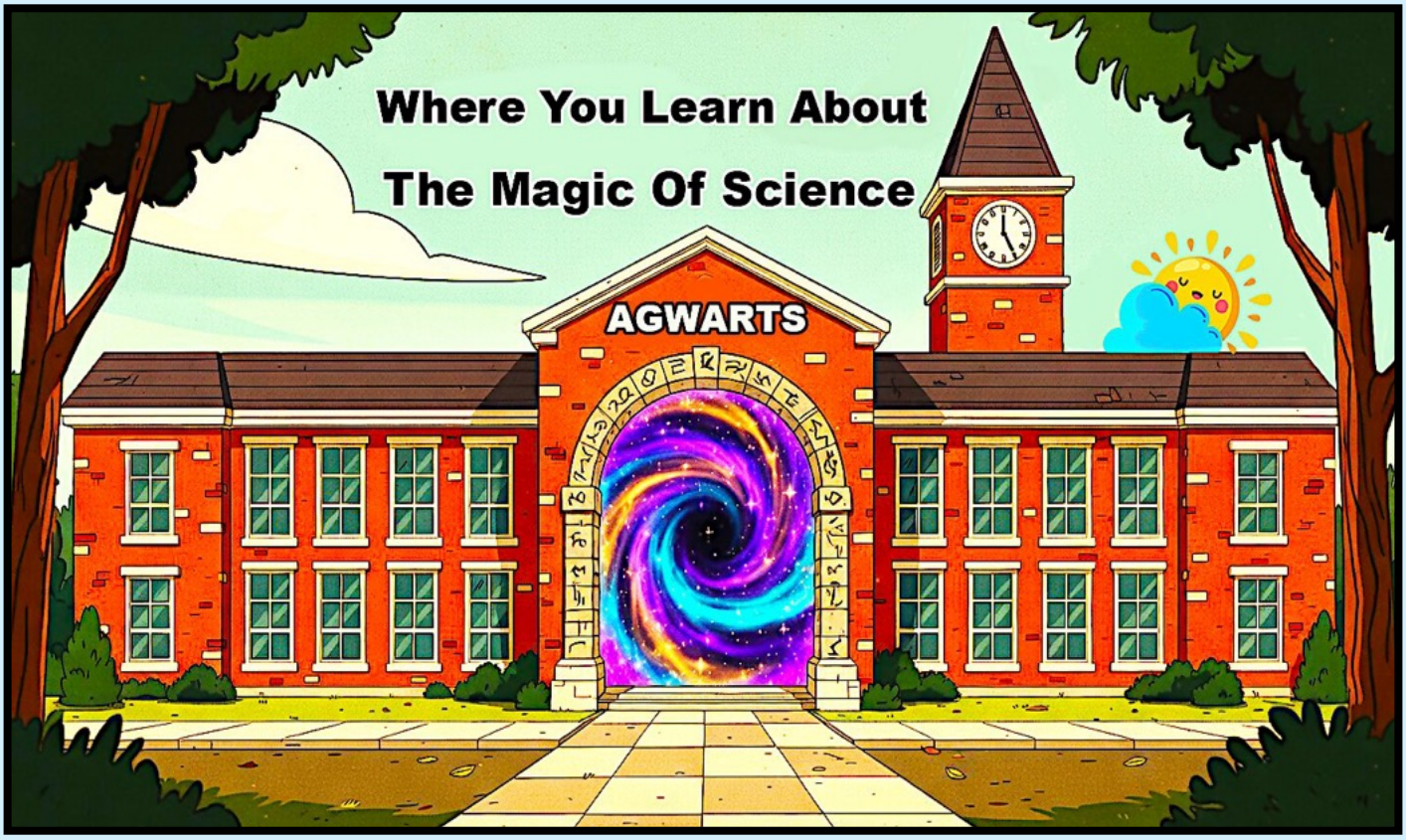
On the left, are six of the over 40 Characters that appear in the Curriculum.

One unique Character is "Handy-Helper", which is animated by your Students' hands in a White Plastic Glove with Eyes. "Handy-Helper" helps the Paper Puppets hold things during a Performance.

The Theater is 31 x 67 inches with a main performance window in the Center and an extra window at the top to add variety to the show.

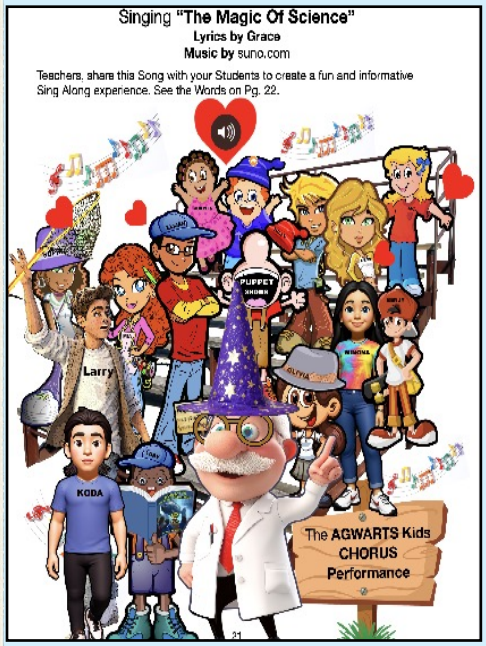
At the top of the Theater is Rita Radish, who is one of 20 Cartoon Vegetable Characters. In the center is the Professor who is the Principal of **AGWARTS™**, and on his left is "Tommy Tilapia" with the "Can Of Worms" on his right, which represents Photosynthesis Billy is at the bottom announcing PUPPET Shows.

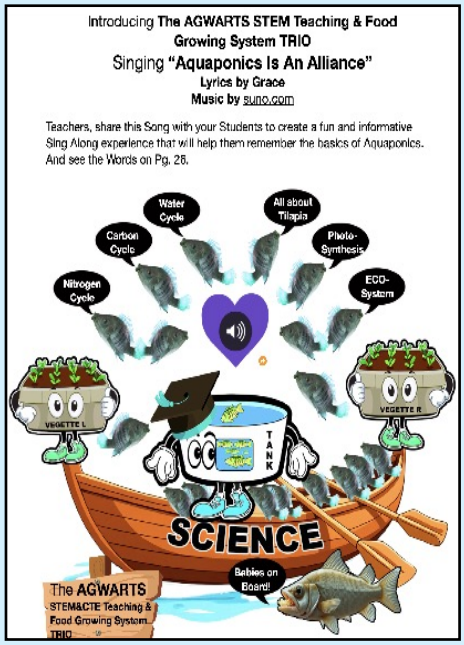
Puppet Theaters Are So Much Fun!

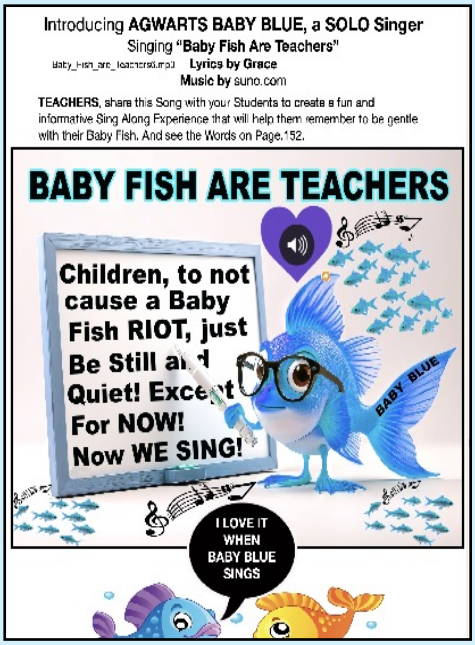


Click to see a short Video

In fact, **Part 1** of the Curriculum has **3 Original Songs** in it, and the first one is called **"The Magic Of Science".**The Songs have been designed to accompany the **PUPPET THEATER KIT** for Sing-Along fun.







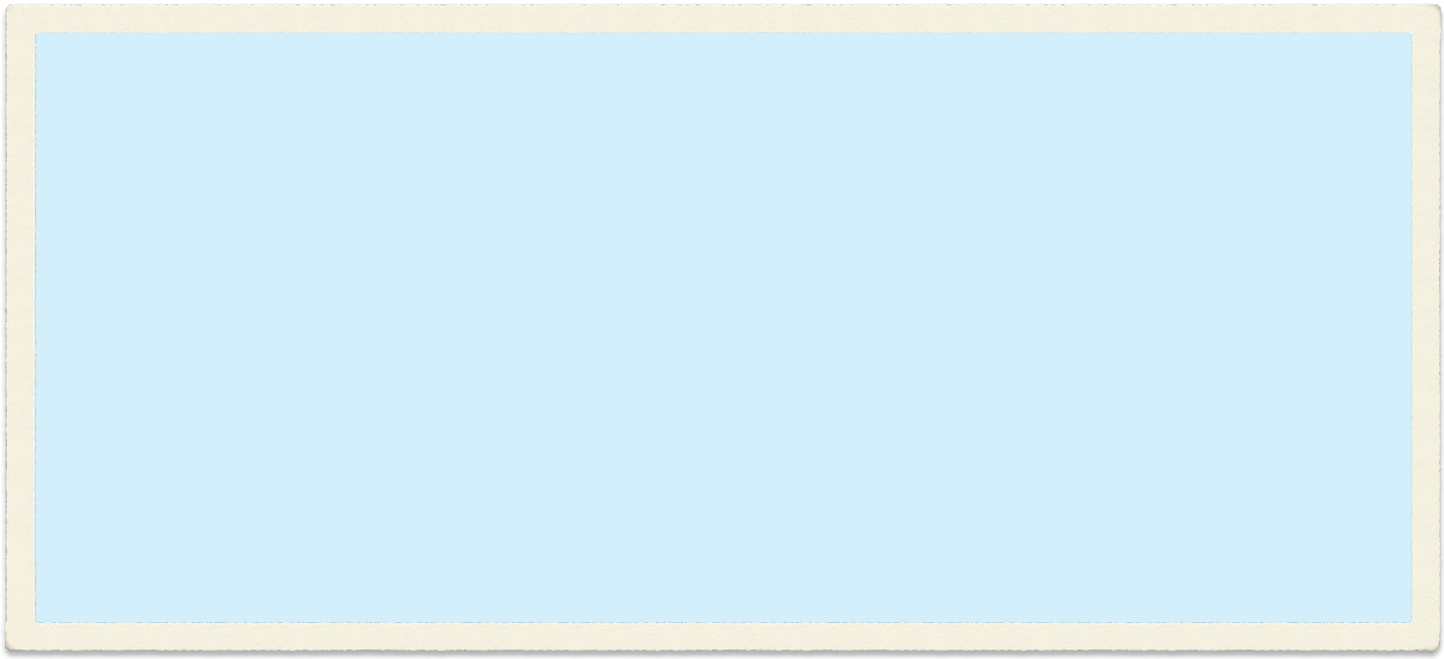
"The Magic Of Science" **"Aquaponics Is An Alliance"** **"Baby Fish Are Teachers"**

Now back to the **Food Forever Farm™ CTE Program**. One of the most popular ways to share Recipes is with Videos. Aquaponics USA has made several Recipe Videos on their **TikTok and YouTube Channels that together have almost 40,000 Followers.**
The biggest boon to their Follower numbers happened when they shared their “How To Harvest a Lettuce Wall™” on their one week old TikTok Channel, and **it went Viral**. Here is that Video below. Next to that Video is a similar Video showing that even Grace & Oliver’s 6-year-old Grandson can harvest a Lettuce Wall™, which shows how Food Forever Farms™ can work well in Elementary Schools too.

Harvesting a Lettuce Wall™

And now for the **Recipe Videos** that are part of the **Food Forever Farm™ CTE Program**. Your Culinary Arts Teachers will want to make their own Videos about the tasty and fun things they will make with their Food Forever Farm™ Vegetables. The following are a few more Food Videos from AUSA to serve as examples.

Salas Recipe



Now, you have arrived at the **Number 7 Activity that your CTE Students** will be participating in, which was introduced on Page 1. It is learning the difference between USDA Certified Organic food, food grown using Pesticides, GMO food, Hydroponically grown food and food grown in a **Food Forever Farm™**.

On Page 15, an AUSA Trademark, **Aquaganic™** was introduced but not explained. Below is the AUSA **Aquaganic™ Logo**, which is another example of Branding. You may have noticed that all of the AUSA Components and key Concepts not only have Names, they have memorable Logo Images, too, like the one below. In this case, the Logo Image gives information about the Concept. You know the Fish are an important part of the Concept as one is swimming in the middle of the big **U** in **Aquaganic™**. So what constitutes **Aquaganic™** food? It is **Food that has been grown in an Aquaponics System**, and from our perspective that **Food is special for 3 reasons**: It tastes delicious, it stays fresh longer after it is harvested, and it feels so good going down.

We call it the **X FACTOR**. What is the **X FACTOR?**

AUSA believes the **X FACTOR** is that the Fertilizer which nourishes the Vegetables in an Aquaponics System is **ALIVE**! It isn't coming from commercially available fertilizers and there isn't even a hint of Pesticides or Petrochemicals in it. So what exactly are Petrochemicals? Petrochemicals are chemical compounds derived from petroleum or natural gas through refining processes. They are primarily hydrocarbons, such as ethylene, propylene, benzene, toluene, and xylene, used as building blocks for products like

plastics, fertilizers, solvents, synthetic fibers and various industrial chemicals. Although the final products used as fertilizers in Hydroponics, the other soil-less food growing technology that pre-dates Aquaponics but does not use Fish effluent to fertilize crops, the use of Petrochemicals can be present in the production and sourcing of the Hydroponic fertilizers. Bottom line, Aquaponics is the purest form of Petrochemical-Free fertilization of Plants and is based solely on the Fish effluent.

Now it's important to remember the motto, "What Goes In Must Come Out", in relation to this conversation. Since the Fish effluent is so important, it stands to reason that what the Fish EAT has to be as pure as possible, and we've come full circle back to AUSA's Trade-marked Concept they call **Aquaganic™.**

What requirements must a Food Forever Farm™ need to meet to grow Aquaganic™ food? Take another look at our **Aquaganic™** Logo on Page 24. It says that **Aquaganic™** food is "Beyond Organic". So at the very least, to grow **Aquaganic™** food means to meet the minimum Organic Food Requirements, which are the following:

- No human sewage sludge fertilizer used in the cultivation of plants or feed of animals
- No genetically modified organisms, or irradiation
- No fertilizer, pesticides, antibiotics, food additives, etc.
- Keeping detailed written production and sales records (audit trail)
- Maintaining strict physical separation of organic products from non-certified products
- Undergoing periodic on-site inspections
- Maintaining strict food handling and packaging standards

Because Fish are the drivers of an Aquaponics System, Aquaponics Farmers can't help but be purists when it comes to synthetic chemical inputs like fertilizers and pesticides, which would kill the Fish that act like canaries in a coal mine.

So for **Aquaganic™** Certification, there is no "National List" of approved items like the USDA Organic Certification has. To learn more about this complicated subject, go to our website's Aquaganic™ Page The Fish cannot handle even a drop of those toxic ingredients. They can't even handle metal in their systems (except for stainless steel) because of metal toxicity.

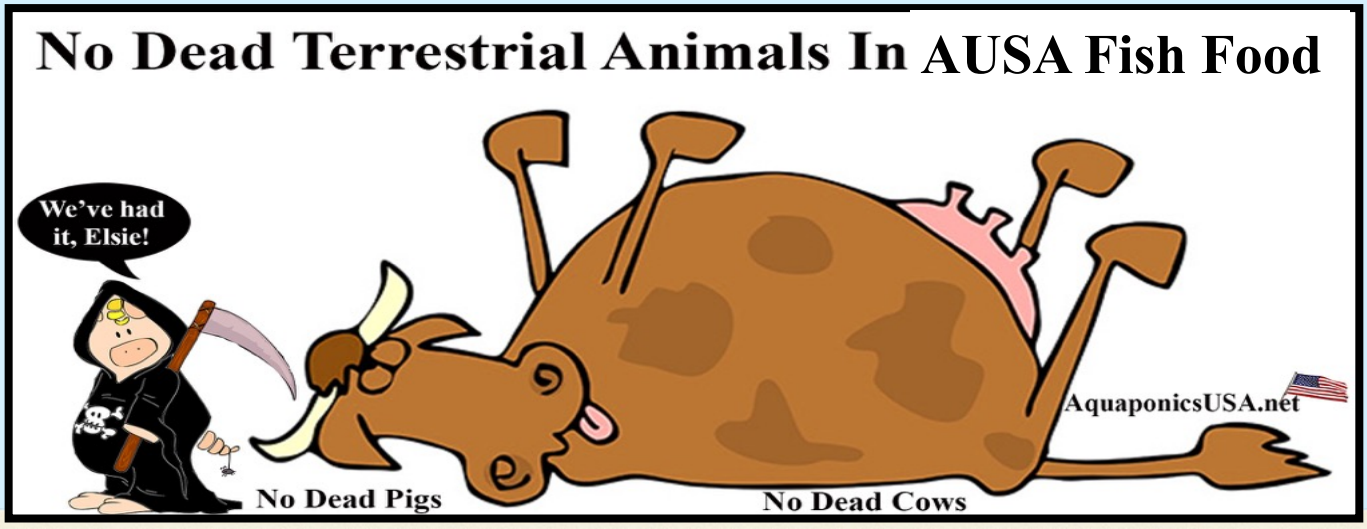
Other than a little iron, potassium or calcium, some Microbe-Lift or **Photosynthesis Plus** that they sell on their website, there are no additives in an Aquaponics System except for Fish Food.

And that's where a **Food Forever Farm™** Procurement Administrator can get into trouble if he/she is not careful. There are many brands of fish food being imported into major markets that would never pass the **Aquaganic™** Certification requirements. This low quality fish food is stuffed full of dead cow, pig, chicken and other terrestrial animal parts to make up important protein requirements.

So the last Bulleted Line on our Certification requirement List is this:

- **No fish food that contains terrestrial animal parts**

If you go back and look at AUSA's Standard Label on Page 11, you will see these words, "Locally grown in a Certified Food Forever Farm™ at" followed by the Name of your School. That means your Food Forever Farm™ needs to use Fish Food that has no Terrestrial Animal parts in it to be Certified as **Aquaganic™**.



Above you see one of the hungry AUSA Tilapia eating his floating pellets, called the **Ultimate Growout Pellet** that AUSA sells on their website. But this conversation about fish food would not be complete without addressing the obvious.

Fish food utilizes fish meal as a protein source for the food; and there has been much discussion about the use of fish meal in fish feed. The critics point out that aquaculture, of which aquaponics is an offshoot, is harming wild fish populations because fish are being taken from the ocean to feed farmed fish.

The following are some important things to understand when engaging your Students in this debate:

1. Fish meal is not only used in fish feed. It is also being used in swine, poultry and even pet food. No one has been arguing that we stop eating pork or chicken or that we stop feeding our pets to save fish. Nevertheless, we know we have to start taking drastic measures to save the ocean's fish. (See our "**Marine Ecosystem Crises**" Doc). Because the aquaculture industry has been receiving so much negative criticism due to its more obvious use of fish meal in their food products, that industry is running extensive research to find an alternative to fish meal for fish food. Right now there are no fish food products on the market that do not use fish meal. But it won't be long before the research pays off; and we'll have several choices for high quality fish foods that use reduced amounts of fish meal or none at all available thanks to the aquaculture industry.

2. One fourth of the fish used for fish meal comes from the inedible trimmings off of fish that has been processed for eating. In other words, one quarter of the fish used for fish meal comes from fish that have been harvested from the sea for the purpose of human consumption.

3. Fish oil, which is also added to the fish food, is a by-product of fish meal production and fish processing. Before aquaculture came on the scene, fish oil was already being used for technical purposes as fuel, an additive to paint and to harden margarines. Isn't it an improved use of fish oil to be using it to feed food fish?

Your Food Forever Farm™ comes complete with Fish and Fish Food for two years, so you will have Certified Food. And as long as you continue to Order your Fish Food from AUSA, your Food Forever Farm™ will be Certified. However, an important Lesson in the Food Forever Farm™ CTE Program will involve having your Students fill out the AUSA **Aquaganic™ Certification Form** anyway.

Now it's time to learn more about the Fish. The most popular fish for Aquaponics Farmers to raise are Tilapia for several reasons including the following:

1. They are hardy and can withstand lots of water quality challenges that new Farmers can encounter.
2. They are a popular eating fish due to their mild taste
3. They are disease resistant
4. They are fast breeders

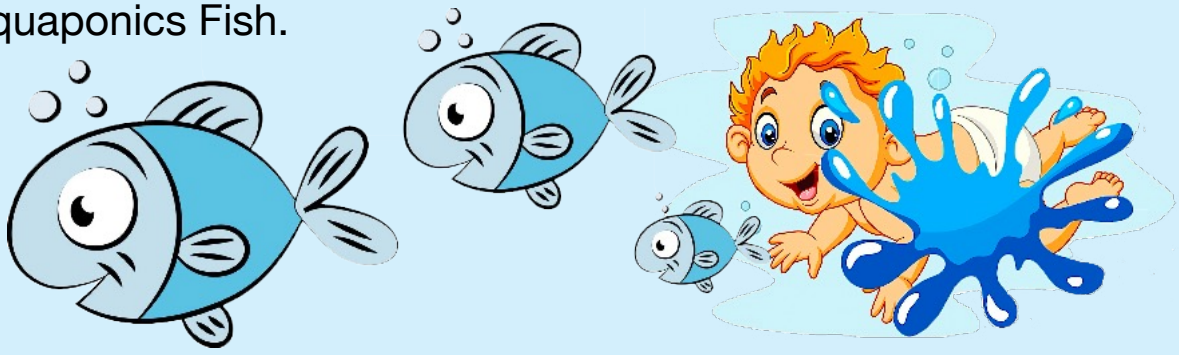
However, there are some Administrative issues regarding Tilapia in some states due to numbers 1, 3 & 4 above. Precisely because of these strengths, some States regard Tilapia as an invasive species and, therefore, have strict rules regarding them. The fact that Tilapia are not native to the U.S. and originate from Africa substantiates some of the negative beliefs regarding them.

In general, Tilapia are being farmed in large numbers around the world ranking sixth among all farmed fish. They are very important for their food value both to humans and other carnivorous fish like Salmon. When one genus of fish is fed to another, the one being eaten is called 'forage food', and Tilapia rank high in that category. But they are also known for what they can contribute alive like their ability to control aquatic weeds, algae and clean up waste-water treatment run off and they can survive on just about anything including waste.

Although Tilapia have had a bad wrap and are still banned in several states in the US, and other countries, they are slowly demonstrating their importance as both a high protein food source as well as in aquatic maintenance control. As food shortages grow around the world, and Aquaponics becomes a household word in American homes and schools, AUSA sees a time when these bans and restrictions on Tilapia will of necessity be reevaluated and even lifted. (Resource, the original Aquaponics USA Website Page called**"Aquaponics Fish"**)

The thing about the paranoia around Tilapia in Aquaponics Systems is it is unwarranted. Aquaponics Systems are Closed-Loop systems. Closed-Loop Systems are self sustainable, and everything is used and exchanged within the system and nothing leaves the system. There are rare occasions when a water exchange may be necessary, but Aquaponics Farmers and Teachers would never throw the Fish out with the Water. That would be like throwing the Baby out with the Bath Water.

Part 1 of the Curriculum has a lot of information about Tilapia and other Aquaponics Fish.



There are several things to consider when deciding which Fish you want to raise in your Food Forever Farm™ starting with which species. AUSA has been raising Blue Tilapia in their Demonstration Arizona Food Forever Farm™, and they have had great success with them. At this time, AUSA does not eat their Tilapia and keeps them strictly as worker fish to fertilize their Farm. Therefore, they have some of the largest Tilapia anyone has ever seen. Blue Tilapia are known for being able to withstand colder water temperatures, which is very important in some States where winter gets quite cold.

Part 1 of the AUSA Curriculum and their website lists the 5 Tilapia Species that AUSA sells. Tilapia lifespans average around eight years if they are not being harvested. On average, they will grow out to pan size in around 8 Months if they are being harvested. So those are the two main decisions to make regarding your fish: Which species and whether or not to harvest them.

Food Forever Farms™ are designed to operate year round even during the Christmas and Summer School vacations, so having a group of dedicated Farm Staff, Students or Teachers who will manage the Farm during those breaks is important.

Single Classroom AUSA Teaching & Food Growing Systems can be set up at the beginning of the School Year in August, operated through the School year until the Summer Vacation at which time, the veggies and the nine-month old fish can all be harvested and the System can be shut down for the summer, which works well for these Classroom teaching Systems.

But that would not work for a Food Forever Farm™ as all of the Nitrates and Food Production that you have been building up over the first School year would be lost, and you would be starting over again every year if it was shut down for the summer. The name of Food Forever Farms indicates they are designed to operate continuously and in perpetuity. Everything, AUSA just explained about choosing your fish does not apply to Arizona as there is only one Arizona Game & Fish Department (AZGFD) approved fingerling supplier in Arizona.

Therefore, for Arizona Schools, AUSA provides only one Species of Tilapia, Nile Tilapia, and one approved Supplier, AmeriCulture. which is located in New Mexico. AmeriCulture has been approved by the AZGFD when said Nile Tilapia are accompanied by an “Aquatic Wildlife Stocking License” (Form2710-A) and disease-free Certification, which AmeriCulture provides and which is discussed on Page 29 in the Project Narrative of the **(See “Farm To School Grant” Doc)**.

AmeriCulture has two strains of Nile Tilapia from which to choose. The first strain was the result of arguably the finest Nile tilapia collection effort ever conducted. In 1994, Gary Chapman of North American Tilapia Inc. (NATI) hired renowned geneticist Douglas Tave to travel to Lake Nasser in Southern Egypt to collect Nile tilapia as a foundation for NATI’s genetic development program. Upon their return to Canada, NATI created a pedigree-based selection program that has continued to the present day at AmeriCulture's production site under the oversight of Gary Chapman and renowned geneticist Roger Doyle.

Not only does the Lake Nassar strain grow to a very large size, more than 15 pounds, but it does so very quickly. What is unique among all strains of Nile tilapia is that it performs well at lower temperatures as a result of natural selection in the relatively cooler waters of Lake Nasser. The latter trait makes the strain particularly suitable for aquaponic systems given the lower temperature preference of most vegetables and herbs. The Nasser strain are a blueish-silver color with hints of green. This high performance strain is only available through AmeriCulture. (AmeriCulture website description)

“The second strain is a hybrid of a very rare tilapia that was originally collected from the Nile River, north of Cairo, Egypt. This strain exhibited excellent growth performance and uniformity, as well as one unforeseen, but important characteristic – the propensity to produce an unusual color variant – which AmeriCulture call "The Pearl.” At one pearl fish per three million fingerlings, pearl Nile Tilapia were indeed rare. They are even rarer in the wild, as pearl fish don’t survive in the wild because their coloration attracts the attention of predatory birds.

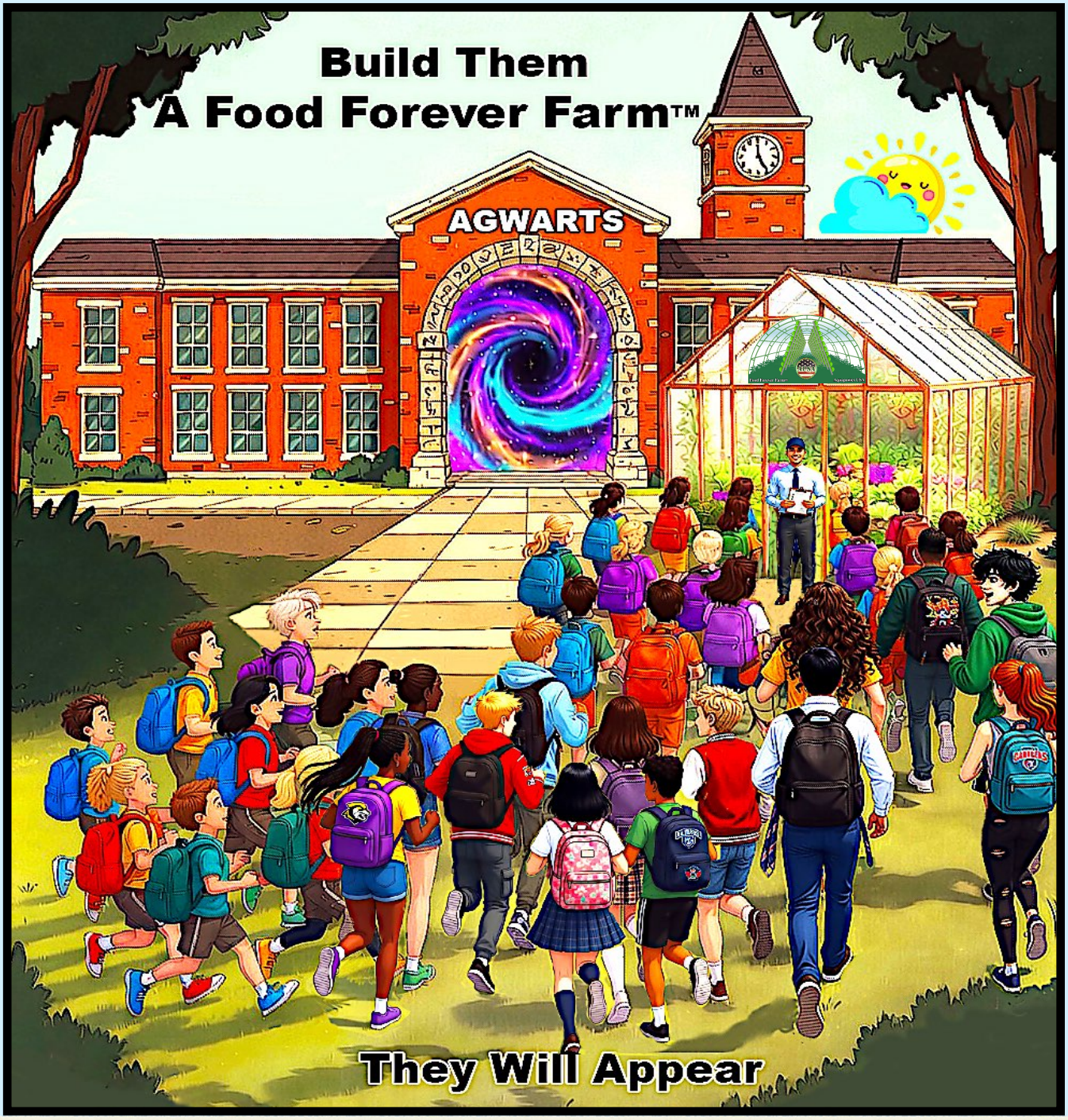
Fortunately for AmeriCulture, pearl breeders have pearl-colored offspring. AmeriCulture's second option, which they refer to as "hybrid" fingerlings, are the result of a cross between the Pearl variants of their original strain with the Lake Nasser Strain. At 75% Lake Nasser genetics, the hybrid strain displays the enhanced growth and temperature tolerance of the Lake Nasser strain. Hybrid fingerlings are approximately two-thirds pearl coloration and one-third standard coloration. They are most popular among growers that cater to markets that prefer lighter-colored fish. (AmeriCulture website description)

Aquaponics USA is pleased to be able to offer either the hybrid fingerlings or the Lake Nassar strain to our Arizona Food Forever Farm™ Schools as both of these strains appear to possess some of the most important attributes of their Blue Tilapia, which is they perform well at lower temperatures, and in terms of the Nassar strain are a Bluish Color. The Nassar Nile below looks just like a Blue Tilapia.

Aquaponics USA provides the Fish and two years of Fish Food sent in two separate shipments with your Food Forever Farm™ insuring that during the Farm To School Grant timeline, your Farm is Certified and fully equipped to fertilize your Vegetables.

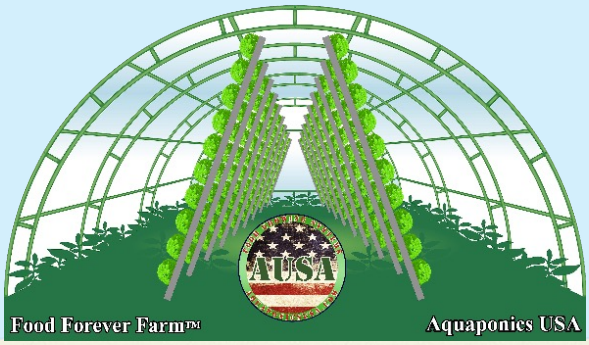
These AmeriCulture strains are all Male Nile tilapia so if you harvest your fish, you will need to re-purchase the number of harvested fish from AmeriCulture to insure your Vegetables are properly fertilized, and you will not be engaging in Tilapia Breeding, which is a complicated and delicate animal husbandry project that AUSA describes in detail in **Part 4** of their Curriculum.

Go to the AUSA website, to read the rest of their information about what is the difference between **USDA Organic Food**, Food grown with **Pesticides**, **GMO Food**, **Hydroponic Food** and their Food Forever Farm™ Food.These are separate pages on their website, which are too extensively documented to discuss here, but will make for great Reference Lessons in your future Food Forever Farm™ CTE Program. This concludes our Food Forever Farm™ CTE Program



A Food Forever Farm™ Includes:

- **A 20’ x 100’ Greenhouse from an AUSA approved Vendor**
- **4 FGS-65 Food Growing Systems that include 4 500 Gallon Fish Tanks (See AUSA’s FGS-65 Spec Sheet for details)**
- **A Complete Plumbing Package**
- **Shipping & Installation of the Food Forever Farm™**
- **A Food Forever Farm™ CTE Program** (described in this document)
- **A Complete Greenhouse Climate Control System** with a Coolerado Compact Modular Indirect Evaporative Cooling System and accompanying overhead fans
- **A Lettuce Wall™** with 162 Net Pot Sites for growing Lettuce and other Leafy Greens in a space-saving Vertical System
- **A Horizontal Growing Tables, HGT™**, with _____Net Pot Sites for Growing Seedlings to a size suitable to be transplanted into the Lettuce Wall™ or the Deep Media Grow Beds
- **A Seedling Incubation Table, SIT™ for 6 SPEED SEED™ Trays** to automatically water Seedlings until they are ready to be transplanted to the Horizontal Growing Table, HGT™
- **10 SPEED SEED™ Trays** to be used in the **SIT™**
- **Dilution Solution™** for safe and easy insertion of Additives
- **Water Enhancement Technology System, WET™**, to increase O2
- **AquaHeat™ System** to create 24/7 heat in the Fish Tanks
- **4 Tuck-It Buckets™** to add single large Plants to the growing space
- **2 Propane Heaters** to keep the Greenhouse at 60 ° F in winter
- **AUSA AGWARTS™ Curriculum** for all Grade Levels with 688 Pages



Accessories include:

- **4 Fish Tank Top Nets**
- **4 Automatic Fish Feeders with Fish Tank Mounts**
- **FGS-65 How To Operate Manual**
- **FGS-65 Assembly & Start Up Manual as back up**
- **4 Water Measuring Kits**
- **Starter Bacteria**
- **Water Cleaning Solution**
- **2 Fish Nets**
- **Milwaukee 100 pH Meter**
- **12 A-OK Starter Plugs**
- **12 Black Seedling Trays**
- **Professional Sprayer**
- **4 Garden Clippers**
- **Box of 100 Hair Nets**
- **Box of 100 Plastic Gloves**
- **2 Sets of Edward Garden Hand Tools including:**
  - **Trowel, Transplanter and Cultivator**
- **Aquaponics AI Tracking Software & Mobile AP for 2 years**

CTE Supplies:

- **A Dedicated Refrigerator for preserving harvested Veggies**
- **An Upright Dedicated Freezer for preserving frozen Products**
- **A Glass-Front Display Cooler for selling Farm Products**
- **500 FARM FUND™ Dollars**
- **50 of Each of the 20 Popular Vegetable Packaging Labels**
- **50 of Each of the 20 Popular Vegetable Identity/Promo Cards**
- **$2,000 Credit with AUSA** to reorder Packaging, Cards, Farm Funds, Nile Tilapia Fingerlings, Water Cleaning Solution,
  - Starter Plugs, Seedling Trays, Hair Nets, Plastic Gloves, Water Cleaning Solution, Water Measuring Kits

All of the above Components and Accessories will be put into your Budget Narrative as Line Items

Thank You for Viewing

The Food Forever Farm™ CTE Program

You may want to Go to the "Curriculum Tour" Next

Created by Aquaponics USA

And Distributed to District Superintendents, Principals and Teachers

For More Information or To Schedule a Tour, Email: urbanfarmer@aquaponicsusa.com or Call: 760-671-3053