Dr. Nate Storey (Aquaponics Expert)

November 22, 2013

Today we're sitting down with aquaponics expert and Bright Agrotech CEO Dr. Nate Storey.

So Nate, a couple of questions for you…

> How did you get started in aquaponics?
>
> When and where did this interest in aquaponics help you start Bright Agrotech?

Dr. Nate:

I was always a little bit obsessed with fish. Combine this with my slight obsession with growing food (farming and gardening), aquaponics was a perfect, fascinating fit for me. Throughout my university experience, I was able to study aquaponics as a sustainable, alternative food-production method eventually leading me to start Bright Agrotech.

However, although I ended up spending a lot of time in academia, I would not consider myself a very good academic.

After finishing my bachelors degree, I had basically decided to head off to work in the oil field when one of my advisors came to me and said,

> *"Hey if you do a Masters degree, I will let you study anything you want."*

I said, "Could I study fish? And, could I study integrated fish production with plant production (aquaponics). He said sure and the thus began the obsession to create a more cost effective, water conservative and more valuable way to grow food… And this also began the six or seven year period of eighty to ninety hour work weeks.

I loved designing, building and testing new equipment and how they would improve my existing aquaponics system, which I see in a lot of folks these days getting into aquaponics.

Once I developed the ZipGrow tower, I knew we were on to something; something that could empower a lot of traditionally cash-strapped farmers to grow a higher quality product for their customers, improve their margins and ultimately live better.

Nearing the end of my Ph.D studies, I knew the only way to produce ZipGrow towers and empower this new generation of Upstart Farmer was to start a business. Thus, Bright Agrotech was born in 2010.

So, while the idea for Bright Agrotech grew from my time and work in academia, it really started because of my interest and enjoyment in fish, plants and the neat ecological interactions that take place when you combine the two.

“Faces of the Ecological Movement”

Nate Storey and Bright Agrotech Part I

- The EcoTheo Review

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In a recent interview with Will Wellman (Editor-in-chief of the EcoTheo Review), Dr. Nate Storey answered many questions including:

> Can you talk about Bright Agrotech's specific model and how it separates y'all from the rest of the industry?
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> With the vertical farming what kind of plants can you grow, I'm guessing most roots crops can't be grown using it?
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> Aquaponics is a fairly new concept to many people outside the industry, could you give an overview of it and the benefits of that system?
>
> How sustainable is an aquaponic system compared to a hydroponic system or traditional agriculture?

You can see Dr. Nate's answers to these questions and more on the EcoTheo Review.

You can find part two of this interview here.

So Nate, one more question for you…

"Why did you invent the ZipGrow tower and how are they so productive?"

Dr. Storey:

I began building ZipGrow towers because I had really limited growing space and I noticed in one research project I could get considerably more production per square foot out of the vertical growing technique than a horizontal one.

As I began digging deeper into vertical growing techniques, I quickly found there were a lot of flaws with the various approaches and products on the market. I knew that vertical tower systems were the way to go, but in order for them to really work they needed to be redesigned.

The other "vertical techniques" out there were simply taking traditional horizontal methods and stacking them on top of one another; not exactly a true vertical design and because of that they ran into countless issues. There are other vertical growing systems out there that utilize **aeroponics** (growing plants by spraying roots with a superfine mist) but these also run into huge issues with root zone temperatures fluctuations.

I knew if a vertical system was going to work, they had to be media-based to buffer and stabilize root zone temps.

The Matrix Media we ended up designing specifically for these hydroponic and aquaponic applications did exactly that, in addition to anchoring plant roots, filtering solids and adding a massive amount of biological surface area to the system, improving system health.

As you can imagine, it took me a lot of time and energy to find, develop and source the right materials for this type of media. In the end, I engineered a vertical farming tower that was easy to move around, easy to plant and most of all easily taken to market to sell in a living display.

These ZipGrow towers, as we would end up naming them, didn't just increase our production a small amount, but instead we began producing at least three times the amount we did with traditional horizontal methods such as NFT (nutrient film technique) or gravel beds.

I don't even mess with those types of methods anymore as my time is too valuable. Now I exclusively use our towers to grow for our local community.

It's been an exciting few years watching other commercial and hobbyist producers have the same kind of success growing more with less space in their ZipGrows. We're looking forward to a lot more years to come and planning some big things for a brighter, more sustainable future of agriculture.

Read to get growing?

Here's a pre-recorded webinar!

http://brightagrotech.com/dr-nate-storey-aquaponics-expert/

Faces of the Ecological Movement: Nate Storey and Bright Agrotech, Part II

December 5, 2013

This is the second part of an interview with Dr. Nate Story of Bright Agrotech. For those of you that didn't get the chance to check out Part I, it is available here. The first part of the interview focused on Bright Agrotech's own products, aquaponics, and the viability of home production. The second part of the interview broadens out to discuss the wider social, environmental, and faith based motivations behind Dr. Storey's work and the future of alternative agriculture.

Part II.

So I want to broaden out and talk about some of the motivations behind Bright Agrotech. What is motivating yourself and Bright Agrotech outside of considerations of cost and efficiency? Are there environmental or social motivations?

“Sure, all of those are big motivations for us. Socially speaking, we feel really strongly about seeing people enabled to grow more. The demise of small farmers in America is kind of a bad thing although not unexpected, there are a lot of things causing that. One big tragedy is the fact that young farmers can no longer afford to get into farming, and that’s for various reasons such as land speculation has driven up land costs beyond the production value of land and estate taxes have destroyed the ability of land rich, dirt poor farmers to pass on their holdings to their children. Part of our motivation is trying to reverse that trend in our own way. **For 30 or 40 thousand dollars a small farmer can now set up a farm that is enough to support their family. For us that really reverses the trend we’re seeing and that is a motivation for us—allowing young people to farm.**

“Environmentally, there are big questions about the environmental sustainability of extended distribution channels. For us, we are very focused on food miles and shortening the distance from farm to plate. Also reducing the amounts of plastics and container materials in our live sales, basically that means customers harvest their own at the supermarket. They perform all of the labor and packaging and it allows us to reduce our cost. **The idea is it is delivering value socially, environmentally, economically at all points along that chain.** The producer can produce crops for a lower price but can charge a higher cost. The retailer eliminates a lot of their waste, their shrink, a lot of the problems supermarkets experience with food waste. And the consumer gets the higher quality and fresher product for a comparable price to what they’ve always paid. So at every point along that supply chain everyone is being served. It’s important to deliver value to everyone involved. We are doing our best with innovative designs to address different environmental concerns.”

Can you talk more about moving away from a centralized, industrial agriculture system to these more local, community based food sources and systems?

“There have been massive structural changes in the agriculture industry in the last 30 to 40 years. In the greenhouse production agency what we have seen is that many businesses have been bought up by larger and larger conglomerates. These conglomerates tend to move their facilities down to the southwest of Mexico where the cost of production is much lower. In the last couple decades heating costs have gone up while cooling costs are fairly constant, so they moved down to areas where there’s more cooling involved then heating. And these organizations have continued to snowball into these large organizations with very large marketing budgets and they’re marketing to very general demographics and markets.

“Well that’s a great thing if you’re looking for efficiency and you’re locked in cost-based competition with all of your competitors, or in most instances in the US your competitor. We’re usually talking three to four large conglomerates producing a significant amount of the produce for the country, greenhouse wise. The problem with that is as a conglomerate they have to extend their distribution channel so they have to truck more stuff more places and fly more products to more places. While they become really efficient at that, their logistic programs are awesome, at the same time fuel costs aren’t going down. And it’s a question of whether the logistics efficiently can keep up with the increasing costs of fuel. Realistically speaking the business model and system they have built themselves on allows them to get bigger but it doesn’t allow them to get smaller. **It’s almost impossible for a very large, centralized business to break itself into pieces and re-organize on a regional or local level. Because these guys are existing on very small margins its impossible for them to market to niche and smaller regional markets. So that’s a big opportunity for local producers. It’s one of those things where the variables that led to that business model are starting to change pretty rapidly. We’re starting to see an opportunity for small producers.**

And for me that’s a big deal, we live in Wyoming and the Front Range of Colorado is a great example of an industry that has been slowly dying for several decades. There are tons of empty greenhouses in the Denver area because the guys that used to run them have been slowly driven out of business, they can’t compete with these larger organizations with more sophisticated distribution. There are a lot of opportunities for small and regional producers to buy up unused real estate and to start to reclaim markets that were lost in the 80s, the 90s, and the early 2000s.”

In line with all of this, how do you envision the future of alternative agriculture?

“I think there is a bright future for it. Big agriculture will always be there, it’s very difficult to produce certain grains. Like I can’t grow rice in Wyoming. What we say is that anything that can be harvested with a combine is still going to be big ag to some extent, or at least larger family organizations. That model is propped up both by the economy and the government and by a lot of people that have vested interests. Moving forward alternative ag is going to be growing hand in hand with the traditional industry.

“Now don’t get me wrong, alternative ag is going to take market share from the big players but it’s not going to completely overthrow the big players. There is going to be a balance that is struck in the future between folks doing things on a local level and folks doing things on a big level. A good example of that is I really feel high water-weight crops, 90-95% water, things like kale and herbs all of that stuff can be and will be grown on a more local, regional level. Grains, things like wheat, rice, corn, and soybeans these crops will be more on the regional to national large-scale. And the economic cost of growing a pound of wheat in Russia and transporting it to, say, Abu Dhabi is very low. The environmental cost of that is much lower than if Abu Dhabi tried to grow wheat themselves. **There will be a balance that is struck down the road and I think**

alternative ag and these new methods that are rising to the surface will really play a major role in the future with high water-weight, highly spoilable, nutrition-focused crops."

Lastly, a mission of ours at ETR is to connect faith and ecological communities, do you have a faith background and if so how does it influence the work you're doing?

"I'm a Christian and my business partner is a Christian and we feel very strongly about not just the environmental mission behind our business but also the social mission of improving local economies and trying to do the right thing business wise. So absolutely faith informs what we do to some extent. I'm never entirely sure I'm being the best witness at all times but it's one of those things where both my business partner and I feel we're stewards and we're held accountable for how we treat people and how we treat the environment, how we treat the world around us. So being a force for positive change in that regard, enabling people to take charge of their future, enabling people to grow and do things in a more environmentally responsible way are very important to us."

http://ecotheo.org/2013/12/faces-of-the-ecological-movement-nate-storey-and-bright-agrotech-part-ii/