

Q&A with Clark T. Bell, CEO and Co-founder of Aqua-Yield bringing to market their New Fertilizer Delivery System that uses Ultra Purified Water to Break Down Fertilizer into Nanoparticles increasing Plant Nutrient Uptake and Crop Yields



Clark T. Bell
Chief Executive Officer and Co-founder

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Interview conducted by:
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CEOCFO Magazine

CEOCFO: *Mr. Bell, according to your site, Aqua-Yield™ is the technology company that Aquamizes™ fertilizer and crop nutrition specifically suited for the agriculture industry. Where did the idea for the company originate?*

Mr. Bell: My father and I come from the Turfgrass farming world. My family has owned and operated turf grass, sod production facilities since 1979. When you look at farming there are three line items on a profit and loss statement that are very controllable costs for a farmer. The first one is labor. You know the price of labor can go up or down. You have to pay for that no matter what the demand of owning and operating an agricultural business, which requires labor, time and commitment. There are rapid

adoptions of robots and artificial intelligence that are affecting farming. However, still to this point you need boots on the ground, working and making your land better. Second to that is fuel. The cost of crude oil drastically affects your transportation costs and also it can affect your fertilizer costs. Very often, fertilizer is tied to the petroleum and oil industry. Third is your cost of your agro chemicals or the 'inputs' you need to grow the crops with which you are trying to feed the world or provide energy. That is going to be your fertilizers, your agro chemicals and anything else that you put on your farm. In 2012, we started carefully scrutinizing what we were doing there and saw many innovative things that were being done off of the North American continent with the utilization of nanoparticles with fertilizer and technology. What we saw was a clear indication that the fertilizer status quo was not good enough and there are many innovative technologies that can be utilized.

CEOCFO: *What have you developed at Aqua-Yield?*

Mr. Bell: At Aqua-Yield, we have developed a utility patent. We have two of them that are patented properties which showcase how you can "ultra purify" water. We mix ultra purified water with a fertilizer, and that fertilizer is broken down in size to nanoparticles. We literally developed a new fertilizer delivery system and the delivery system is called the Nano-Shield™. That is actually what we have developed. Originally, the company was focused on service, being a service offering and it was a technology which would allow us to go directly to a grower and offer our new delivery (the Nano-Shield) process right on their farm. Now, we have a number of products that are in a 2.5 gallon container and those 2.5 gallon containers will feed and service 80 acres worth of the farmer's crop.

CEOCFO: *Would you explain why nano is so powerful?*

Mr. Bell: Nano is relevant to size. When you are describing nano you are describing how it works inside its own size. Nano technology is not naked to the human eye and so I offer this more tangible example. Imagine on your computer screen and the typing of a simple period at the end of a sentence. If you placed the period on a size-measuring spreadsheet, it would be five microns. A nano is one thousand times smaller than that one period or five microns that you have on your

computer screen. Therefore, when we discuss nano-particulation, we are talking about extremely small matter doing extremely great work!

CEO CFO: How does the process work? What happens when someone is using Aquamises on their crops?

Mr. Bell: My belief is that manufactured fertilizers have failed the American grower. Since the 1940s, the use of controlled-release fertilizers and liquid fertilizers has been very inefficient. To illustrate that point; nitrogen and phosphorous, two of the main components in agro nutrients that go into a crop; about 30 to 66% of them - when you put them on your crop, they do not efficiently get into the plant, so it is very wasteful. With our process, we take out that waste by utilizing nano technology and a novel thing happens with these plants -- we are literally able to get into the cellular structure so they absorb the nutrients much more efficiently. That can be seen and proven on the leaf tissue of a plant and also down on their root hairs. That is why we've seen these amazing results, how we've been able to showcase our unique sales proposition, and really start making some disruption in this industry.

CEO CFO: Where are you today in commercializing, developing and educating around Aqua-Yield? Mr. Bell: The company started in 2014. As far as adoption of ideas and commercialization, we compare any change in the Agriculture sector to that of a software company. Establishing an initial impression and then building on that for change takes about five years. That is because in order for us to have success in a crop there is a season and there is a timetable to that. We are commercialized. We have had significant growth; over 300% compounded annual growth rate. Aqua-Yield now has established sales in more than 30 states and in six countries. However, in many ways, even though we have been doing this for nearly four years we feel like we are just getting started. We know that there is just a lot of runway and opportunity for us in agriculture.

“The keystone idea is that when you use ultra-purified water, it produces a highly-refined and much - much better delivery system of nanoparticles into a plant.”- Clark T. Bell

CEO CFO: How do you reach out and to whom?

Mr. Bell: I love this part because I love our staff! Our committed and dedicated salesforce goes directly to the grower. We have a focused sales technique in rural communities where we literally drive up to the farmer. Yesterday I was in Montana and I met with farmers managing over 30,000 acres of winter wheat. Many of the meetings that we had were in their homes, right around the kitchen table. That is how we are getting our technology and products used. Secondly, we have established valuable distribution channels. These are all independently owned, family- owned businesses in rural communities. They are part of what we call the Aqua-Yield Farmer Dealer Network (AYFDN). All the members of the AYFDN distribute our products as well as selling them themselves, and they have the full support of our salesforce. We look at the agro-business supply chain and we believe that it can be “Uberized” by cutting out many of these middlemen. We believe that with our disruptive technology we can go right to the grower and that is how we can continue to sustain and grow our business.

CEO CFO: When you are talking with a grower do they understand what the product does? Is there an aha moment when they get why it works and how it works?

Mr. Bell: I am a firm believer in “facts tell and (personal) stories sell”. For Aqua-Yield, we have a lot of testimonials and a lot of grower data to showcase and support our products and their use. And from the beginning, our research and development team has worked tirelessly to continue to find and publish on successful university and practical research trials. We love these testimonials and the success that these growers have had. In their own words and through their own experiences, they share how we have been able to increase their yields and increase the quality of their crops, all while consistently showing and proving what is most likely the key point to each of them; a decrease in their costs and how each is becoming more profitable. In order to survive, the must find ways to decrease costs and improve yield and profitability. The facts we share and the proof each one of them provides are notated and sustained on real-life farms and years of university and independent studies. As they see these results and hear from those already using the products, most immediately agree to test our technology. Then it becomes a matter of time for them to fully adopt it throughout their own individual farming operations.

CEO CFO: Where do outside factors come in to play, such as floods?

Mr. Bell: That is a great question! One example would be Florida, which accounts for a major part of our business, and the very positive affects we've been able to sustain in their citrus production industry. There is a very invasive disease that is called citrus greening, which is a bacterium that is spread by an Asian psyllid. This devastating disease causes both the leaves and the fruit on an orange tree to not receive the nutrients that the tree needs to continue to produce a great citrus

crop. Our products and system now have a proven record attacking and conquering this “greening” disease and many orchards are now revitalized and again reaching full potential. With us having so much business and success there we have gone “all in” to try and eradicate this disease. However, when we have weather events like Hurricane Irma, we and our clients experienced major setbacks. We were extremely close and on target to hit sales goals in September but mother nature had other ideas. Of course, we wanted to hit our sales marks and the weather events prevented that, but our main goal and priority in Florida and everywhere we do business is the individual care of our customers, and there were many directly impacted by the hurricanes and we will always do whatever we can to help them through that. Our bottom line will be there and improve as we assist clients in each region and help them through these events. That must always be our focus. Therefore yes, outside factors will also be there and have an impact. However, whenever people complain to me about the weather in agriculture I just remind them, (and we’ve seen this in our own family’s sod-growing business for almost 40 years) “You know what you were getting into”. Everything we do is dictated by the sun, by temperatures and by water, so there is no use for us to complain about it. Agriculture is our passion - it is on our blood and you prove your muster by facing adversities head-on. So hopefully in the end, Mother Nature has nothing on the hardy and dedicated people who make up the greatest career in the world - Agriculture.

CEOCFO: *What does the agriculture community think about what you are doing? Are there thought leaders? Are there group that should know your story?*

Mr. Bell: When you look at agriculture there are definitely innovators and early adopters and thought leaders in this space. They want to grasp onto any cutting- edge technology that gives them a leg up on their competitors and gives their farm an advantage in producing healthier crops. We have found that those types of growers love what we do! They are typically very detail oriented, so when we are able to find those growers, they rapidly adopt what we are doing and have success. It revolutionizes the way that they farm. We believe that we are part of the future of farming and the right-in-agriculture’s-face issue of being able to feed 9.7 billion people worldwide by 2050. We believe that nanotechnology is one of the key components to make that happen. These really great growers that are innovative and are willing to take risks and try new things are the ones that will reap the benefits. As I meet with growers, and I would say that 80% of the time people totally absorb what we are doing and want to be involved. Then you have the 20% that are skeptical. They are curious, but they are skeptical. For them, they look at what a text book says, saying that a crop needs to get 300 pounds of nitrogen, 150 pounds of phosphorous and 50 pounds of potassium in order for that crop to experience an optimum yield. They are initially skeptical to believe that Aqua-Yield can, in some instances, reduce current application use by up to 80% to at the very least achieve similar results and in many cases enhanced results. Because of that initial skepticism, some would like individual tests done and we’re willing to do that too. Others may elect not to use us and we get that - but firmly believe they will be our valued clients at some point.

CEOCFO: *What is important about purifying water? Are there certain things that must be out of the water?*

Mr. Bell: One of the reasons we are a leading pioneer in agricultural-based nanotechnology is due to the fact that early on, we were able to figure out the keystone idea that when you use ultra-purified water, it produces a highly-refined and much - much better delivery system of nanoparticles into a plant. If you only used nanoparticles with just regular fertilizer and then produced that fertilizer, those nanoparticles would not be absorbed as well. The positive or negative charge in that exchange capacity that takes place between that water and that nutrient and how it then attaches to the charge of the plant, whether it be in the tissues or root hairs, the ultra pure water is pivotal to making that work, because it delivers better and more efficiently. Also, and a cornerstone of our business, is it is very inexpensive for a farmer to adopt the use of ultra purified water with our products to get them on the crops that they need to grow.

CEOCFO: *What surprised you throughout this whole process of development and commercialization?*

Mr. Bell: I thought that many of the manufacturers and agriculture retailers would want to be a part of what we are doing. However, in this past year we have probably worked with maybe 50 of them and of those 50, maybe seven to ten of them are still actively pursuing things with us and that is with us taking their product, reducing the cost to get it sold to make that product by up to eighty percent and it has the same efficacy as it would have if it was at one hundred percent. I believe that many of these companies are so tied to the petroleum and oil industry, with selling tanker loads and tons, they may lose focus on helping individual famers. That’s exactly what we do with our 2.5 gallon containers and that is huge to smaller operations. Why? While some companies have to use as much as eight gallons of product to get good results, we are now able to do that with only one gallon. Less cost for the farmer, more yield for the farmer and less product into the environment. That’s why Aqua-Yield is the leader in this arena.

CEOCFO: *Are you seeking investments or partnerships or are you open if they come your way?* **Mr. Bell:** Yes, we are open if they come our way. We have bootstrapped operations up to this point and we have been very profitable. We have actually been profitable since the first month and that is amazing! For us, we have been very strategic about our

growth. We are only at about 20 employees right now. We are beginning to get a lot of interest in the private equity and venture capital world. We strongly believe that the right investment from the right people or group will catapult us to the next level of where we need to be. Therefore, we are actually just in the genesis of that right now. We are getting a lot of the non-disclosure agreements signed with some of these firms and looking at what they believe our evaluation is, what impact we have and what they would potentially invest in us to help us grow as a company.

CEOCFO: *Why is Aqua-Yield important, not only to the farmer, but in the overall agricultural industry?*

Mr. Bell: Agriculture is certainly at a crossroads and when you look at individual issues like crop nutrition, it definitely needs addressing. This important issue that Aqua-Yield wants to tackle is making crop nutrition much more efficient and more sustainable for the American family farm. Our technology makes crop nutrition more agronomic and economically efficient and that is the case from farms as large as 30,000 acres, to the family owned and operated 200 acres. The bottom line; we firmly believe that what we produce and provide is essential to the future of farming and agriculture in the United States and around the world.

