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Don Taylor, founder and CEO of AmplifiedAg, shares his inspiration, insights and hopes for his company and the CEA industry.

August 11, 2023

AmplifiedAg



As founder and CEO of South Carolina-based AgTech company AmplifiedAg, Don Taylor leads a team devoted to developing and delivering innovative, successful farm technologies for the CEA industry's present and future. Along with software and hardware solutions, the company engineers and implements fully enabled, enterprise-scale shipping container farms poised for next-generation scalable, sustainable food supply. AmplifiedAg also operates Vertical Roots, a commercial farming enterprise that, at its peak, consisted of

a combined total of 176 container farms at three Southeast U.S. locations, producing more than 2.7

million pounds of lettuce annually. After proving enterprise production capabilities with Vertical Roots, AmplifiedAg is now refocusing its efforts to serve the market with its technology, scalable container

farms and in-depth grower support. CEA inSight talked with Don on August 2, 2023. Q: Prior to founding AmplifiedAg in 2016, you spent decades developing software that transformed other industries. What fueled your shift to AgTech and CEA, and your belief that you could make a difference? A: Prior to 2016, I was the Chief Technology Officer at Benefitfocus for 10 years. We were a SaaS-based

benefits management platform. I spent the last four years of my career there traveling back and forth to India. And I got very familiar with the crisis that they were experiencing at that time, and still are, from an agriculture perspective. That really got my brain pointed in that direction. I also really did not have that much of an understanding of what was going on with the climate and the plight of farmers. As I got more and more knowledgeable on that topic, it just got me centered on that —

that that would be a place where I can apply my technology skills and hopefully make a difference.

company - and for yourself - evolved since AmplifiedAg began?

Q: Listening to you, it's clear this is deeply personal to you. In one of your articles on LinkedIn, you said you've set your "whole purpose and entire focus" on AgTech and CEA. How has your mission for the

A: That's an interesting question, and you've probably put it into the roller coaster category. Out of the gate, the initial objective of the company was more of an altruistic exercise. We wanted to create some jobs for farmers. I wanted to understand how indoor farming could have a positive impact. As we got further into it, you begin to realize that it's not easy to grow a plant consistently at scale, indoors. So we

spent several years really getting to the point where we could perfect the technology and begin operating it at scale. The mission all along has been, in my view, I've always seen an extreme need in the world, and particularly certain regions of the world, to provide safe food and access to food. Part of that strategy is

really understanding that you've got to be able to deploy a piece of technology that's going to work - and

work at scale — in order to effectively do that. So we've spent several years getting to that point. I chose to deliver in shipping containers with that vision and mission in sight, that being able to deploy food anywhere in a box that's already built to get on a ship and go somewhere else seemed to make a whole lot of sense. The CEA industry at large seven or eight years ago was

talking about the issues with food security because of the climate and all the various things that are going on. If you fast forward seven years, all those things are very true and unfortunately, in many cases, are even worse. We continue to see the number of people who live in a food-risk environment continue to increase. So for me — for the company and for me — continuing to figure out how to

We've also done a partnership with the USDA over the last two years. One of the concerns that I always had with our technology was lettuce is great, but it's not really an effective food to deploy to regions of the world that need food. The USDA is now doing quite a bit of R&D with our technology, figuring out how

Inside an AmplifiedAg container farm

to grow other types of products, higher protein products, which I think also really lines up very nicely. I'm very excited about the things that they're doing, to really be able to prove that food other than leafy greens can effectively come out of these farms in regions that need that food. Q: You just mentioned two misconceptions about shipping container farms: They're just for small-scale growers, and they can only grow leafy greens. Some of your AmplifedAg software and hardware solutions apply to any type of growing environment, even outdoors. But you're enabling shipping container farms to be scalable facilities — enterprise scale. How does your approach differentiate you from other container companies?

deploy this technology into regions that really need the food

is one of my top priorities.

with multiple customers across a very complex set of business requirements. "We formed Vertical Roots really with the intention of operating production-scale farms to understand the complexities that the farmers are facing from an operations perspective." DON TAYLOR, AMPLIFIEDAG CEO

As I got into the indoor farming piece, I very quickly realized that an indoor farm has a tremendous amount of inventory management and complicated logistics that need to be controlled. So our first

first, and a large part of farming is logistics. So we were able to build on top of that model.

VPD. We have all the sensors and alerts in there so if something goes wrong.

farming firsthand?

excited about?

mature.

what we're seeing today.

competitive advantage really was around the software platform. We're an enterprise software company

Then the next differentiator would really be the ability to grow at scale. We very quickly realized that one container needs to have one function, which is to grow as much product as possible inside of that box at

a very consistent and repeatable yield and plant size. So we spent a lot of time building electronics to control all the environmentals. We are very fine-tuned in how we control the temperature, humidity, CO₂,

A: When we were probably three years into it, we got into operating really large-scale facilities to

some of their risk while increasing the capability that they can deliver a product to the market.

So our containers really were built with two things that would go along with that: One would be the

a SaaS-based, warehouse management system for third-party logistics companies. So our core

completely prove out the technology. My belief all along had been that the farmer needs to be able to

operate a piece of machinery that's going to generate a return for them. And it's going to hopefully reduce

software platforms themselves. Twenty years ago, I started a company called Boxcar Central, which was

technology was really a logistics platform, a multi-tenant logistics platform. It was really built for scale,

spot and see all of their pods, both from a business perspective and from an environmental controls perspective. That also really set us apart. Then I guess the last piece is just our continued focus on horticulture and the process of growing plants at scale and really looking at the farms as a tool for the farmer.

Q: AmplifiedAg often mentions anticipating the industry's evolving needs. We see a lot of CEA

companies draw a line, saying they're either a tech company or they're farmers. You seem to have erased that line — or at least blurred it — with Vertical Roots. What drove your decision to get into

A: That's an interesting question, and I think it's an evolving answer, particularly in the industry. We

initially started the company as a technology company. My intention out of the gate was that we would ultimately be selling software and farms to farmers and, to the point you made earlier, selling software

All of that technology is embedded into the logistics platform as well. So that the farmer can log into one

and maybe not even the farms, but just control systems in general, plus the software. Then as we got further into it, we began to realize that it really is a complicated problem to solve, and we felt like we needed to operate at scale. We formed Vertical Roots really with the intention of operating production-scale farms to understand the complexities that the farmers are facing from an operations

perspective. Also, understanding the industry, dealing with retailers and distributors in the supply chain for food, is something that you really need to understand to help a farmer integrate into that model with

We are in a transitional phase as well, over probably the last year and a half, where we're still keeping a

this technology. So, we spent a few years really focused on the operations of the farms.

important is that to fulfilling your mission and vision for your company?

then whatever it is you're trying to do will ultimately be a success as well.

those investments, because that's how everybody ultimately wins in the long run.

needs food, it's going to be able to operate at least in a non-losing-money sort of way.

foot in the farming world, but our core focus really is on now delivering the technology. And, for me, it's really delivering that technology that we figured out how to operate to the places that really need it. Q: You mentioned enabling farmers. AmplifiedAg recently published a case study for one of your customers, Pure Farms. The level of training and support that AmplifiedAg invested in that customer was extensive. How important is that kind of training and partnership with your customers? How

A: I think it's absolutely essential. I would say outside of this business, through my entire career, I've always believed that you have to make sure your customer's successful. If your customer's successful,

In this world, it's such a paradigm shift in many ways. The farms are very usable, they operate well. But being able to support the user from a software perspective, from a horticulture perspective, food safety

- all of those pieces have to add up together for them to be successful. So, yeah, I think that any

Q: Earlier you mentioned CEA crop development and USDA research. You also have R&D at AmplifiedAg. What are some of the things you're seeing in new crop development that you're especially

A: What I'm most interested in is seeing some of the protein plants really be able to be grown at scale so like lentils, lima beans, broccoli. There's experimentation going on with small seedless melons and rice. The USDA is actually doing a pretty hefty study right now on growing rice inside of the containers.

I think that ultimately the interesting piece is going to be which ones of these types of products can you get out at scale or at least at an economic level - where if you're able to move a farm into a region that

Q: Sustainability in general, but energy consumption in particular, is a critical target for the type of impact and transformation you're talking about. It's also a leading criticism of our industry. You published a very detailed Sustainability Impact Report and challenged other CEA companies to be

technology company that's out selling technology should be putting their customer first and then making

equally transparent. How important is transparent disclosure of real, factual data to the future of the **CEA industry?** A: I think it's very important. The reason that most of us are here is because we're trying to make a positive difference in the planet. And, yeah, power consumption is a challenge for sure.

I think that the alternative power sources will continue to evolve. My view has been: As an equipment manufacturer, my responsibility is I've got to drive down the consumption of the power — which, to your

controlling the amount of power that those lights use. Looking at alternative methods of cooling, and continuing to drive down the consumption of power while the alternative energy industry continues to

point, is really one of the core risk points in this industry right now. So, building our own lights and

Right now, on one shipping container, if you lined the top of one container with solar panels, you're going to get about a 15% offset on the power. I think over the next five to 10 to 15 years, if that same footprint can get you to a 75% offset on power, then we're going to see a significant shift in the dynamics and the deployment of these systems. And while that's happening, at the same time, we continue to evolve the technologies, the LED technologies and the cooling technologies, to consume less and less power.

"I think that CEA being successful will be one of the most major technological advances in our lifetime, as we see the production of food change in such a significant fashion."

DON TAYLOR, AMPLIFIEDAG CEO

Q: Obviously, there have been several high-profile CEA farm closures and bankruptcies in the news, and a lot of people have been quick to say this is proof that vertical farming doesn't work or CEA as a whole

isn't viable. What's your response to that? A: I've been in the technology industry for 40 years now. I've seen multiple, significant iterations in technology going all the way back to the PC from the mainframe. Then the internet, Windows and all of those massive paradigm shifts. There's always a trough, where there's a significant amount of investment that goes into this paradigm shift. There's a thousand competitors, and 10 years later, you're down to five. We saw a very similar dynamic with Benefitfocus and online enrollment systems. I believe that that's

I believe that the world really understands, at least in large part, that we need to figure out how to feed ourselves in a more efficient and effective fashion. The early capital that came into the industry, to me would have been expected. I think that CEA being successful will be one of the most major technological advances in our lifetime, as we see the production of food change in such a significant fashion. So that brings a lot of capital with it — and it brings a lot of learnings. We've been at this for seven years and I feel

like we've learned a lot and still have a lot to learn, being able to work your way through that process.

In the technology industry, we always talked about — I don't know if you've ever heard of the book

Crossing the Chasm — but there's a notion that when you introduce some new technology into an industry, you're going to get a rush of early adopters, innovators who will buy that technology. And then there's a pretty long period of time where the pragmatists, they're going to wait and see how it works, and then once they're sure that it's a viable solution, then they'll start buying. That chasm is where I believe the industry is at right now where, whether it's capital and/or traditional farmers waiting to see how this is all going to shake out. There's a period of time where we just need to

continue to evolve and be very careful with our capital and continue to improve the technology, and

to different areas of the world? What do you see as the biggest challenges and opportunities?

Q: What are you most focused on at this point, as you look to the future and being able to deploy farms

A: Right now, our core focus is putting the technology into farmers' hands. Really keeping our head down,

selling a good amount of technology, and we're starting to see some traditional farmers now come to us

making sure that the technology works, making sure that our customers are having success. We are

who are interested in deploying the technology. And, for me, that's how we're going to benchmark

Q: What else would you like this audience of people interested or involved in CEA to know?

A: There has been a lot of very negative press in the last six months on CEA and a lot of high-profile failures or folks that are teetering on the edge, which is a shame. Because from my perspective, the world really absolutely needs us - as an industry - to be successful. What I most want folks to see is

that we get past this and really understand the advantages and challenges within the CEA space.

You made a comment about shipping containers really being able to operate at scale, and one of the challenges that I've seen is the optics. We can grow 1,000 pounds every three weeks in 320 square feet, which is significant. But when you walk into a container farm, it doesn't have the same optical notion that

continue to focus on the things that we need to be focusing on.

success, to get farmers – local farmers, farmers in the United States – really having successful business experiences with the technology. From an evolution perspective, alternative power is a significant part of that. So, we will be spending a tremendous amount of our time here over the next couple of years trying to find the right partnerships and building relationships with energy companies so that we can really bring the most cost-effective solution to the farmer.

you're in a scaled environment. If you walk into a 200,000square-foot greenhouse, it looks like there's a huge amount of product being produced just because you can see it all at the AmplifiedAg container farm lettuce same time in a spread-out fashion.

exact right size farm for a community. Then that community can absorb everything that comes out of that farm, so that farmer can ultimately be successful. This interview was edited for length and clarity. Images courtesy of Amplified Ag. **CONTAINER FARMS LEAFY GREENS** SHIPPING CONTAINERS SUSTAINABILITY

into distribution centers where we've completely eliminated one leg of transportation, which is an

So I think it's taking the time to really understand the capacity and the capabilities of these farms and the advantages of being able to deploy them as close to the point of consumption as possible. We're plugged

important part of the economics of a farm. And as we continue to evolve, really figuring out what is the

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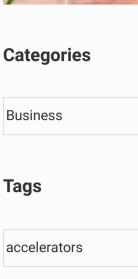


















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