

**Description:**

In this episode, we speak to two executives from Bolthouse Farms about innovation. The Bolthouse Farms story is a great business case on what innovation and collaboration can bring to a company. Innovation is woven through everything they do and think about. There is also an open invitation to reach out to the company with innovative ideas/products/technology at [innovation@bolthouse.com](mailto:innovation@bolthouse.com)

**Speaker:**

- Zak Karlen - General Manager Farms - Bolthouse Farms
- Michael Rosenthal - CFO, GM and Chief Innovation Officer - Bolthouse Farms

**Vonnie Estes, PMA:**

Welcome to PMA Takes on Tech. The podcast that explores the problems, solutions, people, and ideas that are shaping the future of the produce industry. I'm your host, Vonnie Estes, vice president of technology for the Produce Marketing Association and I've spent years in the ag tech sector. So I can attest, it's hard to navigate this ever-changing world in developing and adopting new solutions to industry problems. Thanks for joining us and for allowing us to serve as your guide to the new world of produce and technology. My goal of the podcast is to outline a problem in the produce industry and then discuss several possible solutions that can be deployed today.

**Vonnie Estes, PMA:**

This episode of PMA Takes on Tech is sponsored by CropTrak. CropTrak helps food and beverage companies digitize their unique supply chains to easily manage data, to improve their processes today and into the future. To learn how your entire supply chain operations can work more transparently, go to [croptrak.com/pma](http://croptrak.com/pma).

**Vonnie Estes, PMA:**

Today we are having a conversation with Bolthouse Farms about innovation. The company has such an interesting history. It was founded in 1915 in Grant, Michigan. It is now a vertically integrated farm company specializing in food and beverages. It is located in the San Joaquin Valley of California with numerous regional farms. The private equity firm, Madison Dearborn Partners owned Bolthouse from 2005 to 2012. In 2012, it was bought by the Campbell Soup Company for 1.55 billion. Campbell's sold the company in 2019. From a business perspective, this journey is a fascinating story. Modern Acre podcast did a great interview with Jeff Dunn, the CEO about the various business transitions that is worth listening to. In this episode, we speak to two leaders in the company, Zak Karlen, General Manager of Farms, and Mike Rosenthal, Chief Innovation Officer and CFO. I love how innovation is woven through

everything they do and think about and what having two different business models, a consumer packaged goods business, and an ag business allows you to do. Let's jump into the episode where Mike is talking about his role and how he brought Silicon Valley thinking to the company.

**Michael Rosenthal, Bolthouse Farms:**

In that time period, I was doing technology and innovation across a broad range of companies in a wide range of areas, software, data, services, hardware, you name it, and I really got to understand quite a bit about how Silicon Valley approaches innovation and from my perspective, and you live there so you know, Silicon Valley has a unique approach in the world doing innovation and technology. What I learned there, I realized it is not just for Silicon Valley and it is not just about the application of technology, but it's actually, maybe even more so, about the application of innovation process. The innovations I've lived through, some material changes in innovation process and Silicon Valley, and I realized those things could be applied to food and ag. And so I'm here at Bolthouse Farms to do a lot of things, but one of those things is to help blend together the best of what food and ag has and the best of what Silicon Valley does from an innovation process and technology standpoint, to create the food company of the future and we're doing it.

**Michael Rosenthal, Bolthouse Farms:**

So it's pretty exciting

**Zak Karlen, Bolthouse Farms:**

As a CFO and CIO, he also never cuts his own budget. It's awesome.

**Vonnie Estes, PMA:**

I bet.

**Zak Karlen, Bolthouse Farms:**

Which is strange how it always lands in my lap.

**Vonnie Estes, PMA:**

It uses two different sides of your brain. That really is interesting. You know, how can we be way out there and do wonderful things and then how do we control? That's a great balance for you. Zak, let's move to you and looking at your background, you've been kind of in and out of both farms, you've been in and off of farms and in food produce, tell us about your journey and what you do at Bolthouse Farms.

**Zak Karlen, Bolthouse Farms:**

Good question. So I started at Bolthouse Farms in 1997. I was 17 years old. You can do the math. Fresh out of high school, working in maintenance, pulling pumps and motors. Did that for the summer and then went to college in Bakersfield, at Cal State Bakersfield, CSUB Roadrunners. And I went to

Grimmway Farms. I worked in Grimmway Farms or aggravate farms in their field program, doing data and analytics and understanding seed. I did that for four years and then ultimately graduated with a degree in economics and went and worked for Kern Ridge Growers, which is the third largest carrot company, it's also in Bakersfield. Really, really good experience, six and a half years there working as an Operations Manager, understanding how a family run business works and pinching pennies and competing against Grimmway and Bolthouse. I got a phone call in 2007 to come back to Bolthouse Farms and start it back from the operations.

**Zak Karlen, Bolthouse Farms:**

They were going through a transition because they were just acquired by Madison Dearborn. A private equity firm out of Chicago. Had been a family owned company from 1915 to 2005. I came over and started gobbling up part of the operations, worked from 2007 to 2017 as part of the management team that transitioned Bolthouse from Madison Dearborn to Campbell Soup.

Worked for Campbell Soup for five years, got an opportunity to work in private equity. So I spent two years in the private equity world for a startup Arable Capital Partners. Then ultimately in 2019 around, Mike, it was March, April in 2019-ish. Jeff Dunn, our CEO, who was my boss in 2016, he called me and said, congratulations, you're quitting your job and you're coming home and you're going to come work for me as the GM of Farms again. And so that's what we did. We acquired the company June 17th of 2019. And we've been turning and burning it ever since.

**Vonnie Estes, PMA:**

Yeah, it's such a great story just to... I've heard Jeff tell the story several times and just about how the different transitions in and out of Campbells and what have been always very positive about Campbell and how that opportunity was, but the pros and cons of getting the band back together and pulling Bolthouse Farms back together again, and really as one of the most innovative companies, I think, in the produce industry. You all have really done some amazing things. So what we wanted to do in this episode is to get a future view from the C-suite. So clearly, as we've talked about, Bolthouse Farms has experienced a lot of change and transformation in the past five to 10 years. Tell us about what you've learned that has helped the company maintain its leadership position in fresh food.

**Michael Rosenthal, Bolthouse Farms:**

One of the biggest lessons in Silicon Valley, and many of the listeners may not know this story, but software development 20 years ago is very different than it is now. And the thing that transformed the software development was something called Agile software development. And what Agile software development did, was it said rather than spending a long time building a big thing, and then finding out whether it's going to work, take it in little chunks, move faster, move quickly, spend less money and in the end you will have a

much more effective, less expensive, faster results. And that then got translated into business models by book that I recommend everyone read called *The Lean Startup* written by Eric Ries and he's showed how that process and software development can apply to business. And the very first thing I did when I got the Bolthouse Farms was started talking about lean startup.

**Michael Rosenthal, Bolthouse Farms:**

In other words, we can do things much faster, much less expensively by just trying them, using something a lot of people call them MVP, and end up with a much better result much more quickly. And so Zak and I spent a lot of time talking through this, I do it on my teams, Zak does it on his teams, and what it does, ultimately, is allow us realize that future of food by applying a process that helps us move faster and more effectively. And we can give you a number of examples of that. Robotics and other things that we can sort of talk through in the future, but I'll turn this over to Zak to chat for a bit and then we can sort of talk through some of these specifics.

**Zak Karlen, Bolthouse Farms:**

So when we talk about lean startup on the farm side or on the operation side, we use it in a lot of different ways, but one of the things that we're really focused in on is failure is okay, and that's a mentality that Silicon Valley has. There's like a badge of honor. If you have something that fails, you reiterate and fails, fails, and ultimately you get to this incredible solution. And so we've really taken that mentality, that Silicon Valley mentality, and inserted it into our operation. And so Wunderroots is a great example of that. It was almost a year ago today. I asked Bill Levisay, who is our head of sales, I said hey, can I have an innovation person, somebody that works in R and D because I think, the last advent in carrots was the baby carrot at 1988. What else can we do?

**Vonnie Estes, PMA:**

Was it that long ago?

**Zak Karlen, Bolthouse Farms:**

It was 1988. Literally I go, Bill, what else could we do? And he kind of looked at me as like, no, I don't think so. I promise, just give me somebody. So I got Kourtney Kobdich, senior scientist, and R and D. And within a week we had carrot bacon, carrot rice, carrot fettuccine, carrot hotdogs. They were taking the tops from the carrots and making pesto out of them. And we were blown away and PMA happened to be, well, I want to say 45 days later, we display these products at PMA, right? And we had no idea what we were doing. We just knew we had a really good product in Wunderroots, and that we were going to try to make it successful. How we were going to do it, no clue. To me, that's that lean startup MVP mentality that Mike's talking about, that we took that and put it to work on the farm side and Wunderroots is an incredible platform that we're just super bullish and excited about.

**Michael Rosenthal, Bolthouse Farms:**

Yeah. A hundred percent. It was, frankly, it was incredible to watch Zak do that because you can see the results in the marketplace. And if you haven't had a carrot hotdog yet, you should.

**Zak Karlen, Bolthouse Farms:**

It's crazy. It's crazy how good it is.

**Michael Rosenthal, Bolthouse Farms:**

But I'll add a little bit on this as well, which is Bolthouse is a unique company in many ways. And you referenced some of our commitment to innovation from the top down, which is wholeheartedly being baked into our ethos. But one of the ways that we're relatively unique in the world is that we have a big CPG company and we have a big ag company in the same place and they're intertwined together. And what that allows us to do is look at the produce and ag equation differently than most ag companies look at it. But you know, many ag companies, I would say look at it, input costs and yields per acre and all the sort of metrics that quality that you have to. But there's another layer that we look at it with respect to particularly innovation.

**Michael Rosenthal, Bolthouse Farms:**

And what Zak talked about from a Wunderroots standpoint is exactly right and it's incredible what he did there. We get to put a CPG lens on it. We get to say forget about the... yes, we have a bunch of projects, technology, and otherwise. Zak does an incredible job with this to take 5% of our costs out of our bag for a program, just like everyone has to, but we get to do something else, which is so important in how we think about the world and what the future of fresh is. We get to say, well, what does the consumer want? And we know that one of the things that consumer wants is a connection back to the earth. They want to understand their food and where it comes from and what it is. And they don't want to see an ingredient list of 25,000 things you can't pronounce.

**Michael Rosenthal, Bolthouse Farms:**

But we have a whole bunch of tools that a consumer packaged goods company has to assess those consumer needs and then think about that and bring that back to the farm. So what Zak did on Wunderroots is exactly that. Hey, the consumer is moving away from meat products, hotdogs, say what you will about them. They taste...

**Zak Karlen, Bolthouse Farms:**

Awful.

**Michael Rosenthal, Bolthouse Farms:**

They're pretty awful. What can we do, right? The R and D team working with Zak came up with some pretty cool stuff and then we got to launch it like a consumer packaged goods companies. So we grow the carrots for it, you put

it through our plans, and then we launched it, and now the consumer has a healthier choice that tastes incredible, that is a carrot, not 35,000 ingredients. So I give Zak kudos, and the rest of the team kudos for doing that, but it is something pretty unique that we have here that will impact the future of produce and food that I'm very proud of.

**Vonnie Estes, PMA:**

Yeah, I think if you would've tried to go somewhere and sell that carrot hot dog, they wouldn't have done it. They wouldn't have taken it and so that you could take that to market yourself and kind of test some of those ideas out and also that you can be really innovative. I think it's hard for somebody to come up with something that's really unique if they're not an innovative company and take it all the way through the market. So that is really exciting and interesting that you have those two different pieces and you can get feedback loops really quickly instead of having to go try to sell it to someone that doesn't get it.

**Michael Rosenthal, Bolthouse Farms:**

Part of the reason we're able to do that innovation in the marketplace is brand awareness, right? Bolthouse Farms is known as an innovative company, and we have a lot of chips in the poker game relative to our CPG business. With all the innovation we've done over there. Yes, they're not the same buyers, but they know Bolthouse Farms is innovative and so when we went out to customers and did market research on Wunderroots, back when we used to allow people in our facility and do a taste testing, people were like, wow, this is incredible. Like, give me carrot bacon now. Let me figure out how to make it first. But yes, as soon as I do, I'll give it to you.

**Vonnie Estes, PMA:**

That's great. So thinking about technology again and all the innovation. So as you think about the pressures on the fresh part of the industry, how has technology and specifically data science and other technologies helping Bolthouse manage an efficient and resilient supply chain?

**Michael Rosenthal, Bolthouse Farms:**

Yeah. I'm going to make a statement that I make a lot and I'm going to turn it over to Zak to chat a little bit, but there's something I say that I want the world to really get. From my perspective, when you think about ag technology, robotics and data science and the connection of those two things and data sciences isn't just the science, but it's the capture of the data, the organization of data and what you do with it. Are the chemicals of the future.

**Vonnie Estes, PMA:**

Oh, I love that. That's great.

**Michael Rosenthal, Bolthouse Farms:**

We as a world and certainly in the United States, went through a revolution in

agriculture when we figured out how to use chemicals, improve yields, and other things like that. There was another revolution in genetics, GMOs, that also helped. There's obviously a great debate about whether that's good or bad. There's a bit of a debate about chemicals, good or bad, but forget about looking at the past. The future is powered by data and robotics is one of the ways of capturing it. And they are the new chemicals. That is what's going to drive the next evolution in agricultural efficiency and lots of other things and so we take that very seriously, but anyways, Zak, I know you have a lot to say about this.

**Zak Karlen, Bolthouse Farms:**

Excuse me, it's interesting to me, for the first third or half of my career, I always thought about technology as automation, right? So how do I find a machine to replace a human inside the facility to keep that five to 10% cost reduction every year? So optics order, robotic pick and place, things of that nature. And we have a long ways to go to continue down that path, but in the last 24 months, Mike and I have really started thinking about technology and from the soil to the plant, right? And so, as he said, we've got a hundred plus years of agricultural information and knowledge, data that's kind of floating around and Excel and in some papers and in some people's heads, and we're working with CropTrak to get all of that information into a single source so that we can utilize that data to be good stewards of the land.

**Zak Karlen, Bolthouse Farms:**

And that's really important to us at Bolthouse Farms. I think the statistic is the population is going to be 10 billion over the next decade. Well, one of the things that keeps me up at night is how the hell are we going to feed all these people, right? How are we going to feed an extra three or two and a half billion people with the same amount of land and keep everybody healthy and nutritious conscious. And one of the ways is to be really good stewards of the land and really to start transforming our thought process from the traditional cost per acre, yield per acre, input per acre, and start to think about it from a nutrition per acre standpoint, right? So how do I get the most nutrition out of that acre of ground? And I've been reminding people a lot through COVID of, we are an agricultural company first that happens to grow carrots second. And so we have to rethink how we do farming and start to think about that nutrition per acre angle and going more towards a regenerative ag process and less towards the chemical process.

**Vonnie Estes, PMA:**

So can you give some examples of how you're doing that and what technologies you're using and how technologies are playing with each other?

**Zak Karlen, Bolthouse Farms:**

I'll start and then Mike can take over. We have started a process in Cuyama, which is a valley, probably 60 to 70 miles west of here, a regenerative ag

program. And so we took 160 acres of organic and 160 acres of conventional and have literally told our farming organization, if you had this land for the next 10, 15 years, what would you do with it? What would you do with it as a true farmer? And the outcome of that has been fascinating, in terms of cover crops, in terms of rotational crops. And if it's done correctly, if you do all of that correctly, and you're good stewards of the land, and you keep soil health in mind at all times, your input costs actually go down. You're weeding costs go down. Your quality goes up, your yields go up, right?

**Vonnie Estes, PMA:**

How long does that take? Is that one season? Or two seasons?

**Zak Karlen, Bolthouse Farms:**

Oh no. It could take a decade, right? I'd say it's a decade long commitment. Now you will see results and soil health within six to eight to nine months. But in terms of once you get proper rotations and once you get everything down, it could be a decade before you get to bright, right? So this is a long commitment. And then bring in Mike and the technology side with robotics and everything that they're doing. It's a fascinating program.

**Vonnie Estes, PMA:**

Are you running that yourselves or you have other contract growers that are running that or how's that?

**Zak Karlen, Bolthouse Farms:**

One of the beauties of working at Bolthouse Farms is we tend to do everything ourselves. Whether that's good or bad, it's chuckling because sometimes we should outsource, but that program, there's probably a core 10 of us, Mike, myself, and some other key members are running it ourselves.

**Vonnie Estes, PMA:**

Yeah. That's great. Mike, what were you going to add on that?

**Michael Rosenthal, Bolthouse Farms:**

No, I'll never forget when Zak came back from a trip to London or he went to a conference and said to me, Mike, it's no longer yield per acre. And I was like, what are you talking about, Zak? I have my CFO hat on.

**Vonnie Estes, PMA:**

That yield better not go down.

**Zak Karlen, Bolthouse Farms:**

I'm not cutting LTI budget.

**Michael Rosenthal, Bolthouse Farms:**

And then he laid the nutrition per acre concept on me and my head exploded because I was like it's so right. So right. It's an exciting thing to think about

and build into how we think about the world, but on the technology side, back to your question, there's a lot of technologies we use and I'll probably split this up a little bit, but obviously, as Zak said, the amount of data that is available from the start of the ag process, prepping the land, all the way through growing, harvesting, tracking into the plant, going through the different flows of where it might end up in the plant, into a package, onto a truck, into a warehouse, over to that grocery store, into a consumer's mouth.

**Michael Rosenthal, Bolthouse Farms:**

I come from Silicon Valley, so what I see, like the matrix, is just a giant streams and streams and streams of data, potential and capability. A tiny, tiny sliver of which we are capturing now, but that tiny sliver is a lot bigger than it was two years ago and it's growing exponentially with a lot of great work that Zak and his team is doing. So there's one piece of this, which is how you capture and organize the data. And then there's another piece of it, which is how do you analyze the data? So I'm going to have Zak chat a little bit about capturing it and organizing it. Cause he's been doing some great things with a great partner there. This is a place where we do some outsourcing. That's good. And then maybe come back to me and I'll talk about some of the analytics around it and some of the things that I think about when we think about the future of that.

**Zak Karlen, Bolthouse Farms:**

And we talked a little bit about the hundred plus years of farming data. We're collecting it every day, all day, from all different sources and some of it is very cumbersome. Some of it is literally individuals counting rows on how many rows of carrots we harvested and that attribute equates to, we did 10.7 acres of this field, it's difficult, right? And not only do we have a small sliver of data that we need to drive the business, that small sliver is in 15, 17 different places and it's inputted by human beings at times and it's very, very difficult to get accurate data in a very timely manner, because one of the things that I think was lost on prior ownership is carrots are living, breathing organism. They don't take Saturdays and Sundays off, they don't get Memorial day off, right?

**Zak Karlen, Bolthouse Farms:**

And so we plant, grow, and harvest carrots 365 days a year. It's what we do. We do it every single day. And so for us to have accurate data, timely data, so that we can make very, very good decisions based on that data is really important, right? Because if you don't pay attention to the carrot crop every single day, it's the most expensive thing we have as a company, hands down, more expensive than labor, water, land, utilities, combined. Carrots are the most expensive thing we have in a company. If you don't treat that with the respect that it deserves and you don't have the right data, you can make a really poor decision and you may not feel the ramifications of said decision that moment, because it's 150, 160 day crop, but at 150 or 60 days later, you

may have planted the wrong seed based on the wrong soil type, because you had poor data and now what, right? Now you've got 150 days of input costs with potentially a very poor crop. That's not going to work.

**Vonnie Estes, PMA:**

And you need to be able to implement those decisions right away. I think a lot of times in the past we would collect all this data and then it would end up on a USB or someplace, and then someone would evaluate it and then they'd send it back and then the season's gone by and you're looking in the rear view mirror and you can't do anything with it. And so I think with these new programs where you can really get the data, have the data, make an instant decision, that's going to affect your season makes a big difference.

**Zak Karlen, Bolthouse Farms:**

It's one of the things that I love the most about Mike is he's so analytical. Because to your point, we have all of this out there, but sometimes we don't do anything with it, right? And so with the programs that he's working on, right? It's like, okay, these are the facts, right? And you can't deny the math on this, this, and this. Let's make the best decision based on that.

**Vonnie Estes, PMA:**

Yeah. So outside of the data management piece, what other technologies are you working on? And Mike you'd mentioned robotics. What are you guys looking at on that? And what do you think the future of robotics is going to be? It's an exciting area that we've been waiting. We've thought that's been a year away for 10 years.

**Michael Rosenthal, Bolthouse Farms:**

I love that.

**Zak Karlen, Bolthouse Farms:**

We're going to steal that line from us. You can steal some of ours.

**Michael Rosenthal, Bolthouse Farms:**

I can tell you with great certainty that robotics is less than a year away. So look, robotics is not a new thing in the world. If you study the Toyota and the Toyota production system and other manufacturing areas and other places, robotics are not only a primary way that the manufacturing happens, but it's been going on for a long time. Robotics in the field, and in agriculture, is a different set of problems. Hasn't had the same kind of attention and focus and partnership that manufacturing, as an example, has had. And so it is land. It also hasn't necessarily had the willingness to invest, the capital to invest a clear way to drive a trade off and the rest of that, which I think is a little bit true.

**Michael Rosenthal, Bolthouse Farms:**

And a lot maybe the way the ag industry and the world has, I don't think has

been thinking about it well. And so robotics is the thing that we started looking at as soon as we came back in here. First of all, I've hired a number of folks from Silicon Valley, they've moved Bakersfield, California to join the innovation team because we need that thing that I talked about before, which is the blend of both of them. Neither side knows more than the other. They both have, the ag side is incredible and knows an incredible amount of them. And so does the Silicon Valley side and together is where the magic happens in collaboration. And so we pulled our network together across Silicon Valley, and I knew that the payback on robotics in agriculture would be clear.

**Michael Rosenthal, Bolthouse Farms:**

And we went out and we looked at all the different robotic companies and ended up finding a partner that we thought we could work with and that had the kind of technology and partnership that could really help us. So we have been working on this project for, Zak, probably a year and a half, something like that. And they had actually already been working on robotic technology, just in a different industry and so me and a couple of folks flew to Silicon Valley and sat down with them and explained why carrots are actually something they should really be focusing on and convince them. And their technology, and their approach, and their team is right. And we, our attitude, our perspective, our knowledge of the ground and of the crop and of the things that we need to bring to the table and that partnership to make sure that we ended up with a robotic strategy that works is right.

**Michael Rosenthal, Bolthouse Farms:**

And it's working. I'm not going to quote any numbers that I have, but I can tell you that we are, it is not a year away. With my CFO hat on, it's a really good cost opportunity. With our ESG oriented, good stewards of the land data and robotics are the chemicals of the future perspective and Zak's nutrition breakers perspective, and all incredible things he's doing on soil health. It is all about that because not only are we saving money at the same time, we are doing things much more effectively, efficiently, with less inputs that can take care of the land better. And so it's happening and it isn't going to stop. And we are well into that technology. Zak, I don't know if you want to add anything to that.

**Zak Karlen, Bolthouse Farms:**

Yeah. One of the things, one of the many things, that has come out of COVID for us is the acceleration of this technology of robotics. We had to completely revamp our business in March of 2020 when this thing kind of started to happen. And we broke our employee base down into groups of 10 to keep them safe, to keep the businesses going, but simultaneously behind the scenes, Mike and I were thinking, holy crap, we got to start replacing humans with machines because there's a lot of variability in there. And in a weird way, it actually is going to create more jobs, not less jobs, right? It's going to create more technology jobs, better paying jobs, et cetera. Cause we're going to

have less input costs, ergo we can invest more into employees and more into technology, but what Mike's talking about is revolutionary for us, right? For us at Bolthouse farms, in terms of being able to collect all that data, do it seamlessly, implement it, and have all the robotics. It's really, really exciting right now.

**Vonnie Estes, PMA:**

Yeah. I think it's a really exciting time and just see. I think a lot of people will, just from my vision, I know it's been around for a long time, but it seemed like there was all these gigantic harvesters in corn and soy. And so people start thinking, well, we need gigantic harvesters. Like let's start there. And now I'm seeing different types of things, harvest aids, small like borough, small carts going up and helping with harvesting and people like robotics that are having a different approach to how do we thin and weed. And so it really is exciting. And all of that, like you said, it's all... You have to have the data to make the decisions. It's all tied in together.

**Vonnie Estes, PMA:**

And if you don't have the data to know where to squirt that weed or how things are growing and what they need to look like, then, you can't use the robotics so that makes a ton of sense. So as you peek around the corner, a decade from now, what trends do you see converging that the fresh industry needs to be building towards now? Like new innovations or adoption or application of existing technologies?

**Zak Karlen, Bolthouse Farms:**

Yeah. I think Wunderroots is one of them for us, right? Right now we're living in it. It is a product that is potentially going to replace hotdogs, at least a portion of hotdogs. And one of the things that Mike has taught me over the last year is one of the reasons that Oatly is so successful is it's going after milk, right? One of the reasons that Impossible or Beyond are so successful is they're going after beef, which is a multi-trillion dollar industry. If you think about it, I think the numbers close, like there are 20 billion hotdogs consumed annually in America.

**Vonnie Estes, PMA:**

Oh my gosh.

**Zak Karlen, Bolthouse Farms:**

Yeah. [crosstalk 00:33:12] You know, I'm going to quote Jeff Dunn, according to Jeff Dunn, our CEO or 20, I mean, that's a lot, right? You get 1% of that. You know, we have a really, really good product that could potentially take a half percent, 1%. And for us it's like, okay, what else can you do with carrots? Or with vegetables? What else is out there that we're looking at it as part of this regenerative ag. Okay, we're going to create 10 or 15 other vegetables that we're going to be growing, cover crops, soy, et cetera, what else can we do, so that we're equal good stewards of the land, but also continuing to be an

innovative company? And that's where Mike really steps in with his Silicon Valley experience and his vision around technology and stuff.

**Vonnie Estes, PMA:**

I think we, at PMA, we talk about... we really are, and produce really is the plant-based diet. We really should be taking on more of the plate and we are the plant-based diet. And so I love that you guys are looking at that and there's lots of room for all the other companies that you mentioned, but I think really going back and looking at let's really get people nutrition, not just pretending that it's meat, but let's get people having high, nutritious food that they want to eat.

**Michael Rosenthal, Bolthouse Farms:**

The produce industry needs to evolve towards nutrition. And what I mean by that is, and I'm not going to talk about carrots for a second. Take an apple or a head of lettuce or whatever else it is. The focus for a very long time has been, how do I get more apples? How do I get bigger heads of lettuce? How do I create as much of a just in time situation as you can, but also since there's seasonality and issues and droughts and whatever else happens, how do I extend the shelf life of my apple or whatever else it is so that the economics of that equation work, and I can still deliver an apple to a consumer in May, et cetera. Whether that apple tastes great, whether that apple's nutritional content in terms of antioxidants and other things, and I'm not going after the apple industry, I'm just using apples, I'm just saying as an example, it could be insert carrots or anything else.

**Michael Rosenthal, Bolthouse Farms:**

Yes. You might be delivering ahead of lettuce to consumer or an apple or a carrot or whatever, but what is that? Food is nutrition for our bodies so we can stay healthy. And it may look like an apple, it may look like a head of lettuce, smell like one, be bigger than it was last year, et cetera. The real question that this industry needs to ask itself, if it wants to do great things for the world 10 years from now like you just described, is how do I make sure that what gets in the consumer's hands and into their mouth is more nutritionally dense than it was last year or five years ago and 10 years ago. And the consumer... And if they're not thinking about that now, they're making a big mistake because I can tell you based from the consumer side of our business, the consumer sure is thinking about it.

**Michael Rosenthal, Bolthouse Farms:**

And the next generation of consumers that is graduating from college and demanding all kinds of things that we read about in the news. It is demanding that for themselves and their kids are going to demand it for themselves. I promise you, and I'm not going to go into all the details, cause there is some secret sauce at Bolthouse Farms, but I promise you that we are thinking about that right now. So that five years from now, and 10 years from now, we are

delivering more nutrition in the form of a carrot or anything else then we are doing now because in the end, that's going to win in the marketplace.

**Michael Rosenthal, Bolthouse Farms:**

That's what the consumer is really going to want. I promise, you'll see this in the data shifting in the next 10 years. And so the whole industry needs to understand that a focus on that using technology innovation and soil health, and a lot of other things that you can do right now will actually grow their business 10 years from now because they'll be delivering, they'll be matching what the consumer wants, not just what is optimizing the supply chain for 10 years from now.

**Vonnie Estes, PMA:**

I know many of my listeners work for startups and companies with new innovations who might be interested in engaging with Bolthouse Farms. You can send an email to [innovation@bolthouse.com](mailto:innovation@bolthouse.com) to get the conversation going with them. Hear Mike and Zak talk about the importance of collaboration and working with outside innovative companies.

**Michael Rosenthal, Bolthouse Farms:**

Innovation is in our ethos. And we want to hear from startups who have great solutions. And even if we can't take advantage of it ourselves, we want to help them, because it's good for the world. If you want to come work at Bolthouse Farms and you're innovative, please come work with us. If you want a startup and you've got a cool technology, we'd probably want to try it. And if we don't want to try and we probably want to help you anyway. So, yeah.

**Zak Karlen, Bolthouse Farms:**

Yeah, one of the beauties of being at Bolthouse Farms is we're so big and have so many connections that some of these startups, their application may not be applicable to what we do, but we can definitely get you to the right person to help you be successful.

**Vonnie Estes, PMA:**

Well, there you have it, an open invitation. Hope you enjoyed the episode and see you next week.

**Vonnie Estes, PMA:**

That's it for this episode of PMA Takes on Tech. Thanks for allowing us to serve as your guide to the new world of produce and technology. Be sure to check out all our episodes at [pma.com](http://pma.com) and wherever you get your podcasts. Please subscribe and I would love to get any comments or suggestions of what you might want me to take on. For now, stay safe, eat your fruits and vegetables, and we will see you next time.