Transcript of Dan Kittredge

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Speaker 1: Bulletproof Radio, a state of high performance.

Dave: Hey, it's Dave Asprey with Bulletproof Radio. Today's cool fact of the day is that there's such a thing as placebo sleep, for real. A study of participants were told that a machine could determine how much REM sleep they had the night before, which was totally not true. They were making that up. The people who were told that they got a lot of REM sleep did better on cognitive test than those who had less REM sleep which is way interesting.

Warmer weather is finally here and that means it's time for spring cleaning. You could spend time sprucing up the house and yard, but if you really want a fresh start, do what I did, get as Casper. It's one perfect mattress that will help you wake up feeling refreshed and ready to fully enjoy this beautiful weather. The mattress is engineered with 2 high tech foams for supportive comfort that guarantees a great nice sleep.

Time Magazine named it one of the best inventions of 2015. In fact, the Casper is now the most awarded mattress of the century. Their new sheets and pillow are just as comfortable. Together they create an environment designed to keep you cool and balanced all night. The mattress ships free in a surprisingly compact box, so it's incredibly simple to get your bedroom.

Plus, you can try it in your own home for 100 nights, risk free. If you don't love it, they'll pick it up and refund you everything. I love my Casper. Try yours for 100 nights in your own home with free shipping and returns. Go to casper.com and use code bulletproof for $50 for the purchase of your mattress. That's casper.com code bulletproof for $50 towards the purchase of your mattress. Casper.com, terms and conditions apply.

Speaking of sleep, if you have not had a chance to check out the Bulletproof Sleep Induction Mat, you should check it out. The Bulletproof Sleep Induction Mat is a non-electrical device. You roll it out on your bed and it has a bunch of specially designed spikes on it that pressure acupuncture nodes. It sounds a little bit weird, but when you first lay on it, your body screams that you're going to die because it's to pokey.

After the body realizes that you're not going to move anywhere, it just melts and you get a huge wave of basically endorphins that are released and those help you go to sleep quickly and go, it's like a really deep relaxing sleep. Sounds too good to be true? When you try it, it's pretty amazing. I really was blown away which is why it's a Bulletproof product. It's worth a try. It's a one-time small investment and you can use it every night forever, so it's a very affordable technology for sleep. It doesn't track anything. It doesn't do anything with batteries but it's really cool. Bulletproof Sleep Induction Mat on bulletproof.com.

Today's podcast is going to be a really interesting one, I think, because our guest today is a lifelong farmer with a lot of connections to farmers in Central America, Russia, India and the US, so the global farming perspective. His name is Dan Kittredge. He's the founder and executive director of the Bionutrient Food Association.

Back about 7 years ago, he launched the Real Food Campaign to get farmers paying attention to making quality food to improve humanity rather than just making the cheapest food. The Bionutrient Food Association's objective is to apply bionutrient farm techniques to just change the food supply. In other words, Dan is a man after my own heart. This is so important.

If your food is good, you will be goodm and if your food is bad, no matter how much you want to be good, you're going to have a very hard time performing the levels you're capable of performing. Food quality matters so much more than food quantity although they both matter. If you have no food or only one bite of food every day, you'll probably starve even if it's really good food. Quality and quantity matter, but quality matters most. Dan, welcome to the show.

Dan: Thanks.

Dave: Now, it looks like you are probably at a farm somewhere. You have a cool rock fireplace behind you. Where are you now?

Dan: My kitchen table actually.

Dave: The kitchen table. In what state?

Dan: Massachusetts.

Dave: Tell me a little bit about the BFA? What's your mission, what made you 7 years ago? Which was by the way very early in overall scope of things. Start talking about food quality of the farmers. Just how did you get where you are?

Dan: Do you want the short, medium, or long answer?

Dave: Probably the medium. I'm sure there will be lots of things to talk about in there.

Dan: Like you said, I grew up on an organic farm, here in Massachusetts and I got married about 10, 11, years ago. When I got married, I had no other viable skill sets to pay the bill besides farming. The only model that I had was one that included a lot of work and not necessarily a lot of lucre…, not much profitability.

That was a large part due to crops not flourishing. I started thinking a little bit about the rest of my life and how hard I wanted to work and whether organic was actually better, if the plants were suffering due to the infestation and disease, et cetera and started looking more into the literature of what's there.

Guess what, if you don't just look in the mainstream, there's a lot of really good information out there. Wwe started learning from the elders going to conferences, reading books, taking courses, and practicing on my parent's farm and now my own farm, and realized that if you create environment where your plants are getting what they need, they flourish. It's really not just plants, obviously, it's life in general that has certain basic needs.

This fit in with some of my larger things I'd been working on in my 20s of consciousness and political revolution and the full gamut. It seemed to me, quite evident that if we didn't increase the nutritive quality of food, in the food supply that we would never be able to really achieve a lot of our other systemic objectives whether they be carbon sequestration or systemic weakening of agri-business and pharmaceutical industry or increasing of consciousness.

I think all these things are beautifully intertwined with soil and food. Hopefully we have a chance to get into all that, but it just felt, and I mean, in the last bit is that my parents actually have for the past 35 years or so, run an organic farming organization here in the northeast called NOFA. I've got a background in the nonprofit world and that just seemed like a natural way to take what I was doing in my own farm and bring it to a larger audience.

I felt like if I had grown up an organic farm, and in the organic world and was still not that good of a farmer, probably other farmers and other people trying to do this kind lifestyle, we're struggling with the logistics of actually growing healthy plants. I mean there's a few points in there.

Dave: All right. We're talking about so many cool things, but this is maybe the first place to start which is that farmers have been crammed down. I actually went to school for a couple of years, into a university for a couple of years in the Central Valley in California, the farming area that's been hit by the drought and all of my friends who are farmers or ranchers out there were just lamenting the fact that you just couldn't make money growing almonds because then there's an almond processing board.

You want to raise chickens or turkeys and there's Tyson involved. They felt like they were land rich but barely making a paycheck to paycheck and then one little bad thing happens, you accidentally spray yourself with roundup and you get sick and you can't work the farm. You can't afford to pay someone and boom, you're basically screwed, and you lose the farm. What happens when people switch to an organic, high nutrient food kind of farming? What happens to the farmers personally or economically?

Dan: I mean, it's a series of components. We grow vegetable crops on less than 2 acres. Our whole farm is about 24 acres. We have pastured poultry. We do grass fed beef. I think a big piece of the problem for a lot of farmers is they don't realize, at least most of the retail dollar, there's only the commodity markets.

I think scale is an issue that has to be addressed. Obviously the value add, I mean, there's all this sort of rudimentary logistics that are pretty well documented.

Dave: I think our listeners though probably don't really understand, but to the average listener, vegetables come from 1 or 2 places. If you're hippie or a biohacker, you go to the farmers market and you buy them from a guy. You don't necessarily talk to the guy or you get the whole foods or you go to your normal grocery store and you buy something that is Mexican organic and you hope it's okay. A lot of those things that are very apparent to you and maybe somewhat to me but walk me through what happens to that carrot? How did it get there and what are the differences?

Dan: I'll use an example of potatoes because I think that's a great here in Maine. We have what's called The County which is Aroostook County and there's a lot of potatoes grown in Aroostook County in Maine. Farmers get about 6 cents a pound for their potatoes?

Dave: 6 cents a pound?

Dan: Yeah, that's the price.

Dave: Just hold on a second. What do potatoes cost? I don't eat potatoes so I don't know. What do the cost in the grocery store?

Dan: I don't buy them but I mean, the reality is most farmers are operating in a commodity system. They're basically a cog in an industrial wheel and so a piece of the puzzle for me is stepping out of that and being at a human scale. Who was it, Schumacher, Small is Beautiful. For me it's not … I don't want to be a farmer per se, I want to have a nice quality of life and for me quality of life is one where I don't necessarily have to answer to anybody. I don't have to put on shoes in the morning.

I get to play with my kids all day long. I get to be in nature. It's some overarching aspect. The root question you were asking was about what happens when people start growing healthy plants? The answer is simply that you get more productivity that your production increases when your plants are healthy because they're not succumbing to infestation and disease.

Your cost of production goes down. It costs you less to produce so you could actually, you don't have to charge outrageous sums. You can meet the market price in the grocery store or at the health foods store. You're getting all that money that mostly is going to go to the middlemen. The way the commodity system works is in Vermont people grow lots of kale for instance and they make it 25 cents a bunch for the kale or 30 cents a bunch for the kale and in the grocery store, it costs you 2.50 or 3 bucks. I don't know about cost. Most of that is going to go to the grocery store and the middleman not to the farmer.

Dave: The middlemen goes to like 20 farms. He buys all their kale, puts it into a semi-truck and brings it to the grocery store and marks it up some more?

Dan: Who know how many level of men there are, but one aspect of my success, I think or ability to work not very hard to make good money farming is to have relationships with my customers not to be selling into a commodity system. That's one of the problems in sun valley and other major industrial regions is they aren't necessarily working to sell directly to their customers, they're selling into industrial systems. That's a tangent to a larger conversation I think.

Dave: I think for people listening, if you want to get bionutrient rich food, one of the first steps is buy from a farmer rather than from a middleman or a grocer. Am I right about that?

Dan: Not necessarily.

Dave: You can still get crack food from farms.

Dan: What is bionutrient for starters? That's a term we coined out of thin air to refer to quality to refer to flavor and aroma and nutritive value because there's a lot of labels out there that are basically processed labels like organic is a process standard, biodynamic is process standard. Local is logistical but it has nothing to do with quality. That's per se.

As animals, we are evolved to discern in a very sophisticated manner relative nutritive value because that's what makes something good for us which gives us the vigor, the vitality, resistant to disease, et cetera. Ideally to function the high levels of consciousness. I mean, as somebody who grew up in the organic movement I'm happy to say as literature seems to say that there's not a major spectrum of variation between organic and conventional as far as nutrition is concerned.

There is a major variation as far as toxic compounds are concerned but it's not about less bad, it's about more good. We're trying to increase nutritive value and that does interestingly correlate with flavor and aroma. It certainly is much easier to taste good if it was picked yesterday ripe rather than picked a week or 2 weeks ago raw.

Local is probably better. Organic is probably better. Permaculture, biodynamic, et cetera is probably better but even within those realms, there's a pretty major spectrum and what we're trying to focus on is the actual nutritive value, the actual flavor, the aroma, how good it is for you as opposed to how not bad it is for you.

Dave: In my fact my favorite beef rancher on the planet is Glenn Elzinga from Alderspring. He's been a guest on the show. The guy is a former soil biologist who became a rancher and we talked about how the way he raises his grass fed cattle, they walk around on, I think it's 100 square miles of ranch land. The cows pick the specific tuft of grass that has the right nutrients for them.

Cow A, picks the right grass. Cow B, picks the right grass. Few people have had a chance to experience this but if you live near a really high quality farmers market, I used to go to the same farmers market in California for just about every Sunday. There's 100 vendors at least. In season, there's 20 people selling peaches and there's 20 people selling peas or whatever.

You could sample the different ones. There's a very noticeable difference in flavor, quality, how long it lasts whether it spoils quickly or doesn't spoil quickly and how you're feeling when you're done eating it. After a while, it takes a year. You know what, the kohlrabi from that guy, those are the best kohlrabi. By the way kohlrabi, if you don't know what they are, you know what they are but people listening don't. They're like these weird root vegetables that are like an underground root.

Dan: It's not roots. No, it's somewhere. It's above the root.

Dave: Oh, is it?

Dan: It's like a goiter.

Dave: It feels like you're eating like a cross of turnip and broccoli. I don't know I love kohlrabi.

Dan: It's between the turnip and the broccoli. It's in the middle. It's in the stem. It's a big goiter in the stem, anyway.

Dave: I didn't actually know it was a goiter but that's cool.

Dan: It's functionally like that.

Dave: The idea that there's some difference. Just like you said, you say it's about consciousness. When you eat the right food that's sourced the right way and cooked the right way with a right kinds of fats and you didn't damage the food by overcooking it or adding weird chemicals to it, you get a food high. It's not like an opiate high, it's a food high that's like wow, everything is running the way it could and I have this state of energy that I didn't have before. It did come even from caffeine. It came from the food.

Dan: Exactly.

Dave: I worked to recreate that at the bulletproof coffee shop. We have a full restaurant menu in Santa Monica. We're sourcing local but I don't have a way. This is important. This is my question for you.

Dan: Back to the crooks, yes.

Dave: I care greatly about this stuff. I talk about it all the time. I have chefs who will work with me and cooks and supply chain people. We but everything local and organic for the store but I still don't have a way without going down there and personally knowing the farmers and tasting all the stuff in order to impart the knowledge that I have from being a food hacker to the people who purchase for the restaurant. I know we make good stuff. I eat the food there but could I source slightly higher nutrient density of vegetables. Without tens of thousands of dollars of lab testing, how could I do better?

Dan: I mean, that's really the crutch of the issue. I think there's a lot of pieces of the puzzle but what we are working on, it's a slow but steady and deep process is discerning having the capacity to empirically discern relative quality . The fantasy vision here is that you can take something like a pointer from a PowerPoint presentation and you can flash it at a cucumber and they'll tell you relatively poor, average, excellent or a carrot or a cucumber.

Those compounds that correlate with flavor and nutrition are they're aromatic compounds, they're secondary metabolites. There's fancy names for them, terpenoids and phenolics and et cetera, et cetera, et cetera, but they actually have different chemical structures and different physics vibrations. If you flash a light and that light is tuned right, and the meter that bounces back is tuned right, it can tell you relatively, this is a high quality cucumber.

Our objective with the organization with the BFA is not to have a label, not to have a

certification process but to have an empirical metric which is what is the science of quality and can we give that to the consumer because for better or for worse in today's day and age, money seems to talk and most people seem to buy food.

Most of them don't grow their own food. Those who buy food. A lot of people these days are getting sick. A lot of people go to doctors. A lot of people are on various pharmaceuticals because they're degenerating, they're breaking down they're physiologically not functioning well. That has at the root of it, food quality as the solution, as far as I'm concerned.

If we can give consumers who care about their health and the health of their children, the health of their spouses, et cetera, the ability to test quality in the grocery store, at the Farmers Market. Between grocery stores, however they purchase their crops, I don't really care but if we can give them the ability to test quality and look beyond the label of the marketing and all that jazz, to really empirically what's in and what's not in your food. The idea is that that would have a dramatic effect on the food supply at large. I can go in to that in great detail. I would be really excited to talk about it.

Dave: It's a holy grail of chefs and of people who care about their health because we talked about this. In fact …

Dan: Even the government, the government is now paying for people's healthcare. If you want to solve degenerative diseases systemically, if you want to actually cure, it's going to bankrupt the government. I mean, it's not just foodies, it's down to some truly powerful forces. I mean, it is powerful forces, but sorry to interrupt.

Dave: It's okay. I don't want to sound like a conspiracy theorist because I'm not but I can tell you in the US, in the healthcare system, there's a lot of people making insane amounts of money through the government going bankrupt and a lot of them are actually controlling the government and all that. The same thing goes, by the way with wars.

Dan: I was an activist for 10 years before I got here.

Dave: Got it. When it comes to war and when it comes to medicine, it's bankrupting the government and making a lot of people really wealthy as it happens and those wealthy people are laughing while it happens. I'm not sure that the US is properly set up to be incented to fix this, but places like Sweden, where the government actually does pay for healthcare without enriching people to that extent.

They're changing their national guidelines around saturated fat and things have happened there. The whole idea, even behind the recommendations I have in the Bulletproof diet like there's a spectrum. It's like look, you need to write stuff but you need to eat less of the bad stuff that's in the good stuff and more of the good stuff that's in the good stuff.

Food quality is really important and avoiding all these pesticides and sprays and other toxins in food. That's the recipe for people who can think fully with their brain and can live fully in their body and emotions in that whole creative consciousness kind of power. It comes from food. It

doesn't come from food that has chemicals on it that don't belong there that inhibit mitochondrial respiration or something. It's not like you could do just one of those things.

You can be closer to perfect or further from perfect but if you have nutrient-dense food that's coated in cyanide, it's actually not really okay. Our thought process as humans hasn't been like that because historically this wasn't as big of a deal. We evolved to eat the food that was near us, that was most available that was most healthy.

Dan: As I understand it, the function of our DNA goes to the function of our nose and our tongue. A bodily function reproduction, all these kind of stuff doesn't take much DNA. A lot of our DNA is about sophistication of our senses of smell and taste because that's so important to our overall function. You probably are aware of that.

Dave: This is cool. Our listeners are always enjoying the conversation. It's funny because even something. There's some really primordial sense in compounds that one called substance pea which is around pain perception. Funny it's activated by cayenne or capsaicin. The hot pepper and things like that. It's the same in slugs. It's one of the most primordial things in every kind of animal out there because it was one of the most environmental sensing things.

It also is tied dramatic amounts of inflammation. You eat nutrient-dense foods without throwing stuff in them and you can affect the levels of substance P in your body. When those are high, your chances of neurodegeneration go up. When those are low, your chances of having a healthy nervous system go up. You're like wait a minute, whether or not I get MS or Parkinson's or Alzheimer's is tied to the most primordial sensing compound ever that you could use to taste your vegetables.

Dan: Right.

Dave: Something that makes me laugh though is like we have this amazing array of equipment for sensing the environment around us and now we're looking at making a laser to test the cucumber instead of just taking a bite being, "This cucumber sucks."

Dan: It's ironic at least but the fact is we've been dumped down. We have lost our … No, we haven't lost them, these senses. We have not trained them. I mean, what's still boggles my mind is that people don't like things like broccoli and beets. Only when I go and eat store-bought stuff do I understand why because they taste like crap. We do have the sensing techniques in peaches. I mean, buy a store-bought peach …

Dave: They're gross.

Dan: They're repugnant. Then pick a peacj off a tree that's ripe and you're like, "Oh my god, that's a revelatory experience."

Dave: I have to say when there's garbanzo beans, no one actually really like garbanzo beans.

Dan: It makes sense. Why don't you include hummus?

Dave: Let's face it guacamole or hummus? You know you're going to eat the guacamole.

Dan: I don't know. If buy a lot of those things, avocado in the store here, in Massachusetts at least, versus you're in India and you eat an avocado you just picked off a tree.

Dave: Big difference.

Dan: It's a totally different experience. The spectrum of variation in these crops is major, but anyway.

Dave: I'm with you there the quality and the type of avocado. We're talking about food and consciousness and this idea of a laser that you point at your food. I looked to solve this problem with coffee because I was having a massive reaction to most coffees. I've lived in houses with toxic molds. Funny of which, this is a soil fungus that's normal in soil, that has been amplified in its badness by spraying antifungal chemicals on farms.

That's one of the reasons we have this indoor mold crisis where mold grows inside houses and gets people even sicker than it did 50 years ago. One of the things that affected me personally. I ran to this with coffee and we actually do mass spectrometer testing on the coffee which doesn't show some of the stuff that's in the coffee because of masking. I've looked really deeply at this like how do I affordably test coffee?

Like you, I dream of being able to walk into a coffee house, shine the laser at coffee beans so like, "You know what, those are clean, I'll drink those." As it is now, I use laboratory testing that isn't mass spectrometer based for some of the toxins in mass spectrometer or for other toxins. How close are we to having the magic laser says this is nutrient-dense food and it looks almost the same as this not nutrient-dense food? Are we years or decades away from this?

Dan: It's more of a question of money than time.

Dave: How many dollars away are we?

Dan: Millions. Less than hundreds of millions, probably more than 10. It could be decades. It could be decades, it could be 2 or 3 years. Logistically, what we're doing in the backend with the organization is we've done some rudimentary research projects but what we really had to do was we had to establish a comprehensive data set for carrots.

The comparison data set for cucumbers and tomatoes and everything else, what's the spectrum of variation, minerals, compounds, amino acids, protein secondary metabolites and then what's the spectral signature of these things. Then build a data set and then an algorithm and program a gizmo. I mean it's a question of logistics. We, as an organization, fairly young and fairly small and that means we don't have the resources. It's a question of building the momentum and the relationships.

I had to say one thing about the nutrient density term because it's one that I feel partly responsible for helping to popularize 8, 9 years, ago, and I don't know what happened. About 5

years ago, people started using the term nutrient density. It's like organic. Organic used to mean contains carbon. When I was in 4th grade, I told my science teacher that I was an organic farmer and she said, "What are you talking about? All farmers are organic farmers. Organic means contains carbon, you stupid child."

When I was in junior high or 9th grade, all of a sudden everybody knew what organic meant. Nutrient density already means something in food science. It had nothing to do with what people who were throwing the word around using it to me.

Dave: This is one of my favorite topics.

Dan: I mean, it's just a little pet peeve of mine. I have actively stopped using the word for the past 4 or 5 years because it already means something and that is nutrient density in food science means kale is more nutrient-dense than rice because kale has more nutrition per unit calorie on average than rice does. The nutrient density of kale is considered to be the same regardless. The nutrient density of rice is considered to be the same regardless.

When the foodies who are on the cutting edge start bubbling up against the food scientists, there's going to be maybe some tension. I mean, for me that's why we created the term bionutrient because we want to use the term that doesn't already exist and define it empirically so that we can actually come out with solid science that is irrefutable that says this is higher quality than that, more nutritious, more flavorful, more aromatic.

I don't like to use buzz words, nutrient density is becoming a buzz word. I think that's really … It goes to fattism and simplicity of thought. I like to have a bit of a more complicated conversation. We're talking about nutrition and flavor and aroma, health giving attribute, but anyway let's just say that.

Dave: Let's talk a little bit more about how screwed up nutrient density is because I think a lot of people listening to this, this is an eye-opening conversation for them. A while back, one of the vegan authors of the radical low fat guys. It's all about agri-nutrient density and what they're doing is they're incorporating the water value of food in there that's saying in this much of this thing, if you ignore water there's this much nutrient if it was grown in soil. They look at a table from 1950.

Dan: On average.

Dave: On average, right. Which average …

Dan: Exactly.

Dave: It's a fraudulent concept.

Dan: Aggregate Nutrient Density Index. You're talking about Joel Fuhrman with foods?

Dave: I am indeed.

Dan: The end of scale.

Dave: It teaches you to eat food with no energy in them so you're constantly hungry.

Dan: I don't know the details. I just know about the average which misses the point.

Dave: The average misses the point because the idea, there's 2 things. One is you'll be hungry all the time because the most nutrient-density food ever is a handful of multivitamins. There's almost no calories and it's just vitamins. Of course you'll starve to death of that's all you eat and your liver will shut down, so that's a problem.

Nutrient density doesn't work from that thing and unless vegetables have been bestowed alchemical powers to generate minerals when there are none, you cannot say that spinach has iron in it unless the soil had iron. The fact that spinach a long time ago had iron in it when someone measured it in UC Davis in 1965, doesn't mean that your spinach you're buying at the grocery store has any iron in it.

Dan: In fact the USDA data is categorical of this fact and says basically that average nutrient levels in crops have been decreasing since they've been documenting it for the past 80 years. Most importantly, there is no aggregate that I'm buying the aggregate nag of spinach. You're buying spinach which is somewhere on the spectrum and you can't discern that then you don't really know what you're getting anyway. I think we're on the same page here.

Dave: We are bit for people listening who's saying, "I get all my nutrients from my food." No, you don't. You don't have any idea what's in your food to god's honest truth. Even if you go to your farmers market and you buy from the person with the most dreadlocks, it doesn't matter. You don't know what's in there.

Dan: The question is how does it taste? If you buy organic carrots that taste like soap and are somewhat repugnant to you, that is your body telling you relative qualities crack. We don't need a meter. We only need a meter if we want to deal with an industry and agri-business and the food supply at large. I mean, I had this conversation with a guy at whole foods who was fairly high up a few years ago when I was talking to him about this gizmo and he said, "Not a freaking chance that we're going to put any money into this to help you do it but when you do get the money and you're well in the way to it, if you wouldn't mind giving us a heads up, we will tell all of our growers that they have to be standard.

Basically we said, "When you know your tree is up and having this tool, come tell us." We'll tell of our growers they have 2 years to meet standard because they know the importance of this. They understand the importance of quality and nutrition and they're happy to collaborate. I think for a strategic standpoint if we want to affect the food supply at large, you want to affect at large, you want to affect carbon sequestration, agri-business, I think we do have the power with the people, with the money we spend buying go food but we need to use science and we need to use technology because those are the modes of the age to hide behind, to facilitate our objectives. That's the basic pitch.

Dave: It's a powerful pitch. Now, have you looked at doing at XPRIZE about this? Are you familiar with the XPRIZE Foundation?

Dan: I am very open to collaboration and support. I know there's lots of money on the West Coast. Various big money people and good ideas.

Dave: I'll do my best to see that Peter Diamandis sees this.

Dan: It's about relationships. It's all about relationships so if you know somebody who know somebody, I am more than happy to fly out there and have a conversation.

Dave: I'll make sure that I get this into the idea thing. I know a lot of the innovation members for the XPRIZE board, these are the guys who decide where the next XPRIZE would go. We just had an XPRIZE come out for education. How do you make it so you can get basic numeracy and literacy for less than 100 bucks on a device that can teach kids with no adults present?

That would change the world. That's something that I was like all right, I'll help to promote this. This is really important. That's something that's happening but this is the type of thing that prizes might be really helpful for. No promises there but I will make sure that the people who make those decisions have this in their idea bucket list.

Actually, I know many of them will hear this interview. There's also crowdfunding because if it's a matter of $10 millions, that's a lot for crowdfunding but if you can get some progress with even a million bucks and then get more investors, there are lots of investors who would do something like this assuming that the science can happen in a reasonable amount of time. It might be. This is a world changing idea.

Dan: We can go into the details of who the labs are working with and the PhDs that are organizing the research project. I mean, we've been trying to keep a fairly low profile and let our action speak louder than our words and build the foundation of an organization and a concept and the strategy more than throughout and run after money and make a big hoo-hah.

I think we're in a place right now actually where we're willing to make more noise and start reaching out because we've got the people. We've got the staff. We've got the professional PhDs to do the job properly and we get the labs to work with that are not charging us an arm and leg as you know about a final chemical analysis for a carrot is 400 bucks. Sorry.

Dave: We spend a lot of …

Dan: On just carrots is a lot of money. That's only carrots.

Dave: We spend a lot on testing coffee and it's one of the things where I have set or processing and really it was set of growing techniques and it's really tough. There's other things I want to test that I can't test right now because then the coffee would be more than a dollar a pound more expensive. Consumers don't want to pay for a certain level of quality, but ideally, what you're

talking about is essentially free. You buy a device, you put it at the grocery store so people could just use it and the net cost per test approaches zero.

Dan: What we're talking about here, I mean, ideally so this is the logistics is, I mean, I have definitely been approached by people who are willing to put venture funding in and the idea there is that they own it. I mean, what we're trying to do with a nonprofit is to say this should be an open source dataset. This should not be proprietary. This should be transparent and anybody who is curious or is suspicious or critical or anything can look at it, can look at all the science, can look at the information. You don't have to trust us.

They can actually do their own due diligence. Anybody who wants to manufacture a tool, here's a data set. If you can build a tool that can do it, go for it. We'll give you our sealed approval. We're talking about, ideally, this is a couple hundred dollar gizmo. This is the prize of smart phone and really ideally a couple generations down version 2.0 and 3.0. It is an app that can be downloaded on your smart phone and your smart phone camera can take that picture. And um as I understand the technology logistics, it is entirely doable, anyway.

Dave: It'll happen and there's …

Dan: I thought we were going to talk more about agronomy and how to actually build soil and grow up the crops

Dave: We'll talk about that. I mean, what we're talking about here is how do you create disruption? How do you hack something that really needs hacking. When I put on my venture capitalist hat, and I've worked on Sand Hill Road at Trinity Ventures who are now backers of Bulletproof. There are lots of examples for people listening probably, some of them have heard of it. There are lots of business models around open source where investors put money and yet there is an open source data, so anyone who wants to can pull the widget. There's probably a way to get …

Dan: I'm sure it can be done. I know it can be done.

Dave: I think so too. It would be one of those world changing really big things which is pretty exciting.

Dan: Can I go into some of the implications, the world changing things just because this is important?

Dave: Yeah, please.

Dan: I'm really a farmer and I'm not a BC guy. My understanding is that every green leaf has, what makes it green is chlorophyll and what is in chlorophyll is the chloroplast. Every green leaf you see is full of chloroplast. What happens in what chloroplast is that carbon dioxide and water and sunlight are turned into sugar and oxygen. In a healthy plant one does not fed soluble nutrients, not fed in NPK diet whether organic or conventional, a healthy plant takes 2/3 of that sugar it manufactures, injects into the soil, to feed soil life because the soil life is the ones who couldn't actually solubilize the soil. Get the copper and the zinc out of the soil, digested into a protoplasmic form and feed it to the plant.

Foundations of how plants grow is they make sure they inject it, into the soil, to feed soil life who then go out and solubilize the soil to feed up to the plant. A corollary of that process is you're taking carbon dioxide out of the atmosphere putting it into the soil. My understanding is you can increase organic meta levels by 1/2% a year simply through growing plants, not adding compost, not bringing mulch, simply growing healthy plants sequesters carbon and if you were to apply that conceptually on the world's agricultural lens, we're talking like 3 or 4 years to sequester all the carbon that's been added to the atmosphere since 1750.

Anybody who's got a problem with global warming this is your answer, healthy food. Growing crops, actually healthy food, not only is it good for you, it's actually good for the environment. Systemically deeply profoundly. I'm not talking about the aquifers and the dead zones and not even talking about that kind of stuff but some of the more deeper systemic stuff/

Dave: It matters how we grow because one of the guest that was on. I think it might have been Glenn from Alderspring was talking about how if you go to where they're growing genetically modified corn and you scrape the soil, it's like saw dust. There is no life in that soil.

Dan: Precisely.

Dave: You're not getting the carbon sequestration from those crops.

Dan: You're actually burning off carbon and turning it into the atmosphere. My understanding is that there's more carbon in the atmosphere from agriculture than from burning hydrocarbons. Agriculture has burnt off the top soil which is primarily organic. They burn out through organic matter and turned it into CO2 in the atmosphere and that's what chemical farming does.

Dave: Did you just say that vegans are responsible for global warming? I think I heard you say that?

Dan: Nothing of that sort.

Dave: Just kidding.

Dan: if you are eating high quality garbanzo beans, you are helping sequester carbon. If you're eating low quality garbanzo beans, you're helping burn off the soil. It has everything to do with the quality of the crop, not the crop itself.

Dave: It has to do with the quality of the crop.

Dan: Chickens, the whole thing.

Dave: I'm with you there. One of the arguments that constantly happens in the blogosphere it's like look NO, Grass feed or don't eat it when it comes to animals for exactly that reason in addition to animal cruelty, in addition to supply chain and number of deaths per calorie.

Dan: It will help for that matter.

Dave: That whole living a long time thing is important. All of those reasons. The same thing goes for your carrots. That's one reason why I live on a 32 acre organic farm and it's not all farm, in fact it's only like half acre farm now but we grow all of the food. It takes to feed my family on my property. Why? Because I think this is the best way I know to live forever and I'm still a half hour from an airport. I'm not in the middle of nowhere but I changed my life dramatically because my own research tells me this is the way to do it.

For most of my life, I haven't done it this way but I've gone to the farmer's market. I've intentionally focused on quality food and getting the best butter. Actually it matters because it matters for the environment and it matters for the way my brain works.

Dan: Your children. If you got children. You want them to be strong and intelligent and sentient, healthy. It's foundational. The food they eat is it's foundational. Their function, I think.

Dave: It's become apparent to me. My first book was about epigenetic. How the environment including food affects multi-generations. It was what do you do as a human who wants to have healthy grand kids and healthy children and smarter kids. There's 1300 references in that book. What you do now, what you're capable of doing now is in some meaningful part determined by the food you're grandmother ate.

Dan: Absolutely.

Dave: When I look at what we've done to our food and what our grandkids are going to look like, the movie Idiocracy seems to be a good model.

Dan: That's why we have epidemic levels of degenerative disease. We are devolving as a species because of the quality of our food. I mean you got a problem with the political debate, you have a problem with the low level of intelligence and the political debate, it's because the low level of intelligence which is because we have a low quality if food. I mean, for me, all these things are beautifully interrelated.

Dave: They are.

Dan: Growing and eating high quality food is one of the most activist, radical, political spiritual, economic, philosophical things you can do on an actual real level.

Dave: Now, the slightly skeptical biohacker in me, is going to say all right, you and I are clearly in alignment. I eat the mist bad-ass food on the planet as far as I go. I do this by design. I pee in my own garden. I have the most expensive pee in the planet according to men's fitness this month because I take a lot of vitamins. If some of the vitamins get washed out of my system, I don't care. I give them to the gardens. There's an argument about should you take vitamins or not.

Dan: We can discuss that. That wasn't the point you're making.

Dave: It wasn't. It was that if someone is out there, you're saying all right, I'm in a situation where I'm not going to get the most badass food on the planet because I can't afford it because I'm a city,

because I'm travelling and I'm on an airplane, whatever the deal is.

It seems like you can take whole food concentrates, so called super foods, although lot of those are full of garbage or you could even take minerals, specific chelated forms of minerals that have been fermented or bound to amino acids and all the things you can do. You can take those as an insurance policy on top of your food and move the needle in the right direction. What do you think about that idea?

Dan: I think it's better to supplement your diet and I think there's probably a bunch of good science out there and there's lots of good companies providing high quality supplements. I think we evolved to eat food. For me, it's a question of the systemic supply chain and sure people have their crisis management strategies. I don't think we belong in the cities in the first place.

Dave: We don't.

Dan: What's exciting to me is because it's getting so difficult out there with all the economic logistics, it's more and more feasible for people to buy 5 or 10 and 20 acres for 10 and $20,000 and set up their own operation. I mean, I travel around the country, the North America pretty much at this point and give courses to growers about principles of biological systems. How do you intelligently work with the land to grow high quality food and ideally make a living as well. There is a lot of really inexpensive land in this country. Beautiful, wonderful land that I think getting it the hell out of the city is not the best strategy. That may be too much of a junk.

Dave: Depending on what your career is. It's not that big of a deal. So many big companies allow you to remotely work now. My sister works for a big company.

Dan: Not that you want to work for a big company.

Dave: A lot of people, a paycheck, health insurance, you got kids. There's nothing wrong with working for a big company. I did for 20 years, startups, they kept getting bought. Really the value of a paycheck can buy the farm, literally. You can buy the farm with your paycheck.

Dan: Absolutely, great. It's a transition process.

Dave: My sister did that. She works for a big company. She moved out of a big city. She lives in the middle of nowhere in Washington State with a farm, and sheep, and every other kind of animal you can think. She's happy as a clan. It's that kind of situation where you can apply money to the problem but most people listening to this, even if they're fantasizing about getting out of a city unless they've reached some economic level of success to be able to say, "All right. I'm going to change my career.

I'm going to change my income level. I'm going to go and do some I know nothing about which is run a farm. They're going to have to call you and learn how to do a farm or someone like you. That's the 2 to 5% of people who listen to this.

Dan: Right. That's probably the minority even though 2 generations ago, 85% of people live in the

land. I don't see the reason why it can't happen again.

Dave: It is where I live. I mean, they call it the sun belt. There's bananas that grow literally in Canada. There's bananas that grow 2 miles from my house. It's not that warm here but it's pretty darn warm. It's pretty much like California during summer and winter doesn't freeze much. I'm seeing a huge influx of very wealthy people from around the planet.

Even a lot of Chinese are multimillionaires. Wait, there's a place where they're clean air, clean water, clean food and I can get enough property to have a farm. I mean they're buying 5 to 20 acre plots and it's happening all over the country and all over the world. I think it's one of the best investments you can make but for all the people listening who aren't going to do that which is the majority, what are they going to do this year?

Based on your knowledge, if you're sitting at home right now, what would you tell them to do? You've got to have high quality food or bad stuff is going to happen. We don't have our laser spectrometers that are going to tell us what food us high quality. Give me the first couple of steps that you should do just to take advantage of this knowledge?

Dan: I mean, I'm not a nutritionist but I think in most cases, people are probably ingesting things that are processed and preserved laden. I think simple whole foods is a good foundational place. I think if you actually buy whole grains, brown rice in a 50 pound bag or we're talking about garbanzo beans for some reason.

Dave: I don't like them this way.

Dan: A lot of those things, if you start with the raw ingredients, unprocessed, you can dramatically improve the quality of your nutritive inputs. It's a whole life thing. I don't know that there's any simple one answer. If you got a backyard, and you can play around on your 2,000 square feet, you can grow a hell lot of food. I mean, if this is a fantasy that you have, start practicing now.

It depends entirely in the individual and their age and their health and their other logistics but I don't see any reason why we don't begin to move more. I think there's a lot of hype about technology and computers and connectedness and cyber stuff. I think reality actually isn't that bad. The more we can unplug from our screens and engaged in the real world, it actually fulfills you deeply in multiple levels. I think a positive state of mind is profoundly valuable. You can have a great diet and still be better and sour and you're getting sick.

Dave: It's true.

Dan: It's not just about the food, it's about your whole state of being and I find taking my shoes off and playing in dirt and hanging out with my kids actually leaves me feeling better. I think it's a whole lifestyle thing. I think we're animals. I don't think where these constructs of mechanized society, I think we belong in nature. We belong outside and community and relationships. I don't know. I'm not getting any kind of an answer.

Dave: Those are reasonable answers. I actually want to go more into the cyber thing with you. I think I

can predict your answer but I'm not sure. I see aquaponics happening. I see people talking about vertical gardens in cities. What's your take on … We're all growing pot in shipping containers now, commercially for medical use and all. Should we be growing, so they have LED lights and chemical inputs. Can I grow nutrient dense vegetables in a closed system in order to feed people in cities?

Dan: I like soil. I like plants. How much money does it cost to build the infrastructure? I mean, I see these aquaphonic systems and these farm in a box thing, I'm like somebody is doing that and they're pitching it and they're selling it because they're making money off of it. I can do that kind of production tenfold for 15% of the investment.

I'm drawing a lot of salad greens right now on my land. I'm selling probably 80 or 100 pounds of Mexican mix, and arugula, and spinach a week here in November in Massachusetts with no power, no heat, a metal hoop with a layer of plastic over it. It's called a hoop house. I've got a few different hoop houses. I would say land is wealth. Land is where you should put in your money, not all these fancy systems.

I think it's not a wise use of money, personally but if you want us in the city and you want to do the vertical thing, I'm not going to say don't. I don't think it's the most pragmatic solution. I don't really think it's solving the problems, the global problems. I'm not so much concerned about Americans per se really, because I think we're actually relatively comfortable. I'm much more concerned about people in other countries.

It's not called the developing world. It used to be called the third world. People are starving to death and they're literally living the land because the land will no longer grow anything. I mean, if you're talking about hundreds of millions of people and quality of life for people, it's wealthy, western, North American people. It's not my concern. It's really Asia and Africa and places like that, South America, Central America, places where people are really struggling where the land is wearing out.

It's worn out where the green revolution, where agriculture has historically just worn out the land. We can do so much for so little money to transform this planet, to solve our systemic issues of poverty and global warming. I mean real serious issues with an understanding of biological systems. What is life? How does it work? What does it need? That's really more where the pitch and the strategy of the organization is, is how do we work to revitalize land?

How do we work to build soil and have all these other corollary benefits. Food quality is where we've been focusing overtly because a ;lot of people these days, buy food. It you want to reach to the larger audience, with the talk about food quality.

Dave: End of the day, human performance and human consciousness is directly correlated with soil quality and we've been just messing the soil up for a long time. I fundamentally believe that and a lot of the things that I do in my business and just in my personal life are around making sure that at least for my family and for the people that I can influence we start working and fixing the problem. We're in alignment there.

There's a question Dan that I've managed to ask almost every guest on Bulletproof Radio because we're up at the end of the interview. It's given all the stuff you know, not just about this but your life's experience, if someone came to you tomorrow and said I want to be better at being human, this goes right to this consciousness thing that you've alluded to several times. I want to better at everything I do. What are the 3 most important things I should know?

Dan: You want a quick answer to the question?

Dave: At least 3 buckets. They don't have to be that short.

Dan: What is a human? I spent a little over a year in my life in India and a lot of that was up in the Himalayas because I had came across the wisdom of the east which is I think a deep science metaphysics talks about other frequency ranges not just the plains.

Dave: Which part of the Himalayas?

Dan: It used to be called Uttar Pradesh. Now it's Rajastan . Basically the Ganges from the Gangetic Plain up. The foothills of the Himalayas and up into the Himalayas.

Dave: The reason I ask is I've been to the headwaters of the Ganges, Mount Kailash. I spent some time in the hall lands and Tibet and in the Himalayas as well. Just wondering if we were in the same spots but we weren't. Anyway, go ahead. I didn't mean to interrupt your answer.

Dan: The headwaters of the Ganges is Gangotri. If you've been to Gangotri, I've been to Gangotri and Ganani

Dave: Awesome.

Dan: I think here in the west, we don't understand the science of consciousness. I think that reality of the universe, I think that God and nature and science and love are synonyms. I think that there's 2 basic forces. There's love and there's fear. There's light and there's dark. There's attraction and impulsion, love and fear. Getting in tuned with that and humbled about that and working to look within and take yourself.

I mean, I think we're spirit incarnate. I feel like I know that. Operating from that foundational precept of love being all there is, I think Jesus was on to something. I think Jesus said the body is a temple that is not about going to a church or an Ashram or a temple or whatever your name of your church is, it's about being present in this physical form and experiencing reality deeply on multiple levels through it.

This is what I talked about with consciousness is I think we are hard-wiring the capacity to experience multiple octaves, multiple frequency ranges. We talked about the chakras and the meridians and all these kind of stuff which is the science of the east. Not just the liver and the gallbladder, but the heart chakra and all that kind of stuff.

I started university as a music major. I ended up in the history degree but my understanding is

from physics, 20th century physics, quantum mechanics is that most of reality is either a dark matter or dark energy. Most of reality can't be found in the physical plane. If you want to be real about life and where we're at and everything we're interacting with, we have to take into consideration that most of reality is not on the physical plane.

I think all of our tools, all of our microscopes telescopes are all the tools we have are tuned in the physical plane and that's why we can't find most of what we call dark matter and dark energy because it's in a different frequency range. It's like the octaves and the piano keyboard. There's high C and high, high C and high, high, high C.

Those octaves, we can't experience with our tools in our western science but we do have a tool for experiencing them and that is the body. Only when our body is vibrating harmoniously, only when it's coherent, can we experience those aspects of ourselves. I'm not sure if I'm answering your question at all.

Dave: I think you did. I appreciate it.

Dan: I think being, I don't know. I mean, I don't remember the exact question. One of 3 things you do.

Dave: The 3 things you should know if you want to perform better. What you're talking about is the consciousness or spiritual side of performing better. You got to know what you are and things like that.

Dan: Only when you're grounded in your deeper selves can you be a better person.

Dave: There you go.

Dan: Your body is your tool for experiencing reality. When your hormonal system is not working because you don't have the elements necessary to build the hormones in your body and your food, then your biochemically imbalanced and you can't operate at a higher level. Eating good food that has a full spectrum of nutrition in it is foundational for system function but if you don't expand your perspective beyond the physical plane, I think you're never going to be fulfilled.

Things like love. You don't know what love is until you experience it and be like, oh, that's what they meant by love. It's an experience. It's a visceral experience. That's what the body is for is to help us experience and know reality. I think the more in tuned the body is, the less we're in pharmaceuticals, less we're dulled down, the more sensitivity we have, the more we can be attuned to these things.

Dave: Awesome.

Dan: I'm not being very helpful right now but those are the few points.

Dave: I think people are really getting some value out of that. Thank you for sharing that. It's actually not the easiest question to answer just on the spot.

Dan: I feel like you're done. Time is up so I'm not properly digressed. I've got a pretty good stick but it takes at least 10 minutes to lay it all out.

Dave: We are at the end of the show. That's a really good answer and I appreciate you sharing it with me. Where can people find out more about your work, the Bionutrient Food Association, maybe your technology getting involved and that kind of stuff? What's the URL people should go to download more about it?

Dan: It's bionutrient.org. It's a singular bionutrient, just those terms put together.

Dave: Dot org.

Dan: Dot org. We're a nonprofit educational organization. We're not a for profit. What we do primarily is courses for growers. What is life? What is a biological system? How does life work? How do you work with it? How do you take your land, your soil and identify what it needs and address it systemically. It's really pretty rudimentary. It's pretty simple. Just not a heavy caused or effort. It's more about being able to view the land as a living organism and providing for it, what it needs to flourish.

You can really do very little as long as you do the right things and stand back and life flourishes. That's what's so exciting to me is similar of the land on the planet is weak, and worn, and withered. It needs so little. A little bit of copper there and some copper crops over here, some boron over there. A few small things at nominal cost and you can really kick things into much higher gear.

Dave: Awesome. Thanks for continuing your good work. What you're doing really, really matters and it's one of those things where the input here and the result is there. Humans as a species are notoriously bad at correlating events that happens over long periods of time. You've clearly dialed it in. It is about the soil. End of the day, just everything we do is about the soil and you're working to fix it and give us tools so we can make better choices. I appreciate that kind of work. I appreciate that kind of dedication so thank you, Dan.

Dan: Thank you very much for having me on and your work with spreading the word.

Dave: Hopefully about a million people downloads this over the next month or so, so that's meaningful because getting.

Dan: That's a pretty big number.

Dave: Getting the knowledge out really matters. I'm grateful that you're doing the incredible work that we just tried to summarize in just an hour. For people interested, go to bionutrient.org and check it out. Have an awesome day, Dan.

Dan: Thank you.

Dave: If you enjoyed today's episode which I'm hoping you really did. That was a really great conversation, go ahead and buy better vegetables. That will actually make a difference. Not just for how you feel and how you perform but it makes a difference for everything that happens on the supply chain. If you can buy better vegetables from the person who grew them, you're actually changing the economics for that person which means they can do better things to make better soil.

Do your very best. That's something that I do every day. I don't only eat vegetables I grow, I eat vegetables that I know grow and sometimes I even buy them from the store but the idea is to do everything a little bit better. It doesn't have to be perfect. take that knowledge, go out, do something cool with it. Go to iTunes and say I liked this or share this on Facebook.