



Transcript of “Hacking Hemp with Anndrea Hermann”

Bulletproof Radio podcast #147



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Dave: Hey, it's Dave Asprey with Bulletproof Radio. Today's cool fact of the day is about a man named St. Fiacre. He's an Irish monk in the Middle Ages and he had a really important title; because, he's the patron saint of hemorrhoids. Later these were actually called St. Fiacre's curse and he contracted the agony of the anus while gardening one day and mysteriously cured it by sitting on a rock. Going back to 1999 Ireland decided that his honor had gone unacknowledged for too long and dedicated a garden for him at the Irish National Stud in Toley County Kildare or Kildare. I don't actually speak Irish that well.

Sorry to all you butter making friends of mine. On that note, today's guest is someone I'm really, really pleased to have on the show. It's Anndrea Hermann and Anndrea is one of the leading authorities in hemp. She knows just about everything there is to know about hemp when it comes to you, it's use industrially and specifically as a health thing. This is a conversation that I've really wanted to bring out into the forefront. Now that we're had a few states in the US legalize hemp growing and legalize even pot growing there are quantifiable and real health benefits that can come from using this herb medically.

There's no reason that I can think of that we shouldn't allow it to be used as an herb, as something that grows in our environment. I'm really pleased with the regulatory changes and I want to talk about health and quality and things like that. Anndrea, welcome to the show.

Anndrea: Well Dave nice to meet you and thanks for having me on. It's good to finally be here.

Dave: You have an interesting degree in hemp. Can you tell me about that?

Anndrea: Yes, my basic degree comes to me from Missouri Southern, a state university in Joplin, Missouri. It is focused on something called ecolonomics. Ecolonomics was keyed by Dennis Weaver, which was from Gunsmoke. His alma mater was Joplin Junior College, when it was a two year school. While I was there Dennis Weaver came forward with a concept of a capstone course called ecolonomics, which takes biology, economics, political science and sociology and puts them altogether and

says, how do you use those three or those four areas of study to focus on some sort of sustainability.

Very similar to incorporating a recycling program into your office, why does that happen? Is it economic? Is it politics? Is it the social framework, or is it just the biology of recycling and reduction of wasting trees and those types of things. I used that, which was just a course. You could take a couple of courses additional to get this certification. I turned that into a Bachelors of General Studies and based my bachelors program on those philosophies, focusing on industrial hemp.

Dave: Now, you're Canadian, right, or do you just live in Canada?

Anndrea: I'm now what I call Canaric and I hold dual citizenship.

Dave: I'm on that similar path. I live in Canada, but I'm American. Maybe someday I'll have a couple of passports, instead of just one. Certainly my kids will. It's a good thing to do. What are the differences? Actually this is fascinating? What are the differences between the government's perspective on hemp between what you see in most of the US and what you see in Canada? Are they substantially different?

Anndrea: Very substantially different. The hemp regulations came into play in Canada in 1998, so March of 1998. Prior to that the government had already been keying on the fact of looking at industrial hemp as an agricultural crop period, saying look they're cultivating in Germany and other places around the world. It's a crop historically cultivated in Canada and that was already on their radar. There were people that had come forward saying, hey I'm from the farm. I'm from the industry base. They came on board very early and actually facilitated research trials prior to any legislation being put in place federally.

Which was great, basically saying, hey we're not going to just shove famers into an agricultural crop, we don't even know is really going to grow here. It's been a very government funded, government led, government initiated and really a great partnership between government and industry to push forward the sector.

Dave: I'm working on creating a small organic farm outside of Victoria, B.C. Should I be planting hemp on it? Am I going to go jail if I do that?

Anndrea: No, you won't go to jail as long as you've got the proper licensing in place. It is a licensable crop. You're still controlled in Canada. We're still controlled underneath the Office of Controlled Substance. The hemp

industry, the industrial hemp regulations are a subset of the Narcotic's Act, which then allows for cultivation. Now in Victoria or any small producer across the prairies, the minimal amount of acreage for commercial production in Canada, is ten acres. That's the amount of space you have to delineate for your crop to grow, and cultivating that ten acres or to get a commercial license.

If you want to have three acres, you cannot do that, unless it's for research and then that gets a separate research license.

Dave: Awesome, so that would be a pretty substantial chunk of my organic farm and since I want to eat what grows on it and not just hemp seeds, maybe I'll have to find some other way.

Anndrea: Exactly.

Dave: It's awesome that we even have the ability to do that without having to put up tarps, hide from helicopters and things, which is what normally happened in the Bay Area, in the Santa Cruz Mountains where I used to live.

Anndrea: Absolutely. The nice thing about Canada is that we have full, Canada's framework, whether it be access medical cannabis. We do have a federal way, no matter where you're living in this country. You access it the same way. That's a major difference with your question about happening in the United States, is that here we have a federal law. You're in Quebec, you're in BC, you're in Alberta, Manitoba, you are following the same regulations. It's a very even playing field. You understand them completely. There's no different interpretation of the regulation based on where you're living at. In the US we have of course we have our federal part, which I'm sure we'll get to that, but each state that has its own regulations they've put in place.

Dave: I'm intrigued by that fact. Do you see down south of the border in the US, do you see a future for their being just federal regulation for this versus patchwork, where you never know quite what you can do. There's banking problems in the US. That's another thing that's happening in Canada. Are they going to fix it in the US or is it still 20 years away?

Anndrea: It will be faced. They're going to have to have some uniformity when we're talking about what the THC level is, the processing, food security, plant breeder's rights, these types of issues that will come in underneath the USDA at some point in the journey. Especially like certified organic. Those are going to come in. I can say it's been very interesting. The USDA came

forward with a letter a couple of months ago saying that if you're a farmer in a state that legalized industrial hemp, and you're growing in accordance with those regulations you would not be denied benefits you could apply for through the USDA.

This is huge. This is saying hey, the USDA is recognizing industrial hemp as an agricultural crop and respecting the rights of the states and those people to vote in the permission for farmers to cultivate industrial hemp as a food and fiber crop. We're starting to see that come on. I don't think it'll take 20 years, but we'll definitely have a hemp office in the USDA. That's what I envision in the future.

Dave: Is it true that the Constitution was written on hemp paper?

Anndrea: It is true historically that hemp was used in a parchment paper, so part of the paper and the drafts that went forward.

Dave: Wow, I've always heard that but I never validated it, but I figured you would have. It's shocking to me that we're cutting down trees when we could be growing a sustainable crop like this. Can you talk about the difference between cannabis and hemp? What are the differences from an agricultural perspective and a legal perspective?

Anndrea: Well, industrial hemp is cannabis. The same as marijuana is cannabis. Hemp or industrial hemp and marijuana, those are just common names that we call portions of the cannabis plant. The legal delineation is really based on the percentage of THC present in the flowering parts, that's what legally defines industrial hemp all around the world, where legislation is in place. We have in Canada in the field sample, it's .3%, 0.3% THC or 3000 parts per million. Then further from that, you know that the derivatives the protein powder, the hemp oil, the hulled hemp, shelled hemp parts. That all has to be tested also for THC.

That's in our federal regulations here in Canada. The US regulations most all of the state regulations also base it on 0.3% and then if you look in Europe, it's 0.2% or if you look in Australia it's 1% THC, all based on THC levels that makes it industrial hemp or then falls under outside of the industrial hemp regulations and can be picked up in some sort of other regulation framework.

Dave: It's awesome that we're standardizing that. Now that brings up another specter, how long would you predict until Monsanto has genetically modified hemp that's Roundup ready?

- Anndrea: Well, you can't sell the beast like. That's going to basically come down to contracting companies in the marketplace demanding a non-GMO, grown without the use of in crop pesticides, food product. That's where it's going to narrow down to; because, we're not going to be able to stop and we're not stopping at, I say as a general industry saying. We have trials presented at the Canadian Hemp Trade Alliance Conference last year about herbicide application in hemp production. They basically said that it really didn't do much of any good for it or it wasn't beneficial necessarily. It didn't make the yield so much more from the controlled plots with no spray on them. It will boil down to what the consumer wants, and what the contracts say; because, farmers that are growing genetically modified crops and spraying those crops will continue to do so, unless they're contract says otherwise and the market demands it.
- Dave: If you're working for Monsanto and you're listening to this. Don't you dare, I'm watching you; because, we don't need any more of that crap.
- Anndrea: Exactly and that's what I try to talk about when you're out there in the field. The nice thing about industrial hemp cultivation in Canada is that there are no registered pesticides for hemp food production in the entire country. It's technically illegal for a farmer to spray his industrial hemp crop that's going for food unless it's in a particular one other province that has a minor use permit for fiber only production and it's a herbicide for grassy weeds which is typically not the problem. It goes back to saying that it is illegal for a farmer in Canada in current regulations to spray his grain crop with any type of pesticide.
- Dave: Canadian hemp food products might actually be superior to American hemp products; because, hemp may be sprayed and Canadian hemp is not allowed to be sprayed.
- Anndrea: I'm not for sure what the regulations are for that, but I do believe that the crops that are being grown are not being sprayed in the US. I would never say one would be over the other. What I would see really happening Dave, is a real synergy amongst the United States growers, well North American growers to be able to pool material together, the same way that they handle chickpea and bean and other productions. If you look at what happens in Montana, North Dakota and in the prairies in Canada, is very synergetic where they can bring them all to one bin and put them in and

function in the same graining system. The same quality and integrity and pedigree seed system.

That's what I really see happening is a real collaboration amongst all the growers in North America, the United States and Canada particularly.

Dave: One of the agricultural problems that I track in a lot of detail is a mycotoxin in grain production. Depending on the environment, depending on where a grain is grown and depending on how it's stored, things like corn, soy, wheat and hops, all those things can develop mold at different stages of the life cycle and different stages of production. Those molds are some regulated in different amounts, in different countries and what not. Have we put in place comprehensive mycotoxin regulations on hemp seeds and hemp products; because, I know for the stuff you smoke mold can seriously jack it up.

It can actually jack you up if you smoke moldy weed. Has the regulatory framework been there for mycotoxins in hemp?

Anndrea: I would say yes here in Canada. Yes, absolutely. It's part of the contract, so it goes down to the contract, also. When they're bringing in the grain, they're testing it at that point to make sure that it's free of e coli, salmonella, other constituents that are probably looking at the free fatty acid profile, these types of things. Is it contaminated in some way? At that point then it goes on to make the food product. The food product also has to go through a complete certificate of analysis according to federal mandated levels of these things being present or not present at all. Then it falls under a food safety issue, so we're making sure that that product going out doesn't contain high yeast and molds, doesn't contain e coli. It has a free fatty acid profile that's within spectra and fits the nutritional profile.

Dave: There's a definite a yeast and mold count. There's also the presence of aflatoxin, ochratoxin, fusarium, fusarium or fusarium endotoxin, that makes trycosophines. Are those actually included? You may now know. It's kind of a strange question. It's just one that has a big impact on growing some things.

Anndrea: There are companies that do require that to be part of the certificate of analysis. Some of those might not be on the standard certificated of analysis produced on every batch, unless the company does require it. I do

know from my past experiences that I have particular clients that wanted ochratoxin as part of their certificate of analysis.

Dave: It's the most . . .

Anndrea: That test was ordered. Those were ordered for them, so yes I would say that companies are tracking that. I can say that from my experience now moving into like the BRE Certification with the natural harvest of GFI, these gold food safety standards, we're starting to see these really come on board. It's just something like with gluten free. One kernel can be enough to contaminate, so we've got to make sure that those tests are done.

Dave: I'm so pleased to hear that. I'm seeing that Europe is way ahead, particularly the US and Canada, tends to be ahead of the US on regulating these. Like China, some of their standards are better than American standards and others are much worse, Brazil and Chili. Tracking what happens where is fascinating and for a new agriculture commodity to come in it's so smart to just put the standards in place at the beginning, so you don't have to retrofit the system. I'm super stoked on that. Let's talk a little bit more about what amino acids? Give me some of the health sides of hemp, rather than just the hallucinogenic smoking sides. What do you get from it?

Anndrea: We're not going to be smoking our hemp anyways, so that's one thing right. You are getting some of those super long polyunsaturated fats, like gamma linolenic A, gamma GLA, those are present in borage and primrose oil. They are not present in olive oil, grape seed oil, flax oil, sunflower. These are really nice oils. These are really good oils, but they do not contain some of these super long polyunsaturateds. Once we enter those into the body. Some of the listeners may know those are long. They don't break apart as easily, so your body uses them as building blocks to move on from there. Of course the great spectrum of all of your omega 3, 6's and 9's. In addition to having the triple, the zinc, the iron, the copper, the magnesium, the manganese, these types of things that our bodies need to actually function properly. It has that nutty taste. Also looking at the highly digestible proteins. Really what you're taking in is a vegetable based protein that is very highly digestible around that 98% digestibility, so what's moving through is not filler. It's actually getting in your system and fully helping to take up that protein.

- Dave: I did a lot of analysis into vegetables, as far as proteins. There's no doubt in my mind that the highest bio-availability vegetable source protein is hemp protein; because, it has the highest amount of IgG. It's generally a good one. I have some concerns about excessive Omega 6 consumption, but your point about GLA is also important; because, people don't know this, but if you're in ketosis operating mode on a long term basis, it tends to deplete GLA. If you get a comprehensive analysis of your red blood cells, you can actually see whether you're deficient in GLA. There's a case to be made for taking some hemp protein or hemp seeds, just to get the GLA as long as I have the concern about excessive Omega 6's; because, they can be incorporated in your cell membranes. I think there's a role certainly for some hemp oil, although I would be concerned about making it my primary source of oils; because, it seems like butter and coconut oil do well for that.
- Anndrea: That's what I say, all these other oils, they're really good oils, so I never tell anybody, stop taking any other oil and have this as your only oil. No, have a diversity of oils in our diet. They're going to give you, like you say those additional things that our body needs, that lots of the other foods lack.
- Dave: Agreed. You want to get the right amounts of the right oils and a single source of oil isn't going to do it for anyone on the planet totally, I'm there with you. Let's switch gears a little bit; because, the medicinal uses of sativa particularly are of interest to me. I spoke at the recent Autism One Conference and talked with a bunch of people. There's some really cool things going on with CBD oil. What are some of the other medical uses of cannabis? Kind of walk through the different areas where it's used and where it may have effects and where we know it has an effect.
- Anndrea: Well, there is a lot of ongoing research right now as it pertains to CBD, CBGB, CBN, all of these different cannabinoids present in the crop. In the plant particularly whether or it's being sequestered from industrial hemp, or medical cannabis, or marijuana in this case. Right now in Canada if we look at the, basically looking at what the law allow us to do here. In Canada we're not allowed underneath the current regulations for industrial hemp to sequester any of the cannabinoids from the crop. We're limited here on what we can do with that portion. We cannot harvest the crop in a fashion and then market that product based on CBD, or based on THC or any of those components. There's some

legal framework that comes into play here in Canada. Then in the US, also there's some legal framework. What we've seen right now coming from the hemp industry association is that they've put out a statement talking about what is hemp oil? What is hemp oil? Is hemp oil this culinary oil, that is cold pressed from the seed? Is this hemp oil that is an essential oil produced from the flowering parts of the plant?

Where does that fall into in the regulations? Those are a lot of the questions that we have about is it actually legal to have CBD across the market or is it not? With that said, there has been work on looking at the receptors in the body and I don't pretend to be an internal specialist. I don't know exactly how those things happen. Essentially we've all got receptors that they are finding that are helping with or course as we know seizures, epilepsy and fibromyalgia and inflammation. There's been some really interesting research that's been published recently looking at the incorporation of cannabinoids in Post-Traumatic Stress Syndrome.

There's a lot of legitimate research that's coming out now, everything from using hemp in nano-technologies to medicinal properties at looking at those cannabinoids or even looking at it as a natural insecticide to fight nematodes which are prevalent all around the world in our agricultural system.

Dave: I'm actually kind of relieved to hear the progress that's happening; because, not using some crop that's this ubiquitous it's just dumb. Thanks for the work you've been doing on this, both on making it available on the medical side. I had a chance to sample some very high end CBD oil. It tasted kind of like licking a bomb I would say. I took it non-capsulated. Not a particularly pleasant taste. I used a substantial dose of it. It's hard to know over the course of a week whether it really impacted inflammation or not. I tend to get inflamed easily, especially if I travel and all.

I have a broad set of things I do to counteract that. Maybe it added on, maybe it didn't. Some of the studies around, things like autism, epilepsy and things like that, it clearly has some very specific effects on certain site or kinds in the brain. There's so much more work to be done on the research here. Now that the stuff is available, we can start doing the research on it. Is it legal to buy CBD oil across the US, as long as there's not THC in it or are you still kind of at risk if you're in Alabama and you try to buy some CBD oil over the Internet?

Anndrea: I think there's still a risk out there. Right now the legal framework I think is being investigated on multiple facets and looking at what's happening in the US and each state having its own regulations, at what point do those regulations sort of trump any sort of federal card on it. Really I would need to have the official statement coming from the Hemp Industry Association, particularly on saying this is what the status is on the legal framework. It's obviously coming into the country. It's obvious that the government knows about it and so looking at that is it legal in states that are passing legislation making it legal, so what about those states where it's not.

I always say you have to make sure within the state you're following any state access regulations pertaining to cannabis. You know that that product is free for sale and that you're really, you're talking with your doctor about it and making sure that you're going about it in a way that you're not going to jeopardize the health of your family and the stability of your family over seeking a product.

Dave: That's really important. I foresee that happening better, especially; because, now Amazon finally caved and they're willing to pay sales tax to the different states. Okay, if you're a state legislature and you realize people want to take something that doesn't get them high that might help their autistic kids, like how Puritan do you have to be to vote against that. It's one of those things, well we've got sales tax revenue here. People wanted it. What was the harm?

Anndrea: Exactly.

Dave: I expect that to progress. It just takes time; because, politics are slow.

Anndrea: It takes time and we need to have that scientific documentation so that doctors feel comfortable and patients feel comfortable and a lot of the patients with autism are focused on the children and we need to make sure that what we're doing is proper dosage and that it's delivered in a way that has all of those quality parameters, the yeasts and molds and bacteria's and those things in check prior to that we completely understand that portion of it. You know that if you're buying it from one place or another, that that product is relatively the same, the same way if you're buying hemp oil. Cold pressed hemp seed oil from one, it's either a Manitoba harvest or those brands living harvest that you're going to get the same integrity of taste of product.

- Dave: Yeah. Getting good quality out there is first and foremost for any of these things. The more testing you do, the better. I'm kind of surprised. I've tested some products I was thinking about doing, not hemp. I tested a very high end maca powder that I was thinking of using as an herbal adaptogen. I found 13 parts per million of aflatoxin. I'm like sorry. That should not be there. I don't care how high end it is. That's not a product I would carry even though it's a commonly used one. I'm not saying that all maca has problems. I'm just saying that when you dry any herb that there is a good chance if the drying parameters or the storage parameters weren't right, that these new aggressive strains of fungus that we created with our agricultural spraying can take root on it.
- I'm really pleased to hear that people are paying attention to this; because, otherwise it's a risk for any other part of the food supply. This new stuff it's no more less of a risk, but it is a risk. What about taking hemp and using it to make buildings? How would you use it for building materials?
- Anndrea: Hemp can be used for building in multiple ways. First it's sort of how you get to that constituent that you need is you've got to have the stalk to corticate it, so that's removing the outer long fibers from the inner woody core or the hurd, so bast fiber on the outside, hurd on the inside. You can use both of those products to use different types of building materials; whether it be an bat insulation, so using very common technology to make matting, to make a bat insulation that would be a peak insulation replacement. Looking at something like Hempcrete which is a combination of the inner core, the hurd plus lime or a binder and water. You basically build a form and you pack it in there. There's also premade blocks that certain countries have that you actually just sort of order the blocks. You stack them up and then you've got a home in that structure. Then also you can go to something as simple as using straw bales. A straw bale house type of scenario. Into carpets, into press boards, to make all of your cabinetry and these types of things throughout the home.
- Dave: How water resistant and how durable is like a Hempcrete sort of building block?
- Anndrea: Hempcrete, you would not be using in any place that you are expecting to take on a lot of water. It's not something that goes below the earth. The nice thing about it, is if it does get wet, it will dry out as it is a living, breathing, wall, so as long as it has space to breathe and to have air, then it

will dry out. If you wanted to come in, if you did have some water damage you would be able to then just come in and replace that portion of the wall and really reuse all of the material. If something did happen and you've got your Hempcrete wall you can take all of that material, put it back into the mixer, add some water and basically reconstitute it and reuse it.

Dave: It's kind of like adobe where you make it with straw, is that a pretty good analogy?

Anndrea: It's similar. You're not using clay. In a sense it's lighter. It's fluffier. Basically, when you're mixing the Hempcrete, what you want the texture of the Hempcrete to be like, so this is the term Hempcrete, we're using the hurd and the lime binders with water. You want it to be about a consistency of a snowball. If I threw it at you, it's not going to hurt, but it's going to break apart, but it's going to stay intact. That's what you're looking for. In addition, it's resistant to fire. It's resistant to mold. These are things that save us on so many levels, especially if we look at the rate of mold in our homes.

Dave: I'm flying around the country right now talking with toxic mold experts. Some of the physicians, some of the home builders, some are the home remediation people looking at what this is doing to people's health and agriculture and in homes. It's been fascinating; because, I've learned even more about it. You're the first person I've ever asked about how hemp would perform in an environment like that. I'm working right now on making a more permanent studio to record the Bulletproof Podcast. If you look behind me this is basically my kitchen.

This is temporary and behind the camera right now is a barn being taken apart so that we can reconstitute as a bio-hacking facility. We'll be able to have even better sound quality for the listeners, better video and all that. I'm looking at building using alternative techniques. I'm looking at things like that. If you know someone's retrofitting a facility, I'm interested in sound deadening. Is there a specific place I can go to learn more about how I can put hemp actually into the facility itself?

Anndrea: Yeah, you can check out hemp-technologies.com. That would be one place to start. I and the current president of Hemp Technologies Global, so that's a start. Then we pair up with Albic Designs down in North Carolina. They built the Naus House down there. There's work that's going on. Here in Canada looking at the acoustic properties of using Hempcrete or using

hemp press boards as part of the structure. There is an innovation center in Winnipeg and if you come up to the Canadian Trade Alliance Conference happening in November, we'll have a tour of the Comps Innovation Center. What they've done is they've used Hempcrete blocks to surround the generator, the compressors. When these things are running, before the facility was so loud, but now they've encased it in a Hempcrete block. You pretty much almost can't hear this compressor running in an Innovation Center. You've got a lot of compression going on. Those are some of the, also the characteristics is that it's really in one way, sort of eats the sound, but doesn't make it a dead sound.

Dave: Could I commercially buy hemp press board today?

Anndrea: Yes, you can.

Dave: Awesome. All right, I'm going to hit your website. That was hemp-technologies.com?

Anndrea: Yes, exactly. Hemp-technologies.com.

Dave: Hemp-technologies.com. I'm going to hit it up and see if there's a way on the ceiling; because, right now I'm concerned about standing waves and I really want good sound quality for people who are driving, so they don't have to hear stuff in the background. I'll see if there's a way to incorporate some of those in the design; because, that would be really cool. I really like using sustainable things. Part of the whole Bulletproof philosophy is that sustainability really matters; because, if you're going to live a very long time and feel really good you actually want to live in the world that's still there a hundred years from now, so you should think about that.

Anndrea: Yes, yes. Our home is the place where we spend most of the time. Our homes and our offices. For us that have home based offices, these are the things. I think about that myself, in my own space. Here I'm helping people build their dream homes, living their hemp dream, which helps me live my hemp dream and one of those is to definitely take my home from being the old farmhouse and taking it to that level of living in that environment that I want to help people have, so we'll all aspire to do that.

Dave: Let's go back a bit to an area where I feel like I didn't ask you enough questions. We talked about eating hemp. We talked about building hemp. We talked about writing the Constitution on parchment that contains some hemp, but we haven't talked too much about clothing. I have one or two shirts made out of hemp and a bag or two. My picture of hemp is like a

burlap kind of picture. It's a hippy fiber. That's not actually, that's a stereo type. It's not actually how it can be used. What are some of the cutting edge clothing applications for hemp and how does it differ from cotton in what it does to the soil when you grow it?

Anndrea: Well firstly, we look at the pesticide use in the cotton industry. I think that the cotton industry and the hemp industry as a fabric, they're very together. I don't feel that I've experienced any pushback from the cotton sector, those types of things. Most of the clothes that are out there are hemp and cotton blends. There are reasons why that; because, of the texture of the fabric. It's workability. These types of things. There's a nice synergy there. One of the things is looking at the usage of water in cotton, which is extreme and hemp does not take as much water by any means. Also the general pesticide application in cotton; whether, it be for a herbicide, some sort of bug or a fungicide that we're not seeing in the production of industrial hemp. Agriculturally and environmentally going back to what happens on the farm is number one key. Then if you look at the qualities of the fibers; because, of that long fiber, it's just a much stronger fiber. It has a longer tensile strength, breathability and also for just that wicking factor and being able to dry out so much quicker.

Dave: Are we going to be seeing cotton farmers replace what they're growing with hemp? Are they cutting over?

Anndrea: I think we could see that absolutely. I think all farmers out there are about how can I diversify my farm. I can I save the family farm? How can I look at the next cutting edge properties that can be built into my farming structure? I will imagine that farmers from all sectors, whether it be in the bean production to the cotton production will look at industrial hemp as an opportunity to increase their farm gate and diversify their crop rotation.

Dave: That's awesome. It sounds a bit thought like a politically correct answer. I don't want to put you on the spot so much, but okay, you're a cotton guy. You're using X amount of water. There's a drought. Using X amount of pesticides, you make X amount of money. If you were to plow all that crap under and plant hemp, you're going to use less water and less chemicals. Economically are you going to make the same amount of money from hemp fiber as you did? Is it more profitable to grow hemp or more profitable to grow cotton with the worst of the techniques?

Anndrea: The fact is that number one we're not growing hemp for textiles really globally unless you look at Asia and China particularly. The rest of the fiber is going into non-wovens and composant types of applications. We don't really know. We have to examine infrastructure. How do we take this crop that's growing and we turn it into a piece of fabric versus using it as a non-woven. Does that infrastructure really exist anymore in North America to work with long bast fibers? Most of that infrastructure even in you look at historically the cordage factories that were built for Word War II, where are they?

Those factories were built to make hemp rope. Those factories are decrepit. They're tore down. We used to have this framework and infrastructure to work with these types of fibers even into the 40's that since then have totally been wiped out from our memory base and are no longer a part of the infrastructure to deliver those raw ingredients to. It's an issue about looking at infrastructure to use bast fibers.

Dave: If you're one of those new wave hemp entrepreneurs flocking say to Colorado and Washington State, where my parents live. You're looking at all this medical use, there's a ton of this fiber, it seems like. There's actually venture money flowing in now. There's big money. Even hedge fund people are getting into it. One of the things you might consider is what do you do with all the stuff that people aren't going to be consuming? If you find an answer for that it's not that hard with 3D printing and just the modern ability to create machinery almost out of thin air, to recreate some of these old technologies. I suspect that Levi made more money off the Gold Rush than the gold miners.

People who figure out what to do with these fibers may actually make as much money as the people who are producing food.

Anndrea: Absolutely. When it comes to non-wovens. When it comes to composant. When it comes to press board. When it comes to plastic gizmos that go in the car. All of these types of things, that's all something that we could incorporate a little bit of hemp or 100% hemp into with other components. There's a lot of other components. There's a lot of opportunity out there for the entrepreneurial spirit which we see in full force, people wanting to know how do I get in? What do I need to do? Hemp eyewear. I just helped the Kickstarter for hemp eyewear out of the UK.

Here's a situation where Sam was a university student and I loved this, university student like myself, found a passion in hemp. Now it's his business. It's going to be his life work right now is to put out these hemp glasses. He's got a Kickstarter going to do hemp sunglasses. I think it's great. He took something from academia and now he's out there following his hemp dream. There's so many like that.

Dave: Awesome. We're coming up on the end of the Podcast. I want to make sure that I ask you this question, which I've asked every guest on the show and I have no idea what your answer is going to be. It's a question about people who want to perform better. Given everything you know, not just about hemp, but your entire life's journey, the three most important pieces of advice you have for people who want to perform better. It doesn't matter perform better at what, at whatever it is they're here to do. Top three pieces of advice.

Anndrea: Top three pieces of advice for me is to be honest to yourself; because, we have a hard time being honest to ourselves and I battle that all the time, saying what can I handle, how much can I handle? How can I still do the work I do and be true to who I am? Number one, try to be honest with yourself. If it's too much, you have to voice and ask for help. Secondly, really look at where your food is coming from. For me it's really important. I grow a lot of my food. In traveling there's always levels where we lose control of what's happening in our food spectrum. That's something that's become more present and prevalent to me. Another one is I say really connecting with people that you care about. I just came from my 20th class reunion and I got the opportunity to connect with people that I cared so much about, that I had lost touch with, that I actually got a little bit part of myself back by reconnecting with them. I think that that's important just to say, hey I love you. We were such good friends and realizing in that. Those are my three. Be honest to yourself. Think about what you eat and stay connected.

Dave: I love those three. Thank you for sharing them and thanks for reminding me that my tenth MBA anniversary is coming up here in San Francisco, so to all my Wharton friends, hey I'm going to see you there even though it's a crazy flight to get there. It is worth taking time for relationships in life.

Anndrea: It is.

- Dave: Thank you for highlighting that. Would you please share hemp-technologies.com in any other URLs that our listeners should know about? We'll put these in the show notes to make sure that they're available, but people who are driving oftentimes just want to hit it right on their cell phone.
- Anndrea: Oh right, exactly so of course hemp-technologies.com, definitely look at the hia.org. This is the Hemp Industry Association, in addition hemptrade.ca, the Canadian Hemp Trade Alliance, those are really key and definitely take action. We're not going to have the political push if you're not voicing your voice as a constituent to your congressional leaders either on the federal level or on the state levels. Go to votehemp.com. Real simple, go to that take action tab. Put in your zip code; because, we still are fighting a political battle in the United States having industrial hemp recognized as an agricultural crop.
- Your voice does matter when it comes to that time. We'll be up on Capitol Hill for the Hemp Industry Association's annual conference. We'll have a full lobby day up there. In the US, it's definitely important to pick up that phone and say, I'm a constituent and I care about the rights of American farmers to cultivate industrial hemp.
- Dave: Wonderful Anndrea. Thank you for being on the Podcast today and have an awesome day.
- Anndrea: Hey, you to Dave. Thanks to you and all your team.
- Dave: Not that many people know it, but the first company I started was a t-shirt company, when I was about 20. It turns out that that company was the first company to sell anything over the Internet. The very first working example of e-commerce. It was featured in lots and lots of magazines in the early to mid-90's; because, it was such an innovation. Well, I'm back in the t-shirt business; because, you can get the new [Bulletproof Executive t-shirts](#). They're better than any t-shirt I've ever made before. If you want to look really good in a super high quality t-shirt that doesn't cost a lot of money head on over to upgradedself.com and see how cool these t-shirts are. They fit amazingly well. They're super soft and they are really affordable, especially for a t-shirt that's this high quality.



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