



Transcript: Episode One, "The Return of An Ancient Partner"

00;00;15;07 - 00;00;34;24

Dr Andrea Holmes

You! Even though if You never take any cannabis, you have cannabinoids inside of you right now and these are called the endocannabinoids and these are the the ones that we're all making in our own bodies. And one of them is called Anandamide, which actually is considered to be the bliss molecule.

00;00;34;26 - 00;00;54;04

Dr Allan Jenkins

In 2015, a plant owner from western Nebraska named Palm actually called me and asked if I would help her get hemp cultivation legalized in Nebraska. I said yes immediately. I've known hemp my whole life. And so, you know, as an educator and as an academic, you know, the first issue is, you know, what can I do to help?

00;00;54;04 - 00;01;16;07

Dr Allan Jenkins

So I decided to put together an advocacy book that we titled The Return of an Ancient Partner. We then gave the copy of the book to the state senators and to the media and to other people with some sort of political influence, with the understanding that we needed to help people understand that hemp is not marijuana

00;01;16;10 - 00;01;27;06

Dr Allan Jenkins

And so one of the reasons I was interested, I've known hemp my whole life. I grew up in northern Oklahoma. My father's parents had a small farm and there was always a little bit of hemp on the farm.

00;01;27;09 - 00;01;41;21

Dr Allan Jenkins

So in putting together the book, it's, you know, it's written by academics or, you know, biologists and chemists and economists who are writing the book. But we didn't want it just to be a dry textbook. So I decided to include a poem.

00;01;41;21 - 00;01;59;25

Dr Allan Jenkins

So is poetry written by by a Ph.D. economist? So, you know, take that for, you know, for what it's worth, but here's here's my my history with hemp and I. I wrote this in remembrance of my my grandma, Juanita.

00;01;59;27 - 00;02;13;00

Dr Allan Jenkins

My father's mother stayed on the farm rooted tough as an Osage orange, there was hemp in the drawer and dabbed along the fence line and a bit down along the creek. Grandma didn't cut the hemp. She left it for the birds.

00;02;13;02 - 00;02;26;03

Dr Allan Jenkins

The home Covey paid with a parade of chicks. Bob White with the two note call and royalty of feathers. Limestone ledge on the 80 dirty young boy and the cousins to jump the 40 held an arrowhead for a sharp eye.

00;02;26;10 - 00;02;37;19

Dr Allan Jenkins

Grandma drove the tractor and we threw the hay bales in the race with the rain to the barn. There was hemp in the drawer and lord, the dads loved it. Sometimes with dad's shotgun, they were our supper. Get ready boys.

00;02;37;19 - 00;02;49;18

Dr Allan Jenkins

This might be a double dad and Jim fire together in the gray birds tumble. Grandma thought the thistle, but she didn't cut to him. She knew it couldn't get you high. She hated Johnson grass and vine weed. Who didn't.

00;02;49;24 - 00;04;09;22

Dr Allan Jenkins

That hemp was good for the farm. Hi, my name is Alan Jenkins, I'm a retired economics professor. I'm standing today surrounded by naturally occurring hemp. It's the end of August. I'm in south central Nebraska. These particular plants may well be the descendants of the hemp plants that came from the World War two program, called the Hemp for

00;04;09;22 - 00;04;11;00

Dr Allan Jenkins

Victory.

00;04;11;03 - 00;04;24;25

Narrator

Be careful how you use it for to grow hemp legally. You must have a federal registration and tax stamp. This is provided for in your contract. Ask you a triple, a committeeman for your county agent about.

00;04;24;27 - 00;05;10;29

Dr Allan Jenkins

Where during the war we needed him fiber, four ropes and four parachute cords and other kinds of military uses. So the Department of Defense and Department of Agriculture worked with farmers throughout the Great Plains to grow some hemp.

00;05;11;01 - 00;05;29;05

Dr Allan Jenkins

There probably wasn't hemp grown here specifically, but all birds love hemp seeds. And so after the program ended, the birds moved the seeds all over the Great Plains. So these plants have basically taken care of themselves for the last 75 years.

00;05;29;08 - 00;05;46;24

Narrator

These male plants were cut out. These are the seeds on a female plant. A modified rice vendor has been used to some extent this machine works well, on average him.

00;05;46;26 - 00;06;02;21

Dr Allan Jenkins

Now, while these plants sort of have a 75 year history, hemp and human go back thousands of years. Him plants are one of the foundational crops for early civilizations. Hemp seed is edible. It's high protein and it has other.

00;06;02;24 - 00;06;22;26

Dr Allan Jenkins

It's a superfood. But the real value of hemp came from the fiber that's on the outside of the hemp plant. It's a tough, stringy fiber that makes very good ropes nets both strings. You can make rough fabrics like a canvas out of it.

00;06;22;29 - 00;06;42;00

Dr Allan Jenkins

Hemp technology drove the age of sales. The U.S. Constitution, the famous warship, used about 60 tons of hemp, used the fiber for the rope and the rigging. It used that the canvas sails were made from hemp and even waterproofing.

00;06;42;00 - 00;06;53;10

Dr Allan Jenkins

The caulking used for waterproofing was also made out of him. So the U.S. Constitution was an example. You couldn't have a navy unless you had a hemp industry.

00;06;53;12 - 00;07;09;07

Dr Andrea Holmes

Directly inside the plant. What I think is important to note is that it's considered to be a fight or remediation system, meaning that the roots can grow several feet long or deep into the ground and have the ability to pull out contaminants.

00;07;09;07 - 00;07;28;01

Dr Andrea Holmes

So therefore again, an amazing rotational crops for if people want to clean up their soil, the genetics are pretty robust. I mean, they survive the long time ride. They're still here. We have some brutal winters, we have some hot summers and the stuff still grows pretty well.

00;07;28;01 - 00;07;47;21

Dr Andrea Holmes

So this robustness is an interesting feature. And if we're starting to breed that, then that could be a lucrative way for people to grow cannabis with seed that they can find in the wild rather than going to a seed company paying a dollar per seat.

00;07;47;27 - 00;08;11;02

Arin Sutlief

I'm Arin Sutlief. I am the laboratory director at Cannabis Testing Laboratories. We decided to go with the hand grinders so we could do coffee grinders, that would be nice mechanical way to do it. But I only imagine it being more potential for contamination.

00;08;11;04 - 00;08;34;01

Arin Sutlief

All of this is automated for us so that we can be analyzing samples as quickly as possible. It will carry this vial over and then has just a large bore needle that draws up the sample and then injects the sample into the instrument.

00;08;34;04 - 00;08;56;02

Dr Andrea Holmes

In the sixties, when there were all these people smoking marijuana. People started to recognize, Wow, these people are starting to feel pretty good, right? Not just high, but there were a lot of consequences physically. And so research was conducted, and then this endocannabinoid system was discovered, and it definitely revolutionized the field of medicine.

00;08;56;05 - 00;09;14;02

Dr Andrea Holmes

Since then, we have really learned that it's located in the central nervous system and not just in the central nervous system, but also in the brain. So it has receptors inside the body, deeply located in the central side, but also on the periphery.

00;09;14;04 - 00;09;33;04

Dr Andrea Holmes

So it affects everything in your body and in your mind and in your brain. And there are these amazing receptors that I called CB1 and CB2 receptors, and they are located in the nervous system and the cannabinoids they actually hook on to these receptors.

00;09;33;07 - 00;09;47;10

Dr Andrea Holmes

And when that hook on occurs, then there's this amazing cascade of events that are occurring in the nerve cell that causes all of these effects that we now know as the effects in the endocannabinoid system.

00;09;47;12 - 00;10;02;22

Narrator

The presence of stalks in the bow string stage indicates that retting is well underway. It wouldn't look as used. one will do for time, but the hemp itself makes a good band.

00;10;02;24 - 00;10;28;24

Dr Allan Jenkins

So hemp was one of the most important crops in colonial America. Humans first bumped into hemp in present day western China, probably about 20,000 years ago, the Chinese, those early pioneers that day, they figured out right away how to use the plant, then moved all over the world as a as a very important crop in the 1920s

00;10;28;24 - 00;10;48;21

Dr Allan Jenkins

and thirties, as people became concerned about the moon warming. They started writing laws in terms of cannabis, and they made no distinction between hemp and marijuana. So the 1937 Marijuana Tax Act basically destroyed the hemp industry in the United States.

00;10;48;24 - 00;10;53;10

Dr Allan Jenkins

It came back for a couple of years during the war, but after the war was illegal again.

00;10;53;12 - 00;11;06;01

Narrator

The length of time hemp was left on the ground to rot depends on the weather. The swaths must be turned to get a uniform rot..

00;11;06;03 - 00;11;12;26

Narrator

I want to know more about ditchweed.

00;11;12;28 - 00;11;24;09

Dr Allan Jenkins

The 2014 farm bill allowed universities to start doing some research on hemp, the 2018 Farm Bill has made it legal now to grow hemp in United States.

00;11;24;12 - 00;11;25;26

Andrew Bish

00;11;25;28 - 00;11;27;17

Andrew Bish

We have a Special guest today, Senator Wishart.

00;11;28;14 - 00;11;49;29

Anna Wishart

I want to continue to support hemp as much as possible to make Nebraska one of the most business-friendly states that have been hopefully in the future has been the most profitable experience. So it's really it's pretty incredible to see that grassroots make up their minds.

00;11;50;02 - 00;11;58;08

Anna Wishart

Somebody who has a lot of money to make it happen, you can really do it collectively yourselves.

00;11;58;10 - 00;12;26;02

Narrator

The Conestoga wagons and Prairie schooners of pioneer days were covered with hemp and canvas. Indeed, the very word canvas comes from the Arabic word for hemp And those days, hemp was an important crop in Kentucky and Missouri, then came cheaper imported fibers for cordage like Jute Sisal and Manila, hemp and the culture of hemp in America declined.

00;12;26;05 - 00;12;41;18

Dr Allan Jenkins

. So the bright line is that point 3% THC now these these naturally occurring plants, we don't really know much about the chemistry of those because no one's ever looked very hard at these. There are two distinct types of fibers.

00;12;41;18 - 00;13;03;27

Dr Allan Jenkins

The outer one is used for rope and rigging. But the inner fiber can be used to make paper. So in terms of ecologically sustainable paper production, planting hemp and harvesting it to create paper is more environmentally sustainable, then cutting down trees to make paper out of wood pulp.

00;13;04;00 - 00;13;24;25

Dr Allan Jenkins

So we can make paper out of it. You actually can make plastic out of hemp. one of the most exciting things, I think, is something called hempcrete where you can. You shred the hemp into small pieces, and hemp has a lot of silica in it, and so it will bind with lime.

00;13;25;02 - 00;13;41;14

Dr Allan Jenkins

Hemp Create is a wonderful building product. Each inch of hemp create has an R factor of about two and a half as far as insulation. So if you put up a ten inch hempcrete wall, you have a well insulated structure.

00;13;41;16 - 00;14;08;25

Dr Allan Jenkins

It's fireproof if it resists mold. I always like seeing a hemp field like this. I've known him my whole life. There was some on my grandparents farm. Grandma

knew you couldn't get high from the hemp. We knew it was the best place to shoot doves the birth of a new industry.

00;14;08;27 - 00;14;37;08

Tom Schwarz

And. We're on our family farm here right now. This farm has been in our family since the early 1900s of well over 100 years. Traditionally, we've grown crops similar to what others in our area grow, but things have changed a little in recent years.

00;14;37;09 - 00;14;52;13

Tom Schwarz

Commodity prices have struggled at times. We discovered that we had to do things differently if we were going to survive. This greenhouse was just transitioned this year into industrial hemp production. We see some really exciting potential in the hemp arena.

00;14;52;15 - 00;15;04;21

Tom Schwarz

I think we're going to find a lot of things that will help people and make people's lives better. I think we can help the environment in a number of ways. And I just see a really bright future for him.

00;15;04;23 - 00;15;11;12

Dr Allan Jenkins

So Alex, first, first time around. What caught you just flat footed? What could you just not have expected at all?

00;15;11;15 - 00;15;30;04

Alex Schwarz

one of the interesting things that happens is because we have and we're in nature basically. And what happens? We have some native deer that go around and we had a patch that got the deer came straight through here and the drip tape that waters the plants got caught in the huff and they punched a hole in the

00;15;30;04 - 00;15;43;03

Alex Schwarz

drip tape and drug the drip tape over. And within a day, they had flooded the entire area, and there was no way we could have planned that happening. And you're like, Oh, everything looks good tonight. Next morning, your ankle deep in water everywhere.

00;15;43;03 - 00;15;44;00

Alex Schwarz
And really.

00;15;44;02 - 00;15;46;05

Dr Allan Jenkins

No one came out and said Cue The Deer.?

00;15;46;06 - 00;15;47;12

Alex Schwarz

Yeah, pretty much.

00;15;47;15 - 00;15;51;13

Dr Allan Jenkins

So. So this drip tape, what? What does that look like?

00;15;51;15 - 00;16;05;28

Alex Schwarz

This is what we use to water our hemp right now. It's a drip tape that has little space is about every foot that basically let out a drip of water every minute or so, and they do about twelve gallons a minute or one gallon of what you want.

00;16;05;29 - 00;16;11;07

Dr Allan Jenkins

So, so this is super efficient and really is a water conservation tool.

00;16;11;11 - 00;16;25;28

Alex Schwarz

This is great for conservation and that we cover the beds with plastic so that there's no evaporation so we can water less often and worry about the plants. Basically, the plants are allowed to just go a lot more on their own, or we have to worry about micromanaging.

00;16;26;05 - 00;16;33;09

Dr Allan Jenkins

So, so when people talk about hemp being an environmentally friendly plant, part of it, though, is how you cultivate.

00;16;33;10 - 00;16;53;14

Alex Schwarz

Right, exactly. We can do things in the cultivation of the plants that allows for less use, less water, less fertilizer, less pesticides, things like that because we're organic. We're not using a lot of that anyway. So we need to find methods to grow the plants in a way so that they're not needing those things.

00;16;53;14 - 00;17;07;29

Alex Schwarz

We can't anytime they need any pest management, we can do that with biologicals like beets, which is a bacteria that will actually be that's organically produced, that when a worm eats it, it actually basically causes their insides to deteriorate.

00;17;08;01 - 00;17;15;11

Alex Schwarz

Then there are other things like aphids and way to get rid of aphids as ladybugs. We actually release ladybugs into the wild.

00;17;15;16 - 00;17;19;23

Dr Allan Jenkins

I mean, I've seen thousands of ladybugs here lucky, and we've been pretty lucky.

00;17;19;23 - 00;17;36;03

Alex Schwarz

I can say that we aren't getting a lot more of those weird things in there. We do have to worry about the bug management. On the positive bugs. In the negative bugs. So that's been nice. And we also have an infestation of praying mantises, which we want to have because they eat a lot of the bad bugs

00;17;36;03 - 00;17;42;06

Andrew Bish

that we don't want because, yeah, what are you doing, organics? You want the good things to outweigh the bad right there.

00;17;42;06 - 00;17;49;02

Dr Allan Jenkins

They're superstars. So on the plant, this little part right here, this is a female plant. So that's the seed bed.

00;17;49;09 - 00;18;02;25

Alex Schwarz

That is where the bud is just starting out on these CBD plants as time goes on, as long as they aren't pollinated. They will just get gradually bigger and bigger and bigger until they hopefully get to about the size of a good cone.

00;18;02;25 - 00;18;07;08

Andrew Bish

About three inches across and about six inches tall is what we're hoping for.

00;18;07;09 - 00;18;13;19

Dr Allan Jenkins

So you said CBD plants, so this is a variety of hemp that's designed to be rye and CBD.

00;18;13;20 - 00;18;27;07

Andrew Bish

Yes, this is cultivated to behind CBD. We have another variety that we grow, that it's cultivated to be high in CPG, which is the mother molecule above CBD and THC. But these right here are CBD.

00;18;27;08 - 00;18;31;15

Dr Allan Jenkins

So if I want to get high, how much of this would I need to smoke?

00;18;31;18 - 00;18;49;27

Andrew Bish

Oh, so, so much. That's because legally in the United States right now, it can't be over .03% THC. And the THC that you would get from recreational or medicinal marijuana is in their range of about twelve to 20%.

00;18;49;29 - 00;18;54;01

Andrew Bish

So you would have to you need so much to do that and that without off.

00;18;54;02 - 00;18;56;17

Dr Allan Jenkins

So I'll just I'll just drive to Colorado.

00;18;56;20 - 00;18;57;25

Andrew Bish

That would be much better.

00;18;57;29 - 00;19;23;22

Dr Allan Jenkins

Be way easier with. Yeah. So. So how exactly did you put this together?

00;19;23;28 - 00;19;42;00

Andrew Bish

Well, we have a machine that's pulled behind the tractor and it actually basically moves the dirt into a pile, puts the plastic down and then throws dirt along the

edges to kind of seal it down. It holds the moisture in really well, and it keeps the plant and the weeds all growing next to it from growing up

00;19;42;07 - 00;19;52;06

Andrew Bish

. Because as organics, that's one of the things we have to watch out for a lot is how much weeds we get next the plant, because that pulls up the nutrients and the water from the ground and shades the plants.

00;19;52;06 - 00;19;55;12

Andrew Bish

And we don't want any of that to be taken away from a valuable crop like this.

00;19;55;16 - 00;20;02;27

Dr Allan Jenkins

Now I've noticed your other, your other plant, the plants are noticeably bigger. So how much earlier were those planted than these?

00;20;02;28 - 00;20;23;02

Andrew Bish

Those are planted about two weeks different than these ones. These will also have a lot more shade. OK? Those ones don't have those are full sunlight, right? Constantly. These have shade. I mean, it's about three or 4:00 right now, and the shade has already started on these plants and hemp likes to have lots and lots of sunlight

00;20;23;04 - 00;20;51;20

Andrew Bish

as they grow right?

00;20;51;23 - 00;21;17;25

Dr Andrea Holmes

I discovered cannabis, which is so new, so revolutionary, so exciting, so many cool people in this industry. I mean, from all backgrounds, right from the Brazilians that are doing underground things, you know, illegal, they know it all to the highly sophisticated form of great organic chemists like myself.

00;21;17;27 - 00;21;39;24

Dr Andrea Holmes

But but this industry is captivating me. It's so enormous and so colorful, and it's still not 100% professional. And that's why I'm here. What the possibilities are and what it can do to our economy. What it can do for sustainability, for environmental cleanup, for medicine, health and wellness.

00;21;40;01 - 00;21;54;06

Dr Andrea Holmes

I take it as my personal mission to do that. You know, not just humans on, my gosh, I'm a total animal advocate. You know, I rescue all of these animals. They're all old and decrepit, but they live long lives because they are all on CBD.

00;21;54;09 - 00;22;12;10

Dr Andrea Holmes

These are the two things I always say America wants to sleep and they can't. And America wants to lose weight because they don't eat very healthy and many of them. And so CBN. Sleep THC, the weight control. Those are the two big ones.

00;22;12;10 - 00;22;17;28

Dr Andrea Holmes

Right now that we promote precision black molecules I'm getting, I got I got to run.

00;22;18;00 - 00;22;23;21

Andrew Bish

That wraps it up.

00;22;23;23 - 00;22;37;27

Speaker 9

You mean you need?

00;22;37;29 - 00;22;53;29

Dr Allan Jenkins

There's two basic kinds of him. And one is driven by daylight hours. The maturity of the plant has nothing to do with the temperature, air temperature or soil temperature. The plant is only responding to the amount of daylight.

00;22;54;01 - 00;23;16;06

Dr Allan Jenkins

And so as you move north and south, daylight hours change so you can get very different outcomes from different genetics, depending upon how far north or south you are from where those genetics were first developed. The other kind of camp is called auto flower, and the auto flower hemp originally comes out of Russia.

00;23;16;09 - 00;23;42;22

Dr Allan Jenkins

Russia was a major hemp grower for hundreds of years. And the difference in the auto flower auto flower is not synched to sunlight. Auto flower behaves more like a normal garden crop.

00;23;42;24 - 00;23;54;11

Andrew Bish

You know, it's interesting when people talk to me about what equipment is there out there to harvest hemp, I just have to start asking a different question, which is what is the commodity that you're growing for? Because hemp is unique in that aspect.

00;23;54;11 - 00;24;11;19

Andrew Bish

If you're doing a high quality smokable flower, you're probably not going to use much for harvesting equipment. You might use a single. A whole plant harvester to harvest the plants. But that's about as much mechanization as you'll get into a distillery and isolate a full spectrum extract, anything like that.

00;24;11;21 - 00;24;28;14

Andrew Bish

You can grow larger acres and then some of our equipment that we have out there will adapt. Now, when you get into grain, our traditional combines are somewhat well suited, although it's really about looking at what kind of genetics you're you're purchasing to work with the combine.

00;24;28;21 - 00;24;48;05

Andrew Bish

What's really exciting is going to be the grain and fiber. Right now, we can't feed grain to the cattle, to cats, to dogs, to chickens, to horses. And that really limits the farmer on what his options are with a grain once that opens up and we're allowed to feed that to the animals.

00;24;48;07 - 00;25;10;17

Andrew Bish

There could be an unlimited number of acres of hemp throughout the United States. They can very well rival corn or soybeans, especially knowing its nutritional content is that much above any of those commodities. When you're looking at feeding it to an animal grain, I can see exponential growth in the hundreds and hundreds and, you know, millions of

00;25;10;17 - 00;25;16;01

Andrew Bish

acres, but it won't happen until we legalize that to feed to animals.

00;25;16;04 - 00;25;36;03

Dr Allan Jenkins

It's a wonderful time to be looking at a new crop. And it's interesting because on one hand, it's a new crop. And on the other hand, it's a return of one of our most ancient partners. So over the next few weeks, we're going to be talking to some people who are we have decided to become hemp pioneers

00;25;36;05 - 00;25;46;17

Dr Allan Jenkins

. I'm excited and I look forward to the next step to this journey of discovery that we're going to make together. Thank you.

00;25;51;26 - 00;25;54;10

Bret Mayo

And of the THC that is bad for you. We were actually.

00;25;54;10 - 00;25;55;10

Bret Mayo

Below the .3 percent.

00;25;55;10 - 00;26;02;16

Bret Mayo

But they take total THC.

00;26;03;26 - 00;26;11;18

Dr Allan Jenkins

Hemp is grown throughout the Midwest now.

00;26;11;21 - 00;26;23;28

Alex Schwarz

We are working on our CBC plan because they are a little further along in their development. You're looking at the world's largest ice machine after our extraction process.

00;26;24;00 - 00;26;34;22

Bret Mayo

We run at about zero degrees Celsius.

00;26;34;25 - 00;26;49;11

Dr Allan Jenkins

Thank You..

CREDITS:

Dr Allan Jenkins	as himself
Dr Andrea Holmes	as himself
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Alex Schwartz	as himself
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	HempCrete Association
	Dr Allan Jenkins
	“Rebirth of An Ancient

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Music	"Chasing Down A Feeling"
	(Luciano Music Co.)
	"Nylon string Guitar
	with steel string bass"
	by 4barrelcarb 362832
	/ Freesound.net
	" Never Enough Time"
	by NUMB CHARLIE /
	Jim Brodhagen
	"I Do Need You"
	by NUMB CHARLIE /
	Jim Brodhagen
	"Nothing Will Be As Before"
	SPATIAL DISTORTION
	“Beautiful" as performed
	by Lenguaverde Freesound.net
	"happy cave" by ADnova

	/ Freesound.net
	"I Was Wrong"
	by SPATIAL DISTORTION / Jim Brodhagen
	"All My Imaginary Friends
Special Thanks	Are Dead"
	by SPATIAL DISTORTION
	"I Need to Feel Complete"
	by NUMB CHARLIE
	Bret Mayo
	(Sweetwater Hemp Company)
	Chad Frey
	(Nebraska Hemp
	Industry Association)