

# **Defending Beef: The Case for Sustainable Meat Production**

## **A Special Interview with Nicolette Hahn Niman**

By Dr. Joseph Mercola

**DM:** Dr. Joseph Mercola

**NN:** Nicolette Hahn Niman

**DM:** Beef: whether you eat it or not, this is really important information you need to know. Hi, this is Dr. Mercola, helping you take control of your health. Today I am joined by Nicolette Hahn Niman, who has a very interesting combination and skill set that allowed her to develop an expertise in this area. She's going to share what she has learned over the last 15 years and help us really fully appreciate the impact of beef in our own life and the environment.

Nicolette, you're a woman of many talents. You're a rancher, lawyer, author, and a mother. You have a very interesting story that goes back about 15 years when you were living as a vegetarian attorney in Manhattan and working for Robert Kennedy Jr. Why don't you pick up the story there and tell us, or even earlier if it's appropriate, to how you began on your journey in this area?

**NN:** Yes. Well, I agree. I have an unusual combination of different aspects of my life story. I believe it helps me to see the issue of how we raise livestock from lots of different perspectives. I'm originally from Michigan. I was one of those kids who kind of spent a lot of time outside growing up. When I went to college, I majored in Biology because I love nature, and I was already involved in environmental causes. It was actually in college, as a freshman, when I became a vegetarian. Largely because I believed that it was the right thing to do as a citizen of the world. I heard a lot about how meat was resource intensive and was sort of too resource intensive. I remember specifically hearing that beef was the main cause of deforestation in the Amazon. So I made the choice at that time to become vegetarian.

**DM:** Did you go to Ann Arbor?

**NN:** I went to Ann Arbor for law school, to University of Michigan.

**DM:** Okay.

**NN:** But my undergrad work was done at Kalamazoo College.

**DM:** Okay.

**NN:** I had this passion for the environment and went to law school. Many years later, I was practicing as a lawyer back in my hometown of Kalamazoo. I had already lived elsewhere but I had moved back there. I was on the city council of the city of Kalamazoo and I heard Bobby Kennedy Jr. give a speech about how citizens can use the environmental laws to protect the environment, that is sort of a unique ability that citizens have in the United States. That really motivated me to get involved, as a lawyer, for protecting the environment.

I first worked for National Wildlife Federation (NWF), and then was given the opportunity to work directly for Bobby Kennedy in New York. He asked me to work full-time on the issue of livestock-related

pollution because he was travelling all over the United States and hearing from a lot of people that it was the primary environmental problem in their community. Yet the government, on federal and state level, and non-profit organizations, were not doing very much in response. He felt that we needed, as an environmental organization, Waterkeeper Alliance, which is the name of the group, to really take on the issue. He asked me to lead that effort.

I was actually a little bit reluctant at first because I just had this very negative view of meat production in the meat industry. I sort of felt like, “Well, as a vegetarian, I don’t have anything to do with this anyway so why would I want to work on this.”

**DM:** Not my problem.

**NN:** Right, exactly. I’m doing my part. But then, Bobby is a very wise person. He just urged me. He said, “Go. Go to the communities where these industrial operations are and see what this is for yourself.” That began this whole journey for me, which is in year 2000. So, for the last 15 years, I’ve been really focused on the issue of livestock and how it’s produced and what the implications are. It’s really on that job that I first learned that the implications for human health and the environment are radically different depending on how the livestock are raised.

**DM:** Interesting. That’s quite a journey. You’ve actually written a book too called *Defending Beef: the Case for Sustainable Meat Production*. Why don’t you continue the journey? Because...

**NN:** Yeah.

**DM:** You were in Manhattan. I think that’s where we stopped.

**NN:** Right.

**DM:** Then you got married, and then you moved actually out to a ranch.

**NN:** Right. Well, it was through the work for Bobby Kennedy that I met many farmers and ranchers all over the country. I was also seeing and touring, inside and out, a lot of industrial animal operations. I was really seeing all types of livestock, dairy, and poultry and egg production, and witnessing firsthand the radically different systems in term of their implications and the quality of life of the animals, etc.

Through that, I met Bill Niman, who’s the founder of a network of 800 farmers and ranchers around the country. The reason the Niman farmers and ranchers were so interesting to us when I was working for Waterkeeper was because they were using methods that were very environmentally sustainable. So, we wanted to have real world examples to point to as a model for the direction that the industry needed to move in as a whole.

About a year after leaving the Waterkeeper Alliance job (I did that full-time for two years), I decided to leave that job for various reasons but I knew I wanted to continue working on this issue because I felt, by that time, I was totally dedicated to making an impact on it and I wanted to keep working on it. I began researching a book. During that I time, I ended up getting to know Bill Niman, the founder of the Niman Ranch Network, and eventually married him about a year later and move from my small Manhattan apartment to a ranch north of San Francisco, in Northern California.

Initially, I just thought I would continue my work as an environmental lawyer but living here every day and spending time here, I just got so fascinated and enamored with the amazing things that were happening around me and I wanted to be directly involved. So I started working on the ranch every day. I’ve been doing that ever since, and that’s been 12 years.

**DM:** Wow.

**NN:** I've continued a vegetarian diet. I feel like I'm one of the very few vegetarian ranchers in the world. But I know there are a few of us. I'm not the only one.

**DM:** Is your husband a vegetarian?

**NN:** Not at all.

**DM:** Well, thank God.

**NN:** But we've had an interesting influence on each other, I think, in terms of our diets and our whole perspectives on these issues. We have a great deal of mutual respect for one another, obviously, or we would never have gotten married. But we actually have remarkably common views on these issues. We both feel that you can make a very healthful diet without meat, but also you can eat very healthfully. In fact, I think probably, optimally, the diet would include meat but it's all about how the meat is produced. We feel and we want to be part of forging this new generation of farming and ranching, which is really happening in many parts of the world and in the country. People are realizing that things have gone in a very bad direction and trying to rebuild the food system. We're very committed to doing that.

**DM:** You're really a strong advocate and one of the leaders in helping people understand the importance of properly raised meat, way outside of the concentrated animal feeding operations (CAFOs). I'm wondering if your choice to continue as a vegetarian is based on health principles or philosophical principles.

**NN:** No, it's definitely not health. We now have two young sons, and I spend a great deal of time everyday preparing and gathering their food. We actually do quite a bit of foraging here. We grow a lot of our own food. Of course, we raise our own meat. I cook every day. Much of my time is spent cooking and cleaning out the dishes. A whole bunch of my time and effort is gone and spent every day in feeding them well and feeding my husband well, and of course, myself as well. I am very committed to feeding them meat, eggs, and dairy products because I really do believe, especially for younger people and older people, that meat is a very important part of the diet.

That being said, my own decision was based on my belief at the time that it was not good for the environment to raise animals for food and that it was bad for one's health. Those two views I have radically shifted in terms of feeling that, probably, optimal environmental food from an environmental perspective that food production does include animals. An optimal human diet includes animal-based foods including meat. But for me, one of the primary motivations was just this very intense attachment I've always felt for animals. It makes me more comfortable not to eat meat. But I do eat animal-based foods so I eat plenty of dairy and eggs.

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**DM:** And butter.

**NN:** Lots of butter. I'm a big advocate of all of those foods, and I'm a strong proponent of rebuffing a lot of the misinformation that's out there about meat, animal fat, dairy, eggs, and all of...

**DM:** I'm just curious... Of course, it's only an anecdotal observation, but have you noticed any changes in your health once you started incorporating some of the animal products into your diet?

**NN:** Well, I never stopped eating eggs and dairy products.

**DM:** Okay.

**NN:** I think that's critical. I mean, in my view, there's a dramatic... You know, you're the expert on this, not me. But from my readings and my research, I feel there's a dramatic difference nutritionally between vegetarianism and veganism. I've never followed the vegan diet. Personally, I would not recommend it to anyone.

**DM:** Okay, all right. We got over that hump.

**NN:** Yes.

**DM:** Maybe you can tell us about your journey, putting together your book, *Defending Beef*, how long it took to compile that, what was the motivation behind it, and then we can go on to some of the details of the book.

**NN:** When I worked for Bobby Kennedy, I realized that one of the... I knew very little about the issue when I was first asked by him to work on it. As I was discussing it with people around me, friends and family, I realized that they knew very little about the way livestock was raised in this country and how radically that had changed over the last half century. So, I felt that there needed to be more and more vehicles to raise public awareness on this.

So, I begin working on a book. I did write an earlier book that I completed in and was published in 2009. That book is called *Righteous Porkchop: Finding a Life and Good Food Beyond Factory Farms*. That book was really sort of a description of how all of the major animal foods are produced, and then arguing that the industrial methods were bad for the environment, humans, and animals. I made the argument as well that more traditional methods, more grass-based methods especially, were the opposite. They were healthful and good for the environment.

Subsequent to that book coming out, I was... I do a lot of public speaking and I did a lot of interviews surrounding this issue in that first book. I was sort of getting increasingly frustrated by the oversimplification that I kept feeling was happening with this issue especially when it came to beef. I kept hearing this notion that it was just too resource intensive, too damaging to the environment, and it was really something that the less of it the better, both on the plate and on the land.

Especially for someone who's now been directly involved in raising cattle for the last 12 years, I see what we do in our own ranch every day. I've been to dozens and dozens of farms and ranches around the country that raise livestock, and I've seen the tremendous benefits into the whole natural cycle in having the animals there. I felt that someone who had genuine environmental credentials, but also really understood the agricultural side, needed to make the case that well-raised cattle belong in an ecologically optimal food system.

**DM:** In your research in compiling the book, I'm wondering if what you've uncovered are perhaps some of the most startling or outrageous practices that were going on in a CAFO farms that a typical person isn't aware of.

**NN:** Well, I think one of the most troubling aspects regarding beef... Now, I have to preface this by saying that I've felt for a long time and I argue in both of my books that beef is actually, in many ways, the least troubling sector. It's kind of ironic because it gets so much of the public attention. But when you look at the life cycle of beef cattle, it's much more connected to the way nature functions. The people and the animals are outside and all of the beef cattle are on grass, pasture or ranch land, for a good portion of their lives even those that end up in feedlots.

Now, that's in stark contrast to the way most eggs, dairy, pork, and poultry are produced, which is really continual confinement, totally enclosed systems where the animals are on concrete floors, very

inhospitable environment, both for the animals and the workers, and for producing healthful foods. So, I have to preface my response...

**DM:** Sure, thank you.

**NN:** That being said, there are some very troubling practices that mainstream beef production is doing. I would say, probably at the top of the list, is some of the things that are added to the feed and are administered to the animals that have the potential of many problematic aspects. You know, it has a potential to contaminate the food and it definitely ends up in the environment. It's also something that... There's good evidence that it affects the welfare of animals while they're alive. For example, antibiotics are being used routinely throughout the meat industry as a feed additive, especially this is true in beef cattle feedlots.

Now, when animals are living in pasture, this is pretty much not done at all. But once they're in feedlots, they're very often fed antibiotics. That's done to promote rapid growth of the animals and it works quite effectively. The problem is that there's a lot of research showing that this contributes to the rise of antibiotic resistance throughout the environment and on the meat. So, there are many, many good reasons that that should not be permitted. But that's quite widespread.

I was very surprised as well how widespread the use of growth hormones is. I've known this for a long time that growth hormones are used in beef production, but I didn't realize how ubiquitous it is. It's done on the majority of cattle ranches, the cattle that end up in the mainstream system. It's also done almost universally at feedlots. Again, those cattle that went through the feedlots, that's where you really have the real problems. Similarly...

**DM:** But that's not so much in dairy production because I think that issue was resolved a while ago, or maybe I'm mistaken.

**NN:** Dairy production... There was use of growth hormones that... It never reached more than about 30 percent of the dairy herd though. It's much more ubiquitous in beef production.

**DM:** Interesting. What's the current news in dairy?

**NN:** I haven't heard recent statistics. The data I looked at a couple of years ago on that indicated that it reached about 30 percent of the dairy herd, it plateaued, and it was beginning to come down. The reason for that is... It's kind of ironic we have this huge problem within agriculture of overproduction. One of the main reasons that those hormones were banned in Europe is they knew they had an overproduction problem and they didn't want to make it worse. Part of the reason that the dairy industry as a whole did not embrace the dairy hormones is people sort of understood that there was already too much milk and producing more of it was not going to be helpful.

But there is also... There was a really strong consumer resistance to that. There began to be a labeling movement that is - graze without the use of growth hormones in the milk. So there was pretty strong consumer push back on that. For some reasons, that hasn't happened as clearly in the beef sector and so the beef industry has still not gotten that message.

**DM:** That's interesting. Do you think it might be due to the concentration that might have been higher in milk than it is in the beef?

**NN:** Honestly, I think it goes back to mothers. Every mother in America, with very few exceptions, wants their children to be eating an optimal diet that includes, generally, milk. Children of a very young age, it's recommended not before one year of age. But around a year of age children begin consuming dairy milk,

cows' milk usually. People really have a heightened sensitivity about what they're giving young children, which they should. I mean, that's good.

I think this idea that there was some contaminant or possibility of contaminant in the milk was very problematic for one of the major consumers of milk, the mothers, and not just for young children but all children especially. I think that's why that issue was a little bit distinct from some other food issues.

**DM:** Okay. Your ranch is in California and raw milk is legal in California. I'm wondering if you have a dairy herd out there where you're able to produce and provide that product.

**NN:** It is widely available. We know many people who are either offering raw milk to the public or raise it for themselves. We actually got a cow of our own, a dairy cow. There's a very big difference between beef cows and dairy cows.

**DM:** Sure

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**NN:** We got ourselves a jersey cow with our intention to use her as our own family milk source. But an interesting thing happened. Our older son, who is now six, started to lose his taste for fluid milk. He still eats lots of yogurt, cheese, meat, and other things. We're not too worried about it. But the motivation that we had was kind of diminished because it's a lot of work to milk your cow every day.

**DM:** Yeah, unless you have an automated process, that's for sure.

**NN:** Yeah, and if you... You know, it's interesting because you can... Basically, we just had her with our beef cattle herd. When she's with them, it's not any work at all to have her. She's still with us. She's actually been really helpful because we've had some years where we had extra calves when like a mother cow will have twins and doesn't want to take both of them. She's become what we call nursemaid for our dairy cows. Our feeling is if we're going to consume raw milk, we want to raise it ourselves.

**DM:** Okay, great. Good idea. Getting back to your book, the beef and the observation that most of the beef that's produced in industrial operations are injected with growth hormones, what percentage of the beef is CAFO in the United States versus authentic grass-fed, not factory farmed, and given to feeding lots in their last three months of life?

**NN:** Right. Again, I have to qualify my answer a little bit. Pretty much all the mother cows in the United States are on grass and all the calves are on grass. It's only when they reach... Sometimes, it's younger but typically it's around the year of age that they go into a feedlot. The reason I make that distinction is when you're talking about the ecological impacts. That's a really important point to understand because many very well managed ranches that are doing a beautiful job with their animals, with land husbandry, and land stewardship are actually unfortunately sending their cattle, their calves or yearlings basically, into the mainstream beef system. That's unfortunate. But when we talk about ecological impacts, it's just important to keep that distinction on mind.

The totally grass-fed sector is only about five percent of the total beef industry. It is growing. The overall consumption of beef has been steadily declining for the last three decades. But the grass-fed sector is rising. So, it makes a strong case for people within the beef industry, people raising cattle, to get into the totally grass-fed sector. That's one of the good news. That's part of the good news.

**DM:** That's an important distinction that I previously wasn't aware of that a significant percentage of the cattle that are raised that eventually wind up in the feeding lots are actually raised properly. There's a

subset of these groups, ones that are not and ones that are. Maybe you can talk about those two different groups and what characterizes their differences.

**NN:** Well, when you're looking at what's happening on the ranches and the farms, which again is a source for both (totally conventionally grazed and naturally raised, and totally grass-fed beef), the key question is, "How are the animals managed on the land?" There's a lot of research that's happening on this all over the world right now because there's a sort of urgent question of how do we feed the people of the world. There's an urgent question of how do we protect water resources. Now, of course, there are concerns about climate change. People want to know how do we do this in the best possible way. So, there's a great deal of research taking place all over the world on this.

Actually, I was just speaking at a conference in Burlingame, California a few days ago, hosted by the Savory Institute, which was literally a worldwide gathering. An international gathering of people from all over the world talking about this very issue: "How do you regenerate the environment using cattle?" I saw a really good presentation by Dr. Richard Teague, who's at Texas A&M. He's been researching the impacts of cattle grazing for decades.

The point that he succinctly stated is that the more densely congregated the animals are and the more frequently they're moving, the better. That's kind of the bottom line. That's kind of very dramatically depending on what geography you're in, the climate, time of year, and all kinds of factors are going to enter it. There's no one formula. But basically, the goal is to mimic the environmental impact, from an ecosystems perspective, the way the animals are functioning in the ecosystem of the wild animals that were once there. That's the basic idea. You want to have really good management of the animals. When you do that, it has dramatically positive impacts for the soil health, the water, the production of the water, and even for climate change. That's the key.

**DM:** Sure. I actually attended the first Allan Savory event in the United States. I think it was two years ago in Boulder.

**NN:** Oh, great.

**DM:** Yeah, so I'm familiar somewhat what it is. I would imagine that the differences between those two groups relate to most of the principles that Allan is teaching with the holistic herd management, with the mob grazing, the density, and frequently moving them. There's a variety of ways to do that. That's the distinction between the two groups. One is just... What is the non-healthy way to do it, if you could summarize that?

**NN:** Well, I have to say there's a huge... You, know, there's a spectrum, right?

**DM:** Sure, there's a range.

**NN:** So, you have people who are doing an extremely good job, then you have people who are doing a poor job, and there's everything in between. Most of the people that I'm talking to nowadays especially, because I'm talking to people who are on the progressive end of the spectrum in terms of the ranching community, are really trying to do the best possible practices and that's quite a significant number of people. But I would say they're somewhere on that spectrum and they're trying to get as far over to the very good side of the spectrum as possible.

So, there's this constant dialogue happening within the ranching and farming community about how to do things better. But I think that the worst practice is what they call continuous grazing, where you're basically allowing animals to have access to a very large tract of land. When you look back at the ranching that was done in the 1850s in this country, for example, a lot of it was done this way, where you'd have them covering an enormous area of land, let's say thousands of acres. Basically, they were

just allowed to be there for year round. Then you would gather them at a certain point in time. You might do some branding or whatever. You might take someone out that you're going to send to slaughter, whatever, and you just turn them back out. That's kind of the worst kind of ranching from the environmental perspective. That was how things were pretty much done a hundred years ago.

There's been a dramatic shift toward this side of the spectrum, the much more carefully managed side of the spectrum over the last century, but especially over the last 30 or 40 years. There's a lot more understanding now that when you move the animals... What that does is the grazing itself has multiple impacts. The typical person I talk to on the street will assume that grazing is a negative. That's no longer really believed by a lot of people, especially the people in the sort of progressive grazing movement.

It's believed now that the impact is actually is essential to ecosystem functioning. But you can't have it continuously. So you need to have sort of high impact... You need to have the hooves pressing down the vegetation into the soil. You need to have the dung coming on to the land, the urine and the dung, which actually are very beneficial to the soil health. Then you need to have the animals' leaf and you need to have the resting. The grazing also stimulates the growth of the plant. It's like your pruning the plant. You're pressing the seeds into the soil. You're pressing vegetation into the soil which actually stimulates the biological action, the decay of that vegetation, which is...

**DM:** Yeah, the composting.

**NN:** Exactly. That's a succinct way of stating it. It's basically fostering the composting that takes place naturally in a pasture-range land environment. Then you have to get the animals off of it because you have to allow the resting and the regeneration. What's amazing is, in my book, *Defending Beef*, I do a lot of comparisons of areas where there was either continuous grazing, which is not good, or even no grazing, which interestingly are ecologically similar, and on the other hand, sort of well-managed, carefully managed grazing. What's interesting is that you get tremendous benefits when you have the good grazing that you don't get either when you totally remove the animals.

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That's a very common misconception that it would be ecologically best to have no animals. I'm arguing and I think there's very good evidence for this that the ecologically optimal system has animals in it but they have to be managed well.

**DM:** Well, we just moved locations within your home because the sun shifted up and was starting to wash you out. I thought it would be a better view if we could see you unobstructed by the sunlight.

The next question I have relates to a curiosity. As you mentioned, the way the grazing was initially with animals that are unrestricted in thousands of acres. Superficially, it would appear that would tend to replicate ancient practices before they were actually confined, but maybe not. Maybe they had access to tens or hundreds of thousands of acres and that more likely was the ideal. How many acres do you need to... I guess it's a reflection of how many animals are in the herd is to... What's the optimal? Because I mean obviously when the buffalo were in the US and the Indians were.... I mean, they weren't corralled and fenced-in. That's was one of the large reasons it's believed that the Midwest has some of the finest topsoil in the world or at least it did at one point.

**NN:** Yeah, absolutely.

**DM:** We obviously decimated most of that with industrial farming practices.



**NN:** Right. In fact, it was simply plowing even. I talk about it in *Defending Beef*. There's this whole trajectory that happened with those native prairies in the Great Plains where you had many feet deep of topsoil and the richest soil in the world.

**DM:** Right.

**NN:** The most important thing that humans are doing was simply stripping that away.

**DM:** Yes.

**NN:** To go back to your original question, again, there's no one answer. It's really important to remember that there are many good farming systems. There are many good ways of raising animals, and it's very site specific and it's very climate specific. I will say one thing that's important to remember. It's you can have small numbers of animals integrated into a diversified farming operation and that can be a very beneficial way to have animals.

But when you're talking about these larger herds, especially these grazing animals, whether you're talking about cattle, goats, or sheep, what's increasingly... The vast majority of those are on these areas where you don't farm basically, areas where you can't farm. About 85 percent of the cattle grazing in the United States is believed to be done on land that cannot be used to grow crops. That's an essential point for people to understand. When you have those kinds of areas, that kind of topography, it's beneficial to use large herds of animals.

Actually, you mentioned the way the buffalo moved when they were unconfined. Yes, they were unconfined but here's the key point, I actually show pictures of bison in my talks that I do and I also show pictures of the Cape buffalo in the Serengeti, and the Caribou on the Arctic. Because when you look at those herds, you actually get a pretty good idea of what the typical wild herd would have looked like for tens of millions of years on the globe. Because there were many, many more animals. They were accompanied by enormous numbers of large predators. What Allan Savory argues, and I think it's a very credible argument and I really believe this is true, is that they function very differently than a domesticated herd would today if you don't manage them in a certain way.

Because basically, if you don't have the predation and if you don't have the pressure of those predators constantly pressuring the animals, they're going to be more dispersed. They don't need to congregate tightly, stay together, and continuously move. That's what they would naturally do in a totally intact ecosystem. For example, in California, just right here where I am sitting, we had 18 of these large animals, megafauna as the scientists call them in prehistoric times. They included two different types of lion. They included a tiger. They included enormous numbers of bears. But at the same time you had these huge grazing herds, elk and camels even. People don't believe that but that's absolutely correct, and even two types of elephants.

You had these huge animals that ate vegetation, and then you had these huge predators that surrounded them and hunted most of them in groups and packs, and kept those grazing animals moving in tightly bunched. That's the argument. You have to have human intervention to domesticate them.

**DM:** To replicate that.

**NN:** Exactly. The domesticated grazing will not occur that way unless you sort of manage them properly. I think the evidence for this is really, really good. There's academic research that's been done on the impact of that kind of grazing, but also there's an incredible anecdotal evidence from around the world where you start grazing more in that way, in that sort of mob grazing it's often called, trying to replicate this wild herd. The impact on the land is enormous. It has a literally, completely regenerative effect. It's astonishing when you see the pictures.

**DM:** I've seen some of it in Allan's first conference and it's quite impressive, I must admit. It graphically accelerates the building of topsoil. I don't know the percentage increase but it's probably 10 times an increase in the amount of topsoil you're able to create over time.

**NN:** Well, yeah. It has, and that has enormous implications for the whole health of the soil, which affects all of the life in the whole ecosystem because the plants are then affected by that and the animals are affected by that. But it also affects the water cycle because for every one percentage of organic matter that's in topsoil, you have 27,000 additional gallons of water that's maintained in that water per acre. So, it has dramatic impact on what happens in many different ways. The soil, water, and wildlife, everything is affected.

**DM:** You certainly could use it out in California.

**NN:** Right. You know, it's one of the arguments I'm making to people again and again in my talks because this idea has been coming up in the California drought, which is a historic drought right now. It's believed that it's drier right now than it has been for 500 years. I'm making the argument that this is not a time to be reducing cattle numbers. This is a time for the whole state to get on board with this idea of really managing these animals really well. Because it will actually have drought benefits over the long term if we do that.

**DM:** Sure, but they have to be managed optimally. I'm particularly curious as to the numbers or the percentages in each group. As you mentioned earlier, there's a range between the worst product quality practices and the best. But if you could just simply categorize them into two categories, good and bad, what percentage is in the good and what percentage is in the bad? I mean, obviously there's no definitive answer but what's your best guess?

**NN:** Well, that's an extremely hard question to answer because I view things really as being on the spectrum.

**DM:** Sure.

**NN:** I would say if you had to cut that spectrum in half and characterize half as bad and half as good, it's probably somewhere around a third of the ranches are doing a really good job, and maybe two-thirds are not doing a great job. You know what that means is. It's tremendous...

**DM:** Opportunity.

**NN:** Exactly, tremendous potential for opportunity.

**DM:** All right. I think that's what we wanted to get at. There's a huge potential opportunity here. I'm wondering what the changes have been over the last few years. Have you seen a fairly significant increase in shift into those groups and are people... are these ranchers starting to comprehend these principles and adopt them? What's the rate at which the change is occurring?

**NN:** Yes. In *Defending Beef*, my whole point is that beef is basically very defensible and it's good for the environment. But the good news about all the criticisms that I'm responding to there is that it's putting pressure on the beef industry to self-examine and to improve itself, right? I think on both sides, the health side in terms of what we were talking about earlier, adulterants that are being used in raising cattle whether it's hormones, antibiotics that are being added, or whatever.

I think there's more pressure right now to reduce that than ever. On the ecological side, because there's been so much attention paid to cattle's impact on water and climate, there's more interest than ever within the cattle community at improving what's happening on the ground.

Dr. Allen Williams, who's a wonderful professor of animal science in the Southeast and he works nationally on grazing and teaching people how to do really good grass-fed beef, he says that 10 years ago, he would be speaking at a conference with farmers and ranchers, and that he'd have 10 people in the room. Now, he's speaking to rooms that are jam-packed with hundreds of people listening to him. I can testify to that because I was just speaking at the Grassfed Exchange Conference, which is a national organization. I just spoke at their annual conference in Michigan, and he was one of the speakers. There were four hundred people glued to him when he was speaking.

To me, there's tremendous interest within the community, of people raising cattle and how to do things better, and there's more and more information available about how to do things better. I think that's all, again, good news.

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**DM:** Excellent, excellent. Well, I'm glad to see things are moving in the right direction. They clearly need to be for a variety of areas.

**NN:** I agree.

**DM:** Clearly, one of them is the restoration of the soil. It's very clear if you study this issue very carefully. The only rational conclusion is that these large animals are really important to integrate into the restoration of these farms. Now, you can do without them but it's just a little more challenging clearly. But ideally, I think they need to be integrated in.

**NN:** I think I would argue that you cannot do the large landscape...

**DM:** Large land. But in smaller [lands], you can

**NN:** I agree. On smaller, more diversified farms like what you would typically see on some of the Eastern half of the United States, you may be able to do things without the big grazing animals. In areas, in sort of vast, open landscapes that are arid or semi-arid, in my view, you have to have the grazing animals.

**DM:** Yeah. That is an important distinction. My focus and my bias, I guess, were on the smaller farms. But when you're talking about farms or ranches that are thousands of acres, there's no other practical way to do it. Because you've got to get biomass into the soil. I mean, that is the key. You got to get it into the soil, and that's one of the most effective ways to do it.

**NN:** Absolutely, and you have to have this fostering of the cycle, of birth, growth, death, and decay. That's the key to a healthy ecosystem. If you don't have animals there and if you just have essentially a naked landscape, which is what you have because humans have eradicated 99 percent of wildlife, basically these naked landscapes, which is what you have now, that's when the land decays. You need to have the animals.

**DM:** Excellent. Do you have any recommendations with what the average person can do to be aware of this or to help catalyze the movement in this direction?

**NN:** Catalyze.

**DM:** That was an unintended pun.

**NN:** Well, I think, yes. I mean, I think, obviously, every person has the opportunity to choose their food carefully. I actually have spent many years trying to influence policy that's happening state-wide and nationally, and I think that's a really important thing to do. But I always think the most important side of this issue is the consumer side because that's something that everybody does every day. They are

purchasing and eating food. They're putting money into the system. When you're just buying food that is produced in the chemical-intensive and industrialized way, you're supporting that system. It's often more expensive and more difficult to find the well-produced food. But I think it's something that is really worth our money and it's worth our effort. In fact, in my view, it's one of the most important things we can do for our own health and for the environment's health.

I certainly urge people to seek out well-raised food. I always encourage people to go to farmer's markets and to seek local farmers who have community-supported agriculture (CSA) where you can buy a portion of the food they produce. There's more and more animal-based foods that are available that way too. You know, 10 years ago, it's hard to find meat and dairy products at farmer's markets since CSA's but now, it's quite widely available.

Of course, there are lots of good retail stores as well that carry well-raised food. I really encourage people to learn about how their food is produced and try to find food that is well-raised. Now, when it comes to animal-based foods, I always think the key is grass. Look for foods that were raised with the cycles of the grass, on grass as much as possible

**DM:** Thank you for pointing that out. That really is a powerful way that we can catalyze this movement is to vote with our pocketbooks and that economic pressure will direct many of these practices. The potential problem with that though is currently, there exists a massive window of opportunity for fraud and deception because there are many meat producers who are legally applying grass-fed [label] to their product when in fact it isn't. It's given to the feedlot, and it's conventionally loaded with growth hormones and antibiotics.

We're actually in the process of partnering with some of the big leaders to develop a certification of American grass-fed standard. That certification process hopefully will be standardized within the next year.

**NN:** Yeah, I agree that the labels are not that useful in some ways. It's a good starting point though. I think people are on a journey and lot of times, they're right now... If they are at their starting point, they're shopping almost entirely on a grocery store and they have to kind of depend on the labels. I actually think the best food is not really in the grocery stores. The next step is getting out of the grocery stores as much as possible and getting closer to the source.

The grass-fed label is imperfect but it is still better than nothing. If you see beef, it is regulated by United States Department of Agriculture (USDA). If you see beef that says that it's grass-fed, there are certain things that can and cannot be done for that label. I've read through the regulations and they're pretty good. I agree they're flawed but...

**DM:** They are flawed, seriously flawed.

**NN:** Yeah, but I would encourage people to look for that or you know, until there's something better.

**DM:** Yeah, as I said, it's in process right now. Hopefully, within the next year that will be finalized. You will be able to go to a grocery store. But right now, before the American grass-fed label is adopted and really available, then it makes a lot of sense to get to know the person or the rancher who actually raise that beef and what his or her practices were to produce them because otherwise, there really is no assurance.

**NN:** Also, there are groups of farmers and ranchers... I mean, we've always been... We're not with the Niman Ranch Company anymore. We have a new company that's called BN Ranch. But both of the companies that we've been involved in are collections of farmers and ranchers. You can get to know what

that group is practicing and how they're raising their animals. Knowing the individual farmer is a good way. Knowing what the group's practices are is another good way.

**DM:** Sure. As you mentioned earlier, another challenging complication that many people aren't aware of even though a significant percentage... You thought maybe even the majority of ranchers are raising their animals properly. It's just that they're shifting them off to the feedlots. They're doing that because they really don't have any practical choice. That has to do with the processing plants that just simply do not exist in this country. As a result of that, I don't think most people are aware that most grass-fed meat or beef in this country is not raised in the US. It's raised from... It's imported from overseas, which is absolutely insane.

The adoption of this standard in conjunction with the facilitation and adoption of more processing plants locally, which ranchers can shift their animals to, is really part of the solution. You know, it's a big economic investment but these processing plants get about 50 million dollars as I understand. It's a great one.

**NN:** There are many barriers to American farmers and ranchers right now to getting their meat all the way to market. What's happened is, as you mentioned, there's been this loss of the slaughter houses and processing facilities. That's a really important piece of the puzzle. The other thing is it's just very labor intensive. You have people who are working very, very hard on their farms and ranches and they don't have time to do everything that it takes to get it. It's much easier to pull a carrot out of the ground and take it to a farmer's market than it is to do everything that it takes to get meat safely to the consumer. That's why to me, in my view, the meat issue is distinct from fruits and vegetables as far as the best way to get it to the consumer. I think farmers and ranchers coming together is a really sensible way to get that accomplished.

**DM:** Sure. Ideally, that's the case. Hopefully, within the next year or so, this will be less of an issue because a lot of these logistical issues will have been worked out and we'll be able to have access to that more conveniently through our grocery store, through a well-recognized and honorable certification rather than this deceptive one that currently exists. I'm wondering if you have any final recommendations, comments, or something you'd like to emphasize that you've already mentioned.

**NN:** Well, we didn't talk about it explicitly but I think it's really important that people have some understanding of this issue of climate change and beef production. Because there's so much conversation about it right now and the vast majority of it is simply inaccurate. The bottom line on that is there have been a series of studies and reports that have quantified the total impact of livestock on the climate change issue.

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There's some very good work that's been done on it, but then there's a host of statistics that are bandied about that are not scientifically based at all. The most credible work that's been done on this in the United States was done by the United States Environmental Protection Agency (EPA). It has quantified the total impact of all of the grazing animals: cattle, goats, sheep, domesticated bison, and everything as contributing about two percent of greenhouse gases to the total climate change picture in the United States.

Globally, the number is a little bit higher. The Food and Agriculture Organization of the United Nations (FAO) says that it's about nine percent total. But the bottom line is that that number is far smaller than many people have been hearing lately because there's a lot of misinformation out there. Even that number, in my view, is far higher than the actual number because it doesn't include any consideration of the mitigation, these positive impacts that we've been talking about - the carbon sequestration.

Actually, there's a really good research even on the methane question that's been coming out on the last few years showing that where you have an intact ecosystem, the soil microbes actually deal with a large amount of the methane. There was even one study in Australia that was done at a university in Australia showing that the total methane in a well-managed pasture system... What was emitted from the cattle was fully offset by the soil microbes.

We're just getting a very slanted picture in a lot of the information that's out there. I think a lot of it has to do with the fact that this is a complex issue and it's hard to grapple with all of the facts and all the science. But I also think it has to do with the fact that people are so disconnected with food production and agriculture nowadays.

A lot of the groups that are talking about this are urban-based environmental groups, and they have very little understanding of what's actually happening on the land and how ecosystems function. I think it's very important to rebuff that very popularly held myth, that cattle and beef are a huge problem on a climate change stand point.

**DM:** Yes. Well, there are some people who discount that climate change. That's a whole other separate issue that I'm not going to address here.

**NN:** Right.

**DM:** But for those who accept it and vilify beef production as a serious contributing factor, what really seriously annoys me is their ignorance of the impact of industrial agriculture, which most likely exceeds that by a factor of 10 to 20, with respect of its impact on the production of carbon dioxide (CO<sub>2</sub>). My understanding is it actually exceeds the impact of the burning of fossil fuels.

**NN:** Well, the whole impact of agriculture is smaller than fossil fuel emission. But you're absolutely right that the total impact of agriculture and the vast majority of it comes from the production and use of agricultural chemicals, and from this giant mono-cropping system that we have all over the world now, which is basically stripping away the life out of the soil and strips the protective vegetation off of the earth. You have, obviously, the emissions from the machines and so forth, but you're also completely destroying the soils and all of that wonderful biological life that we keep talking about, which is the core of a healthy ecosystem.

I agree with you. I share your frustration 100 percent that the focus is totally off in the climate change discussion when it comes to food production. We really should be looking at the culprits in terms of the industrialization, the chemicals, and the fossil fuel dependence rather than focusing so intently and so off-base on the ruminants, which are actually the essential component of regenerative systems.

**DM:** Sure, and plowing the soil. One of my heroes is Gabe Brown. I'm sure you're familiar with Gabe. He helped me understand the importance of bare soil. You got to have vegetation on the soil or a cover on it. Otherwise, it's not going to have an armor. It's just going to lose all of its value in microbial activity. That is key.

**NN:** Exactly, that is the key. That's why the ruminants are so important because you can produce food keeping that incredibly dense vegetative cover intact year round. You can't do that any other way except with the grazing animals.

**DM:** Well, let's hope we can convince a significant number of people to embrace this concept because it really is needed. Otherwise, we are most likely headed for some environmental catastrophe. Once we veer off of these basically ancient practices that have been there many thousands of years, we're going to have problems. It's an important and necessary adoption that we need.

Thank you for all your work in this area. I really appreciate it.

**NN:** I love what I do, and I feel it's incredibly important. I'm really excited that more and more people are focusing on these issues because they are so important and so urgent.

*[End]*