

Regenerative Agriculture:

A Special Interview with Dr. Allen Williams

Q: Please give us some background about what you do...

AW: Hello, I'm Allen Williams. I'm a sixth-generation family farmer, born and raised on our family farm in South Carolina. That's been there since 1840. That heritage is a big reason why I do what I do today. It is quite a major role in that regard. When I started into college, I fully intended to come back to the family farm and spend the rest of my life there. But I was talked into going home to graduate school by a major professor who I highly respected, and ended up spending 15 years in academia – teaching, doing research, and those types of things. I concentrated in animal science, livestock area. I got my bachelor's and master's degree at Clemson University in South Carolina and my PhD at Louisiana State University.

During that time, I was heavily involved in commodity and conventional agriculture. But I started noticing that we were spending a lot more money on crops. These were coming from pharmaceuticals, soil fertilizers, chemicals, seed supplements, and vitamin and mineral supplements for livestock. All of those types of things. Based on what [inaudible 02:07] growing up on the family farm to what was now being used as what we could term as “add-ons” for livestock and agricultural production. It just sort of exploded during the '70s, '80s, and '90s, and has continued. That has resulted in an explosion of the allied industry sector for agriculture as well and the need for their goods and services.

But during that time period, there were several things that I noted. I noted that we were using more and more pharmaceuticals to keep animals healthy, and that our soil health was declining along with things like soil organic matter and water infiltration rates. We're seeing greater topsoil walls and erosion. All of those things were continuing to increase, and our reliance on external inputs such as inorganic fertilizers, herbicides, pesticides, and so forth were also increasing frankly at almost an alarming rate to the point that it was getting more and more difficult in production agriculture to have viable net margins, net profits.

That recognition over time, you know. It wasn't a single “Aha” moment or overnight moment that called this recognition to come about. But that recognition over time and relating it to my experience growing up on the family farm started me down the path that we're on today. In the 1990s, I started taking a strong look at both the way we raised our livestock and the way that we treated the soil. Over the intervening 20-plus years, we have both taken strong and recorded observations, and we have collected quite a bit of data – soils data all the way up through forage, plant, animal performance, and even environmental or ecosystem-type data.

With that data, that helped us to further understand what was really occurring and helped us to be able to develop, formulate, and implement practices, management practices on the farm and on the ranch that allowed us to be able to reverse a lot of the negative impacts that we were seeing in terms of declining soil health, declining biodiversity in the ecosystems, and so forth. That's a very quick and dirty explanation of my background.

I left the university system in 2000 to go back fulltime into private business. Since then, we have consulted with more than 4,000 farmers and ranchers throughout Canada, the US, Mexico, and South America, particularly concentrating on the areas of grass-based animal agriculture – which would include grass-fed beef production, grass-fed lamb production, pastured poultry, and pastured pork production –

also concentrating very heavily on building those farms and ranches from the foundation up; the foundation being the soil.

On all of our current clients, we concentrate on building the soil foundation first – soil health is our key – and then everything else is generated from there.

Q: What is the Grassfed Exchange and how does it contribute to educating farmers and ranchers about the benefits of good soil health and grass-based livestock production?

AW: The Grassfed Exchange was formed back in 2010 or actually 2009. We were formed from the inception as an education-oriented organization. We did not want to be a policy setting or a standards and certification organization. We've left that to others such as the American Grassfed Association, the Animal Welfare, United States Department of Agriculture (USDA), and so forth.

Rather we wanted to be an organization that is fully focused on exposing farmers, ranchers, distributors, processors, restaurants, retail grocery sector, and consumers, slowly exposing them to opportunities and alternative grass-based agriculture and to providing them cutting-edge, innovative topics, seminars, farm tours, and basically challenging them in this whole process. That's what we have endeavored to do.

And in order to do that, we host annual conferences. We move around the country. This year's conference will be September 16th to 18th at Mount Pleasant, Michigan. Our conferences are typically a three-day conference. The first day is farm tours, where we visit ranches and farms that are doing very innovative, cutting-edge practices specifically related to grass-based livestock production and to the building of soil health.

We like to look at multigenerational families because succession is very important. If we are to have true regenerative efforts on our agricultural lands, it's going to have to be multigenerational. We place a strong educational emphasis on succession and on helping multiple generations, including our youth, understand the concepts of soil health and grass-based agriculture. We also have a website. That is GrassfedExchange.com. We have various contributors who would write routine blogs and would post videos and other educational information on a routine basis on that website. Again, we endeavor to keep people informed, to challenge them in this whole process, and to provide cutting-edge information.

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Q: What are the economic and environmental advantages of well-managed soils and grass-based livestock production?

AW: That has been actually a very incredible discovery in this whole process. What we have found is that not only are the practices that we are advocating, teaching, and practicing ourselves as individuals, not only have they tremendously benefited our environment and our ecosystems. But we have also found that we have been able to make significant economic improvement in terms of the profitability of our farms and ranches. What we have found is rather than detracting profitability by shifting our practices from conventional to more sustainable and what we like to term more, regenerative practices, we believe we're going way beyond what we would turn sustainable and are fully in the realm of regenerative practices.

We're not just maintaining. We are actually restoring and building. We have found the ability to do that on a very consistent and much more rapid basis and scientist thought has allowed us to be able to significantly reduce input cost, to significantly increase productivity per acre, and therefore improve our overall net margins. What we're doing is we're practicing a form of agriculture that allows us to benefit the environment, the ecosystems surrounding us, the consumers, the farmers themselves, and subsequent generations.

Part of the benefits of this is that we are restoring and rebuilding soil organic matter. We are significantly improving soil [and] water infiltration rate so that more of the rain fall that naturally falls on our lands soaks into the soil, into the roots where it is needed and it's held there rather than running off into the lake, stream, rivers, our bays and gulfs. That runoff, obviously, carries with it a lot of sediments or eroded soil. It carries with it nitrates, phosphates, and sulfur that create the issues that we have seen in Chesapeake Bay, drainage area and the Gulf of Mexico where we have annual hypoxia occurring anywhere from four to 8,000 square mile dead zone.

We have found that our form of agriculture allows us to significantly reduce those negative results of agriculture and to actually produce very positive results. We're also seeing above the ground and below the ground, again we're building soil organic matter. We're significantly improving that natural soil microbial population, which has myriad of benefits in terms of soil fertility and then subsequent plant growth and health. But we're also seeing an incredible diversity of plant species growing from the lake and sea bank as well as return of significant wildlife population which would not only include things like deer, ground-nesting bird species, turkey, and so forth.

But also includes insect population that are vital to fertilization and propagation of our plants. I'm speaking specifically of pollinator insects. We have seen a significant return in the pollinator insect population and other beneficial organisms like earthworm and dung beetles. The environmental and ecosystem benefits have just been huge and they, right now, are appearing to be straight linear growth with continuation of these production practices. But as I've said, the economic benefits have been huge as well.

Q: What would you say are the most important components of sustainable, responsible, and healthy agriculture?

AW: Well again as I've stated before, when you're building anything, a house or a building of any kind, you have to start with a solid foundation. The same applies to building sustainable and regenerative farms and ranches. We have to start with the foundation and that foundation is obviously the soil. The most important component is to start there, to start with the soil.

What that means is that we have to, first of all, fully examine and clarify where we are currently in any farm [or] ranch with our soil fertility and soil biology. We can run some very simple and quick tests to determine that. And then, we have to determine how can we employ and implement agricultural practices that will allow us to significantly reduce chemical inputs on that land, such as inorganic fertilizers, herbicides, and pesticides.

What we find is that when we have to rely on heavy applications of inorganic fertilizers we sort of get trap in a vicious cycle. Heavy nitrogen applications over time acidify the soil, lower the soil pH, damage soil biology, and therefore cause us to have to come in every few years and correct those negative aspects through applying agricultural lime and those types of things. What we do is we look at practices that allow us to significantly reduce all of those external inputs, particularly the chemical inputs –the inorganic fertilizers– and allow us to be able to substantially build the soil microbial population and other organism population beneath the soil.

What we have found is if we start there, then everything else comes much easier. Our plants, whether we are growing crops or forages for our livestock to graze, are significantly healthier, more nutrient dense, and they are much more tolerant and stress-resistant. They are much more resistant to diseases that impact plants. They are much more resistant to pests that impact plants. And therefore because they are healthier, we get greater levels of production from them. And our livestock are healthier because they're grazing plants. They are much more nutrient dense. That's really the foundation. And then of course, management

practices own the farm and ranch that allow us to be able to continue that regenerative process on a year after a year basis.

Q: As consumers, what can we do to support grass-based farmers and ranchers who are implementing sustainable pasture projects like yourself?

AW: Well, there are a number of things that the consumers can do. First of all, they can vote with their pocketbook. That's quite obvious. Obviously, to be honest with you, the very exponential growth of the grass-fed sector over the last 15 years, as well as the local food movement, the increasing number of farmers market in the US, and the increased incident of direct marketing, consumers buying direct from farmers, all of those are ways that consumers can support and contribute to regenerative agriculture and family farm-based ranchers and farmers.

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Voting with their pocketbook, buying these types of food items that are being produced is critical. But also, consumers can bring to their... These farmers and ranchers, we're less than two percent of the US population now. So in terms of policy, government policy and those types of things, we're a very, very small voice and particularly those of us that are practicing regenerative agriculture, we're less than a tenth of a percent of the entire US population.

We need the broader, stronger voice of the consumer, not only voting with their pocketbooks but also helping to support policies from the USDA, Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and others that would help further support regenerative agricultural practices. There are number of ways consumers can be involved. A couple of the other things that I'm heavily involved with that are very much in line with what we've been talking about is the Pasture Project that is housed within the Wallace Center of the Winrock Foundation and supported by a number of other foundations.

The Pasture Project is heavily centered on controlling harmful runoff, particularly related to harmful runoff going into the Gulf of Mexico and creating the multi-thousand square mile dead zone each year due to hypoxia. With the Pasture Project, we're heavily concentrated on regenerative agricultural practices and educating ranchers and farmers on those practices so that we can significantly reduce harmful runoff and the results thereof.

Another project that I'm involved with [is] with a team of scientists, farmers, ranchers, other industry experts, soil experts, and so forth across the country is called SoilCarbon Nation Team. We are actively measuring and monitoring the changes that can be brought about by regenerative agriculture on farms and ranches across the US, and using that data to be able to help other farmers and ranchers understand the power of transitioning to regenerative agriculture. And consumer support of those types of projects can be very vital in helping us to continue those efforts.

I've also been involved with the National Audubon Society and looking at the development of earth-friendly grazing practices. Consumer support of Audobon is another way because they are heavily focused now on helping farmers and ranchers get the education they need, to, again, put in regenerative bird-friendly grazing practices on their farms and ranches.

So again, just active involvement by the consumer. One thing that we know today because everyone has some type of device that it is pretty much constantly attached to the internet and social media, either through a smart phone or tablet or whatever, the consumer is much more aware of these types of efforts today. We just ask for their positive support in every way. That will be very beneficial to us.

Q: Is this type of soil management something consumers can do in their home gardens?

AW: There are some of things that we practice that yes, they can either directly implement or either simulate in their home gardens. Obviously, a big component of what we do in building soil health is using proper livestock impact to build soil fertility and soil health. In really what we do in that regard is that we are simulating what wild ruminants such as the American buffalo or bison used to do for centuries and even millennia.

We're simulating those types of practices, the original practice or way that the great fertility was built through the great plains of the US and other grasslands of the world. That was all built through the action of large ruminants, so we can simulate that today on our farms and ranches. Now, in home gardens, what people can do is, first of all, they can either stop or minimize their tillage practices because tillage, particularly continuous tillage, exposes the soil and causes the release of soil carbon back into the atmosphere.

It also tends to destroy a lot of soil biology, particularly the soil fungi. So minimizing tillage practices in home gardens and relying more on mulching, on composting, compost application, and even application of appropriate soil microbial to stimulate that soil microbial activity, and minimizing the use of or the reliance on inorganic fertilizers, pesticides, and herbicides will all be quite helpful, and they can even work with local farmers and ranchers to be able to access animal manures and apply that to their gardens as well as an organic fertilizers or compost.

There are a number of ways that home gardeners can implement very similar practices to what we are doing in the farm and ranch and get very similar positive beneficial results.

Q: Is there anything else you would like to add?

AW: I guess one of them would be that a lot of the farmers and ranchers that we have worked with and we, the farmers ourselves, that a lot of [farmers] that we have worked with over the last 15 to 20 years have been farmers and ranchers that were in distress, trying to farm and ranch conventionally. Many of them are on the brink of losing their farms and ranches.

A lot of those have been in a family for generations. We have very much appreciated the fact that by teaching these regenerative practices, we've been able to help these farmers and ranchers in distress to be able to not only rescue and resuscitate their operations but also turn them into what they are today, very thriving farming operations that are contributing greatly to our environment rather than detracting from it, and also allowing them to produce very high-quality, nutrient dense products for our consumers.

This holds a lot of hope for those who have not been able to make adequate profits on their farms and ranches, to be able to turn things around. These practices also offer a way – and this is very important to the future of agriculture – for beginning farmers and ranchers, for young people to be able to effectively and profitably enter back in to farming and ranching. For several decades, we have seen the younger generations leave the farms and ranches for job opportunities that they deemed much more profitable and viable because they saw their fathers and mothers struggle on the farm and they didn't want any part of that.

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But now, we're able to turn that scenario around and to be able to bring back in the young people, the younger generations. We desperately need that because the average age of farmers and ranchers across the US are people in their 60s and early 70s. So we desperately need the younger generation to return to the land, and these regenerative practices allow them to have that opportunity to return and to do it in profitable and viable manner where they can support their young and growing families.

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