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How Animals Impact Regenerative Agriculture Efforts

Analysis by Dr. Joseph Mercola | February 11, 2024

STORY AT-A-GLANCE

- By using regenerative land management that incorporates livestock, you can increase organic matter in the soil back to healthy levels within a couple of decades
- By urinating and defecating on the land, livestock provide important nourishment for soil microbes. Their hooves also help break up hardened topsoil, allowing grass seed to take root
- Good animal welfare includes creating an environment in which the animals can express instinctive behavior. Cows were born to roam and graze. Chickens were born to scratch and peck

Editor's Note: This article is a reprint. It was originally published July 10, 2016.

I have visited Will Harris' farm, White Oak Pastures, in Bluffton, Georgia. Harris is a pioneer of grass fed products and what he calls "a kinder, gentler agriculture."

His farm is a great demonstration of how you can convert conventionally farmed land to a healthy, thriving farm based on regenerative methods. Conventional chemical agriculture typically involves the growing of a single crop, such as corn — a strategy that decimates the soil.

Harris purchased the land I visited a few years ago, where he's in the process of implementing regenerative principles to rebuild the soil and make it productive again.

The 220 acres he most recently purchased for his expansion are adjacent to his old farm, which has been in his family for 150 years. He expects to be able to bring the current organic matter in the soil from its current baseline of about 0.5% to about 5% over the next two decades.

> *"This land has been farmed in what I call the trifecta — cotton, corn and peanuts; cotton, corn and peanuts, over and over again. All three crops are really hard on land for different reasons,"* he says.
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> *"This soil is, in my mind, completely dead. The biological life just doesn't exist here anymore, because of intense tillage and the tremendous amount of chemical fertilizers being used on it, as well as pesticides ...*
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> *What we've done is fenced the property. We put about 1,000 cows on the land. There's nothing for them to eat out here [right now] so we feed them hay and haylage during the period that we're asking them to transition this land for us. They will be out here for about a month."*

Animals Are an Important Aspect of Regenerative Agriculture

Indeed, animals are an important aspect when it comes to achieving healthy soil in which to grow crops. By urinating and defecating on the land, the animals provide important nourishment for soil microbes.

Harris also spreads perennial grass seed on the bare land, which the cows will help trod into the ground. Besides adding manure, the hoof activity helps break down the hard cap on the land.

> *"We call this using animals or animal impact to bring about the desired result, which is ultimately to turn this into a pasture, and then later to turn it into a savannah, which we feel best utilizes the rain ration, the energy cycle, the water cycle, and the mineral cycle,"* Harris explains.

To get the animals to cover and "treat" the entire 220 acres, Harris entices the cows to move across the land by placing the hay at one end and the water at the other. This helps maximize the impact of their hooves on the land, and helps distribute the waste (manure and urine) more evenly across the property.

Now and then, they also move the feed in order to encourage the cows to take a different path. In short, the idea is to imitate nature as much as possible, which includes the migration of wild herds across the land.

> *"Nature abhors a monoculture. Nature won't allow it ... Nature wants a smorgasbord of many different microbes and plants and animals living in symbiotic relationships with each other,"* Harris says.
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> *"The only way we can maintain a monoculture is through the use of the tools the reductionist science has given us — chemical fertilizers, pesticides, antibiotics, hormones. The monoculture falls apart if you don't use those things ...*
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> *Industrial farming has horrible unintended consequences and it is absolutely in conflict with nature. What we do here is an effort to emulate nature. Our best emulation is not good and our worst emulation is horrible. But we get better and better at it."*

Redefining Animal Welfare

As noted by Harris, no farmer sets out to destroy the land on purpose. Everyone believes they're doing the right thing; that they're growing the best crops they can and manage their livestock well. But what does animal welfare really encompass? According to Harris, this term really needs to cover more than the most obvious bare essentials.

> *"[G]ood animal welfare used to mean you don't intentionally inflict pain and discomfort on the animal. You keep them fed. You keep them safe. You don't hurt them. All of us believed that was good animal welfare, and most people still believe that.*

To us, now, that is no longer sufficient. For me and my family and my employees, good animal welfare means it is incumbent upon us as herdsmen to create an environment in which the animals can express instinctive behavior.

Cows were born to roam and graze. Chickens were born to scratch and peck. Hogs were born to root and wallow. Those are instinctive behaviors. If they're deprived of that aptitude, that is poor animal welfare.

If you have a cow on a feedlot, a hog in a gestation crate, a chicken in a battery cage, they're safe, they're reasonably comfortable, but they can't express instinctive behavior.

It's like putting your child in a closet and saying, 'This is great. I keep the temperature at 72 degrees. I leave the light on. He'll never break his leg playing football. He'll never be abducted. He'll never be run over by a bus ...' That may seem like great child rearing — except it's not."

Factory-Farmed Versus Pasture-Raised Animals

Concentrated animal feeding operations (CAFOs) have also changed what people know and expect from a healthy animal. A cow fed on pasture, which is its natural diet, has a lifespan of about 24 years — all without added drugs or vitamins.

Feedlot animals, on the other hand, are typically slaughtered at the age of 17 months, at which point they may weigh in around 1,275 pounds instead of the typical 1,000 pounds of a mature cow. As noted by Harris, that's really an unnatural and obscenely obese creature that would not only fail to survive in nature, it wouldn't even occur.

"If they were left beyond their 17 months in that feedlot environment where they're gaining 4 to 5 pounds a day, they wouldn't live very long. I've never done that experiment, but I'm sure they wouldn't live to be 4 years old. That's the difference," he says.

> *"When you eat one of these (grass fed, pastured) animals, you're eating a healthy animal in the prime of their life. When you eat that feedlot animal, you're eating an obese creature that is dying of all the diseases of sedentary lifestyle and obesity that kill people."*

The situation is even worse for pigs and chickens, as the smaller the animal, the more intensive the factory farming methods.

> *"A cow in a factory farm does not have a great life. A hog in a factory farm has a worse life. And I don't think there's a factory farm animal that has as bad a life as a chicken in a factory farm,"* Harris says.

Will has 14,000 birds that lay about 10,000 eggs a day, which makes it the largest pastured egg operation in the U.S. The damaged eggs are recycled and fed to the pastured hogs who relish the treat; plus it enhances their diet.

Animals Can Rapidly Regenerate Land

Another part of the property (see video at top) has already undergone the animal impact phase and you can clearly see the difference between the two areas. Here the animals' hooves have broken up the hard soil cover, and feces and urine have been well-trodden into the soil.

Perennial grass seed (about 15 pounds per acre) was spread out, and after being trodden into the ground by the animals for a few short weeks, the animals were removed to allow the grass to grow and mature. These perennial grasses are what will turn this area into a productive pasture and later savannah, as it grows taproots that are nearly 8 feet long — much deeper than annuals.

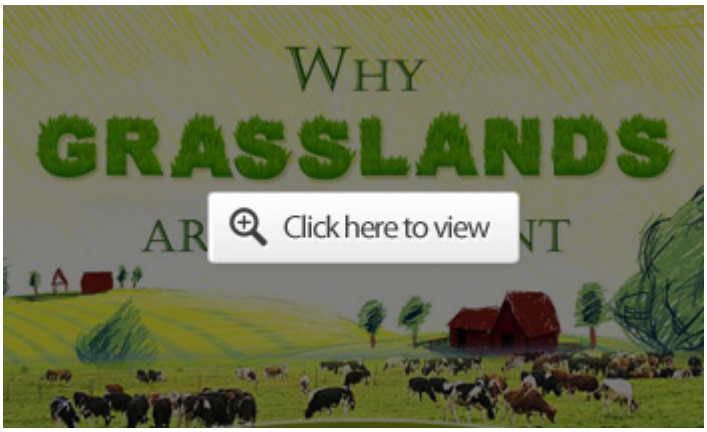
These mixed grasses will help nourish the soil microbiome, which need the plant interaction. Shallow-rooted annuals are also mixed in to increase diversity, but it's really the perennials that are the long-term solution. As the annuals become more invasive, Harris will move the cows into the area to "flash graze" on the annuals so they don't choke out the perennials.

They'll do that a number of times each year until the perennials have grown deep roots and taken firm hold. At that point, the perennial grasses will outcompete the annuals naturally. It's really magnificent to see this whole process in transition, and how they're transforming the landscape.

You have to understand how the cycles work in order to manage the process properly, but once you do, you can rebuild soil quality at a very efficient rate by using regenerative agriculture principles. He is literally creating healthy topsoil hundreds if not thousands of times quicker than it would occur in nature.

Percentage of organic matter in the soil is a good indicator of quality, and Harris has been able to increase organic matter in other areas from less than 0.5% to as much as 5% in a 20-year period. The cycles are complex however, and there are cycles within cycles that work in a symbiotic fashion. For example, there's the:

- **Energy cycle —** With the sun, where photosynthesis is used to produce grass that feeds the cows. When sunlight hits bare earth, it's of no use.
- **Carbon cycle —** The grass covering can be likened to photosynthesizing tissue that breathes in carbon dioxide, sequestering it in the ground and breathes out oxygen, which is critical for animal and human life. By sequestering it in the soil, where it's needed, the plants help remove excess carbon dioxide from the air where it does harm.
- **Water cycle —** When the soil is hard and degraded, any rain that falls simply runs off and takes topsoil with it. When the soil quality is good, with high amounts of organic matter, it soaks up the water like a sponge. That not only helps retain water, but also the topsoil.



Economic Challenges of Regenerative Agriculture

Economic challenges are often what prevent farmers from taking the course Harris has taken. It requires an investment of time, effort, energy and resources to regenerate an environment, and for a time it may be difficult to sustain a profit. Part of the solution is to incorporate animals on the land. According to Harris, having healthy, grazing animals is profitable. But it takes a while to get here. You don't get here in a year or two.

> *"Unfortunately, here in my part of the world, and I think it's probably true throughout the world, industrial agricultural practices have degraded the land dramatically,"* he says. *"The land beneath this grass is an organic medium that's teeming with life.*
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> *It's just full of living things, some of which you can see, some of which you cannot see. But it's teeming with life. If you go right across that forest to another field and got a handful of that soil, it is a dead mineral medium. It's like a handful of tiny glass beads and nothing is living there ... The transition from that to this is very expensive, very slow. It requires knowing what you're doing."*

That said, farmers like Harris not only demonstrate that it's possible, but that it's possible to farm using regenerative methods on a large scale. You don't have to follow a monocrop system just because you're dealing with large land areas. He also demonstrates the ultimate payoff, not all of which can be calculated in mere dollars and cents.

How does one put a dollar value on healthy, happy animals, a thriving environment and the subsequent increase in food quality produced from both? As noted by Harris:

> *"I'm a land steward and livestock man. I focus on the health and well-being of the land and animals. The good food that comes from that is almost like a byproduct, but it's the byproduct we need because consumers buy it and provide the money that allows us to continue to operate and expand in this way."*

Many Objections to Meat Consumption Are Quelled by Pasture Farming

Harris' practice also addresses some of the primary objections many have to eating meat: that animals are raised inhumanely and that they're loaded with chemicals, hormones, antibiotics and pesticides, which you then ingest when you eat the meat. It's important to realize that those objections really only apply to CAFO animals.

Livestock raised within a regenerative agriculture setting are raised as nature intended, live a "full" life in which they're allowed to express their instinctive behavior, and will actually contribute to your health in profoundly important ways when you eat them. I believe we were designed to eat some form of animal protein. I recommend avoiding CAFO meats, eggs and dairy for the same reasons listed above, but pasture-raised animal protein is, I believe, an important part of a healthy diet.

That said, I also believe you don't need very much meat. Most Americans eat several times more meat than required for health, and most eat poor-quality CAFO meats. I believe the average person needs 40 to 60 grams of protein a day. That's a 4-ounce steak at most. And if you eat less meat and other animal products, the cost differences between CAFO and pasture-raised disappear.

> *"The third thing I think causes people to refrain from eating meat is the concern over animal impact to the environment,"* Harris says. *"I agree if you're talking about the confinement animal factory farm model. But I would suggest to you*

that animal impact is essential for turning this dead land back into productive farming."

Grazing Is the Most Sensible Way to Manage Productive Land

To give another example of the important role animals serve within the regenerative model, take goats for example. One of the primary purposes of keeping goats is to strategically manage vegetation in lieu of toxic herbicides, as they gnaw weeds down to an extremely low level. There are even companies from which you can rent a herd of goats and sheep to clear a large lot of land of vegetation, or to keep vegetation under control.

"The plant species that goats and sheep prefer are different from the ones cattle prefer. We have virtually no weeds in our part of the world — maybe one — that even goats, sheep or cows won't eat. Using the three in combination allows us to avoid using herbicides and pesticides on the pastures," Harris says.

"In my part of the world, land will go back to forest unless you do one of five things: spray it with pesticide (which has many problems), till it (which leaves it open for erosion and requires fossil fuel), burn it (which puts organic matter open to the atmosphere), mow it (which requires fossil fuel and has other problems with organic matter) or grazing.

Of those five possibilities, the one that makes the most sense is grazing. It's the most environmentally regenerative of the five as well.

I'm 61 years old. My generation never learned how to use animal impact to shape land. My father's generation was exposed to it, but they fell so deeply in love with internal combustion engines and the tools reductionist science gave us, like chemical fertilizers and pesticides, they forgot about animal impact.

Now that we, my generation, are learning of the unintended consequences of industrial farming, we have to relearn how to use animal impact."