Regenerative Farming — One Solution That Solves Many Problems

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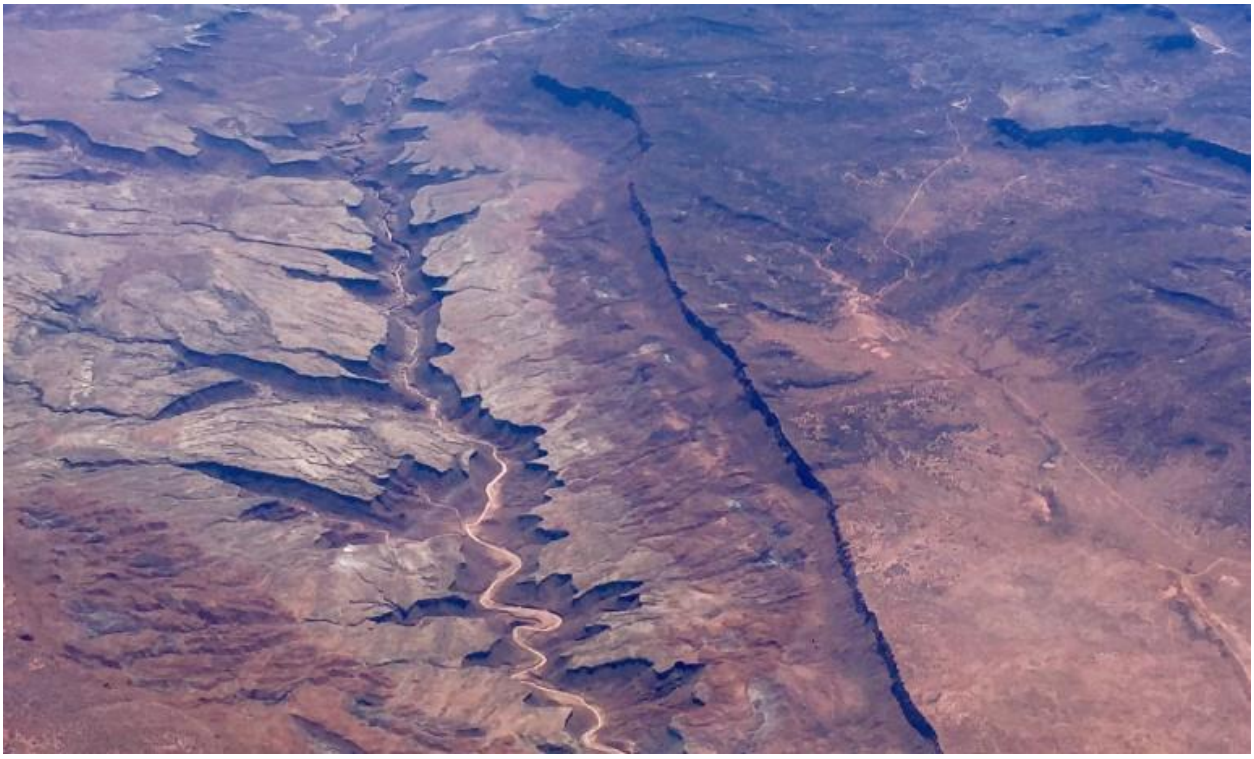


By Regeneration International

We face a number of very pressing problems in the world today. Water scarcity is getting worse as aquifers are drained faster than they can be refilled. Soil erosion and degradation is also rapidly worsening. Ditto for air and water pollution.

Land is turning into desert at a rapid clip, and with it, we're losing biodiversity of both plant and animal life. Manure lagoons from concentrated animal feeding operations (CAFOs) pose hazards to the environment and human health.

Everything is getting more toxic. And according to scientists, we may have less than 60 years' worth of "business as usual" before we reach a point at which nature will no longer sustain us on *any* front, be it water, air, or soil quality.

Modern Farming Has Proven Itself a Failed Experiment

These environmental problems, which have all been either caused or made worse by modern farming practices, have also led to a distinct reduction in food quality and safety. Nutrition has declined and toxicity has escalated, thanks to the excessive use of agricultural chemicals.

Agricultural overuse of drugs, especially antibiotics, has also led to the development of drug resistant disease,[2] which has now become a severe health threat.

Modern farming practices have also been accused of contributing to global climate change — a controversial and hotly contested issue if there ever was one. However, let us not lose sight of what's really important.

Regardless of whether manmade climate change is real, or whether the climate shifts are the result of wholly natural warming and cooling cycles, the fact remains that our weather and environment *are* changing, and these changes pose challenges to our food security and survival.

Moreover, these challenges must be addressed with genuine, long-term, and sustainable solutions. We have to learn how to overcome droughts, floods, and various temperature fluctuations.

Click here to watch "Regenerative agriculture -- a solution to climate change | Ben Dobson | TEDxHudson": https://youtu.be/yp1i8_JFsao

Regenerative Agriculture — One Solution for Many Problems

The really good news is that we have already found a solution that addresses virtually all of these problems.

It doesn't matter if you believe climate change is an issue worth your consideration or not. It doesn't matter whether you believe water shortages are a pressing concern, or whether you care about preserving our butterfly, bee,[3] or fish populations.

Even if you care about just *one* of these many issues and pooh-pooh all the rest, your time, money, and effort is best spent by supporting regenerative farming.

The reason for this is because regenerative farming helps rebuild and optimize soil quality, and the benefits to air, water, ecosystem, food, animal welfare and human health are downstream results of this optimization.

U.S. Administration and Congress Has Made All Food-Related Problems Worse

In 2008 the Pew Commission on Industrial Farm Animal Production issued a report[4] with recommendations aimed at remedying declining human health, environmental destruction, animal welfare, and other problems caused by large scale concentrated animal feeding operations (CAFOs).

This was followed up with an analysis[5] by the Johns Hopkins University Center for a Livable Future (CLF) in 2013, at which time they assessed the outcome of the Pew Commission's recommendations.

According to Dr. Robert S. Lawrence, director of CLF: "There has been an appalling lack of progress. The failure to act by the USDA and FDA, the lack of action or concern by the Congress, and continued intransigence of the animal agriculture industry, have made all of our problems worse."

Pew Commission executive director Bob Martin said: "In 2008, the recommendations were heralded by many in the agriculture community, the agencies and Congress as the catalyst they needed to make vital changes to a food supply that has been criticized as unsustainable and in some cases unsafe. Inaction was inexcusable five years ago, now it is unconscionable."

Governor John Carlin, Chair of the Pew Commission added: "If the last 5 years has shown us anything, it is that the public is more engaged than ever in the food system. The results of this analysis show that our policymakers are really not listening to their constituents."

That was 3 years ago, and matters have not improved one iota since then.

Conventional Farming Has Unjustifiable Drawbacks

CAFOs create a negative feedback loop where safety hazards are compounded and spread around, affecting animals, humans, and the environment in equal measure.

Last year, an avian flu outbreak managed to spread across 14 states in 5 months. The year before that, a pig virus outbreak killed off 10 percent of the American pig population. As noted by the Institute for Agriculture and Trade Policy:[6]

"The rapid spread of new disease strains … is one very visible reason why the expansion of factory-style animal production is viewed as unsustainable.

As Olivier De Schutter, Ph.D., Hans Herren, Ph.D., and Emile Frison, Ph.D., point out in commenting on livestock's ecological footprint,[7] this industrial model of meat production 'yields too many negative outcomes on too many fronts to be justifiable.'

Among these negative outcomes is environmental pollution. Indeed, food producers have become some of the *worst* polluters around.

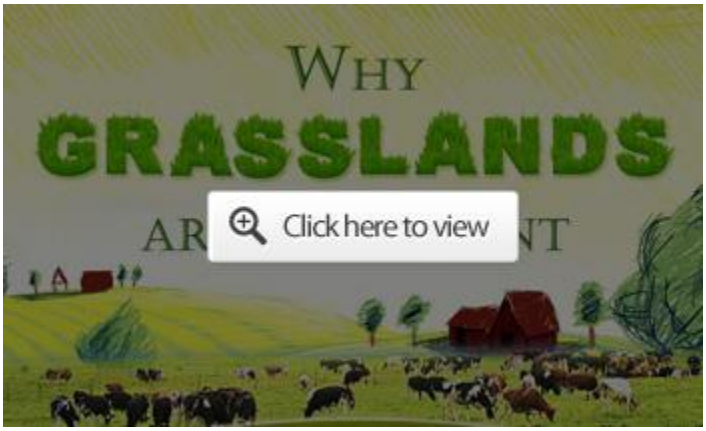
According to a report[8] by Environment America, corporate agribusiness is "one of the biggest threats to America's waterways," and Tyson Foods Inc. is among the worst, releasing 104.4

million pounds of toxic pollutants into waterways between 2010 and 2014; second only to a steel manufacturing company.

In third place, we have the U.S. Department of Defense, followed by Cargill and another steel manufacturer. Of the top 15 polluters on this list, six are food companies, commingling with some of the largest chemical producers in the world, including DuPont and BASF.

Even paper and gasoline producers, two industries well-known for their environmental impacts, are "cleaner!" International Paper and Exxon Mobil are ranked No. 14 and 15 respectively, releasing less than 20 percent of Tyson's toxic emissions into our waterways.

The Importance of Grasslands and Cover Crops



Modern agriculture has completely changed the landscape. In the early 1900s, the grasslands of the southern U.S. Plains were rapidly plowed up and turned into wheat fields. These "amber waves of grain" had an unforeseen effect though. It led to the manmade disaster known as the Dust Bowl.

Drought and financial depression led to the collapse of the wheat market, and once the wheat dried up, there was nothing to anchor the topsoil in place anymore. As the natural winds that cross the Plains picked up the dry soil, dense clouds of dust called "black blizzards" covered the region in an unprecedented years-long "storm." Indeed, topsoil erosion is a major problem associated with modern agriculture, where vast swaths of land are tilled and turned into single-crop fields.

Nearly 90 million acres of corn crops were planted in the U.S. in 2015 — a majority of it being grown for *fuel*, not food. U.S. prairies are being converted into corn and soybean fields so quickly that some ecologists say grasslands are now among the most threatened ecosystems on Earth — even more so than tropical rain forests. The ethanol fuel program was designed to reduce global warming but, ironically, the loss of grasslands is poised to do just the opposite.

Without diversity, crop failures become more serious, and so do the environmental ramifications. The separation of crops and animals into two distinctly different processes has also proven itself to be a really bad idea. Waste becomes pollution rather than a valuable part of the ecological

cycle, and a whole host of land maintenance services that animals serve for free have to be replaced with chemical and mechanical means.

As reported by The Western Producer:[9]

"We have to realize everything is interconnected and we cannot live in isolation,' [Ontario farmer] Chris Boettcher told the Guelph Organic Conference Jan. 29 … Boettcher and his wife, Gabi, have lived what he describes as two different farming lifestyles. They farmed conventionally in the 1980s … The Boettchers were successful, but chose another path because of what they feel was an environmental issue for one of their five children …

'I asked myself, 'why should I use chemicals labelled with skulls and crossed bones on it to produce food?' Biodynamics is a style of farming that emphasizes the relationships among all aspects of a farm, including the people. It looks at the whole rather than the parts, and an effort is made to build a farm's resiliency from the inside out."

Five Tenets of Soil Regeneration

To halt environmental destruction, and to continue growing healthy foods, we must rebuild our eroding topsoil. Using the following five tenets of soil regeneration, a farmer can "build" approximately one inch of topsoil in a five-year period:

1. **No-tillage**. Tilling is probably one of the most destructive aspects of modern-day industrial agriculture, as it disrupts and destroys soil biology. It's particularly harmful for the mycorrhizal fungi — important soil fungi that attach to the roots of plants. Today, no-till farming has started to catch on in the Northern Plains, which is encouraging.
2. **Plant diversity and rotation**
3. **Multispecies cover-cropping**. While home gardeners can add crop cover like mulch or wood chips, large scale operations achieve the same results by planting cover crops. Cover crops may be grown before a cash crop, along with a cash crop, or after. These plants pull down and "trap" carbon in the soil, where it does the most good (opposed to in the air).

Cover crops also act as insulation, so the soil doesn't get as hot or cold as it would if bare. This allows microbes to thrive longer. Also, the soil biology heats up the soil, which can extend your overall growing season in colder areas.

1. **Maintaining living roots in the soil year-round.** It's important to have living plant roots in the soil as long as possible throughout the year. To accomplish this, use cover crops when not growing a cash crop. Interestingly, as described in Mother Jones,[10] depleted and eroded grasslands can also be regenerated by adding compost, allowing the grasses to grow back faster, while simultaneously nourishing the soil.
2. **Livestock integration and diversification**

CAFOs Cause More Nitrogen Pollution Than Crop Growers

Plants need nitrogen to grow, and with each year's crop, nitrogen and other nutrients are pulled from the soil, leaving it depleted. In order to grow crops on the land again, nutrients, including nitrogen, must be added back into the soil.

Nitrogen is a bit of a conundrum though because while it makes up 80 percent of the air around us, atmospheric nitrogen is unusable by plants. The form of nitrogen that plants use to grow is called *nitrate*, and traditional agriculture techniques naturally help cycle usable nitrogen back into the soil by composting crop waste and animal manure.

Conventional farming, on the other hand, uses synthetic nitrogen fertilizer, which creates tremendous amounts of environmental damage. Synthetic fertilizers destroy natural nitrogen found in the soil. Which means farmers must use increasing amounts of the fertilizers each year just to sustain their yields. Nitrogen application also pollutes water supplies.

However, the conventional growing of crops isn't the only, or even the greatest source of nitrogen pollution. As noted by NPR, meat production is actually responsible for more nitrogen pollution than any other source:[11]

"[F]armers apply nitrogen fertilizer to crops to help them grow, but only about half of that nitrogen is taken up by plants. The rest can leak out into the environment. And because cows, pigs and poultry gobble up heaps of corn and soy feed, more nitrogen fertilizer is applied — and emitted — in the process of producing meat and dairy than other foods.

In total, when the additional pollution from nitrogen-rich manure is accounted for, raising beef produces almost 16 times as much nitrogen pollution as growing the same amount of bean protein, scientists say."

Subsidize Health, Not Commodities

For decades, the U.S. government has subsidized crops like corn, sugar, soybeans, and cottonseed. From these crops you get corn syrup, trans fats — two major ingredients in processed foods — and CAFO feed. Why not subsidize foods that are actually good for us? After all, it's our tax dollars being spent on these subsidies. According to research[12]presented at the American Heart Association's Epidemiology meeting in Phoenix at the beginning of March:

- Reducing the price of fruits and vegetables by 30 percent could save nearly 200,000 lives over 15 years, by lowering rates of heart disease and stroke
- A 10 percent reduction in price of fruits and veggies could prevent 515,000 heart-related deaths and 675,000 heart attacks and strokes by 2035. That includes the assumption that people would be able to afford one additional serving of fruits or vegetables per week.
- If people added one additional serving of fruits and vegetables a day, up to 3.5 million deaths from heart disease could be prevented in just 2 years.

The researchers believe simply lowering the price on healthier foods would be more effective than campaigns encouraging higher consumption. As noted by lead researcher Dr. Thomas Gaziano at the Brigham and Women's Hospital and Harvard Medical School:[13]

"This shows that just changing your diet by eating one more piece of fruit or one more serving of vegetables a week can reduce your risk of heart problems by a significant amount. On a population level, policy makers need to realize that it's hard to get people to make changes in their diet. But certain policy changes, whether it's taxes on unhealthy foods or subsidies for healthy ones, can make those choices easier for people and are worth looking into."

Support the Grassfed Revolution

A number of studies have confirmed that organic produce and grassfed animal products are healthier than conventional varieties. Not only do they tend to be more nutritious, they definitely have fewer (if any) pesticides.

Most recently, research[14],[15],[16] published in the British Journal of Nutrition found clear differences between organic versus conventional milk[17] and meat.[18] Said to be the largest study of its kind, the researchers analyzed 196 and 67 studies on milk and meat respectively.

Echoing previous studies, the largest difference in nutritional content was its fatty acid composition, certain essential minerals, and antioxidants. Studies such as these drive home the point that HOW food is raised does make a difference.

Grassfed/pastured animals eat what they were meant to eat, whereas CAFO animals are fed a wholly unnatural diet of corn and soy (usually genetically engineered), plus a variety of additives and drugs. According to Chris Seal, Ph.D., professor of Food and Human Nutrition at Newcastle University:[19]

"Omega-3s are linked to reductions in cardiovascular disease, improved neurological development and function, and better immune function. Western European diets are recognized as being too low in these fatty acids and the European Food Safety Authority (EFSA) recommends we should double our intake. But getting enough in our diet is difficult. Our study suggests that switching to organic would go some way towards improving intakes of these important nutrients."

You Are What You Eat … And Health Begins in the Soil

Aside from the environmental harm being done by CAFOs and chemical-dependent agriculture, the current food production system also takes an incredible toll on human health. Many kids are not getting the nutrients they need in order to thrive, especially in the U.S. where nearly 40 percent of children's diets come from added sugars and unhealthy fats.[20] Only 21 percent of youth aged 6-19 eat the recommended five or more servings of fruits and vegetables each day.

Your best bet for finding healthy food is to grow your own. If that is not possible then connect with a local farmer that raises crops and animals according to organic standards.

Remember, even if you're not a farmer, you can still have an impact by implementing regenerative aspects such as no-till, plant diversity, and using ground cover like wood chips into your home garden. Along with that, plant some pollinator species to provide a habitat for

pollinators. Monarch butterflies, for example, need milkweed to feed and reproduce. When purchasing bee-friendly plants, make sure they have not been pretreated with pesticides that are toxic to bees.

Most importantly, as a consumer, use your dollars to drive change, and educate others as to the importance of nutrient-dense, toxin-free food. Every single time you spend money you make an impact, whether you're buying organic heirloom seeds for your garden, organic grassfed food for your family, organic cotton clothes, or any other organic items, furnishings, and building materials.

It all adds up, and together we can drive larger industries that have such an enormous impact on our environment and health toward more sustainable, regenerative practices.

Sustainable Food Sources

In the U.S., the following organizations can help you locate farm-fresh foods, including grass-fed meat, dairy, free-range eggs, and fresh organic produce:

On their interactive map, you can find a listing for local farmers, CSAs, and markets near you ;-

The Cornucopia Institute

The Cornucopia Institute maintains web-based tools rating all certified organic brands of eggs, dairy products, and other commodities, based on their ethical sourcing and authentic farming practices separating CAFO "organic" production from authentic organic practices.

Weston A. Price Foundation	Weston A Price has local chapters in most states, and many of them are connected with buying clubs in which you can easily purchase organic foods, including grass fed raw dairy products like milk and butter.
Grassfed Exchange	The Grassfed Exchange has a listing of producers selling organic and grass-fed meats across the U.S.
Local Harvest	This website will help you find farmers' markets, family farms, and other sources of sustainably grown food in your area where you can buy produce, grass-fed meats, and many other goodies.
Farmers' Markets	A national listing of farmers' markets.
Eat Well Guide: Wholesome Food From Healthy Animals	The Eat Well Guide is a free online directory of sustainably raised meat, poultry, dairy, and eggs from farms, stores, restaurants, inns, and hotels, and online outlets in the United States and Canada.
Community Involved in Sustaining Agriculture (CISA)	CISA is dedicated to sustaining agriculture and promoting the products of small farms.
FoodRoutes	The FoodRoutes "Find Good Food" map can help you connect with local farmers to find the freshest, tastiest food possible.

France Has Launched First Regenerative Solution to Address Climate Change

Regardless of how you feel about climate change, regenerative agriculture is a solution to many problems. It improves soil and air quality which makes our food more nutritious. It preserves water while also stopping the contamination by eliminating synthetic fertilizers and pesticides.

Regenerative agriculture is a practical solution that also preserves our wildlife. Whether you are a hunter, fisherman, conservationist or all of the above – regenerative agriculture is our clear path forward.

To learn more about how regenerative agriculture can solve the many problems we're currently facing. Including feeding a growing global population and improving ecology and environmental health, I highly recommend browsing through Regeneration International's website.

Here you can also learn more about the French "4 per 1000 Initiative" — a climate change strategy that came out of the COP21 Paris Climate Talks. The initiative has support from a wide array of organizations, including IFOAM Organics International, and the Organic Consumers Association (OCA). While more than two dozen countries have signed on to the initiative, the U.S. has not done so yet.

The 4/1000 Initiative proposes that by increasing soil carbon content by .04 percent each year for the next 25 years, we can eliminate enough excess carbon from the atmosphere to prevent the Earth's temperature from rising higher than *2°C above pre-industrial levels*.