

What is Sustainability?

Climate Change, Health, Ethics, and The Next Agriculture

Looking Forward

This conversation begins with a positive vision. Rooted in our ancient past as a species and practiced today by a rising generation of ecological caregivers, the next food system is emerging. And it is truly sustainable.

Sustainable agriculture is a food system that returns more nutrients to the soil each year than it extracts. It builds the soil in part by reversing erosion caused by the action of wind, water, animals, and machines.

Sustainable agriculture provides a yield for humans while feeding the biology of the soil (soil organisms) and the pollinators (bees, birds, butterflies, etc.).

Sustainable agriculture sustains our health. Plant foods (fruits, vegetables, nuts, seeds, legumes, grains) provide us with essential proteins, vitamins, minerals, fiber, and phytonutrients.

Sustainable agriculture is taking root in backyards, empty lots, rooftops, and community gardens. It rolls with the rural hills and valleys and thrives in a variety of microclimates and habitats.

Sustainable agriculture provides a living income and fair working conditions for farm workers, promotes agricultural cooperatives, and can become a profit-for-society economic model. Sustainable agriculture creates local work and regional food systems.

Sustainable agriculture is organic and non-GMO. It uses organic mulch and fertilizer derived from local plant materials and manures from animal sanctuaries. It integrates annuals, perennial

crops, and trees to create food forests and biodiverse ecosystems.

Sustainable agriculture uses biodynamic and permacultural methods, including cover crops, composting, and crop rotation. The no-till method grows top soil 60 times faster than nature does, and is 8 times more productive than the average organic farm.

Sustainable agriculture uses renewable energy such as wind and solar. It captures and sinks water and sequesters carbon dioxide on site.

Sustainable agriculture goes beyond the precautionary principle. It cultivates the intention to do no harm, and it is regenerative.

Industrial Agriculture

Large-scale monocrops have many shortcomings. They are vulnerable to pests and diseases, requiring chemical fertilizers, pesticides, and fungicides. Beneficial insects, soil organisms, and pollinators cannot maintain healthy populations under these conditions. Monocrops are designed for machines not beings. They bear no resemblance to natural ecosystems. Industrial ag mines the soil, leaving depleted landscapes. It is less productive than organic, biodiverse intercropping. The industrial monocrop model is dependent on fossil fuels and is ecologically unsustainable.

Animal Agriculture

When we eat animals, we may be eating our future. Animal agriculture threatens both our health and the Earth's ability to sustain life.

Sustainable Climate - Animal agriculture in the U.S. accounts for as much as 51% of all greenhouse gases and is the leading cause of climate change. Animal agriculture on any scale cannot adequately sequester in the soil biology the CO₂, CH₄, and N₂O it produces. Methane is 25-100 times more destructive than CO₂ on a 20 year

timeframe. Nitrous oxide is 300 times more destructive to the atmosphere than CO₂. The time taken for methane released into the atmosphere to reduce by approximately two-thirds is twelve years. Carbon dioxide takes 100 years or more to clear. Methane has increased in the atmosphere from 1,700 to 1,850 nanomoles since measurements were first taken in the 1980's; that is 1,600 parts per billion (ppb) up to 1,800 ppb. Reducing animal ags' greenhouse gas footprint is an urgent strategic step toward reversing climate change.

Sustainably Raised? - While it might be obvious that factory farms (about 90-95% of overall meat production) are unsustainable, many so-called organic sustainable farms are unsustainable as well. It takes more land to produce grass fed beef, typically 10 acres per cow. Animal agriculture already uses 45% of all land for grazing, growing feedstock, and processing the slaughtered animals. It would take 16 planets to accommodate the food requirements of humans if everyone chose a grass fed, meat and dairy diet. One can grow 17 times more calories from plant foods than from raising animals on any given piece of land. Grass fed beef cows live 8 months longer (23 months vs. 15 months). That's 8 more months of land use, water, waste, and food. At the beginning and end of their lives they too consume feed from unsustainable industrial monocrops (140-150 lbs. of grain per day per cow). All cows, whether feedlot or pastured, drink 30-40 gallons of water per day. Some grass fed herds are transported hundreds of miles to seasonally graze greener pastures.

Grass fed beef produces 4 times as much methane as feedlot beef, partly due to the high levels of fiber in their diet. This and the fact that there simply isn't enough land on earth to raise grass fed cows, makes grass fed meat not a sustainable option.

Dairy - Organic or not, dairy operations produce dangerous amounts of methane, nitrous oxide, and carbon dioxide. An organic dairy operation of 2,500 cows equals the sewage output of a city of

400,000 people. Land use for organic pasture fed dairy is comparable to grain fed dairy. The water, waste, feed, space, and transport needs of organic pasture dairy, is entirely unsustainable.

Sustainable Ethics - All sentient beings are worthy of care and concern. All farm animals feel pain and want to live full lives with their families. These familiar needs are not unique to humans. When people ignore ethical contradictions there are harmful consequences for individuals and societies. Can our culture be ethically sustained if we deny life and liberty, health and happiness, to other sentient beings? Does denying the rights of other animals contribute to the disregard and abuse between humans?

Animal agriculture employs rape, confinement, abuse, and execution whether factory farmed or "free ranged", "humane", or "organic". These practices violate ethical principles that are truly sustainable such as compassion, love, nonviolence, respect, and good will. Under the best agricultural conditions, animals are still enslaved; are slaughtered at a young age or when their production declines; are separated at birth and are denied their mother's milk; are ground up because they are male chicks, not egg-layers; and are tagged, branded, tail docked, de-beaked, castrated, or de-horned all without anesthesia. If another species treated humans the way humans treat farm animals, we might agree that the "ethical" norms of animal agriculture cannot be sustained or tolerated.

Human Health

Dairy, meat, and egg products contain natural and artificial toxins that are harmful to humans. Natural toxins include IGF-1, casein, estrogen, soporific hormones, lactose, pus, blood, bacteria, parasites, and clearly addictive casomorphins. Toxins that are

added or that result from agriculture conditions include artificial growth hormones, milk increasing hormones, prions, antibiotics, tranquilizers, and feeds containing pesticides, fungicides, chemical fertilizers, heavy metals, GMO's from soy and corn, and reconstituted animal parts.

Organic dairy, meat, and eggs may contain less of the introduced toxins but still have the natural ones. Animal proteins in dairy, meat, and eggs are complex long chain molecules that are difficult to digest and are inflammatory. Casein (the main protein in cow's milk) turns on cancer cells in humans. Dairy, meat, and eggs lack essential nutrients, like Vitamin C and D, phytonutrients, anti-oxidants, fiber, flavonoids, and the easily metabolized proteins called amino acids. The carcinogenic phthalates from the plastic tubing contaminate the milk supply in all dairy operations.

The mother's milk of every mammal is custom designed for the newborn of that species. All mammals wean from milk at a young age as their nutritional requirements change. Human babies and adults suffer health impacts from the milk they take from other animals. Weaning humans from the breast milk of other species is an idea whose time has come.

Fourteen of the fifteen leading causes of death in the U.S., such as heart disease and cancer (and numerous chronic diseases), have been scientifically linked to eating animal products. Science has proven that to sustain human health, a plant-based diet offers the best outcomes.

Greenwashing

To green their practices and public image, some farms reduce their carbon and methane footprint by installing solar panels and methane digesters. The reduction of energy amounts to about 2-4% of total usage. Methane from pasture pooping, flatulence, and

belching is not captured. Their greenhouse gas footprint remains dangerously high. Nature takes 1,000 years to make one inch of soil. This process includes thriving ruminant populations. How is it possible that management of domesticated ruminants can improve on that? We need urgent and significant climate action if we stand a chance of avoiding a total collapse of the conditions that support life on our planet.

A Re-Balancing Act

Our human population used to comprise 1% of all land animals globally. We (7.4 billion) and our enslaved animals (70 billion) that are used for food, clothing, pet, entertainment, and science, now comprise 98% of all land animals. As consumers and policymakers, we can begin to restore the climate by phasing out animal agriculture, restoring grasslands, forests, and oceans and by reintroducing wild free-ranging species once again. If we increase soil humus by 1.6%, CO₂ in the atmosphere will return to safe levels. The application of a half-inch layer of compost to grasslands can kick start sequestration of durable carbon in the soil biology, providing some hope in a time of global climate collapse.

Conclusion

A sustainably grown plant-based food system offers a way to restore our planet's health, avoids the cruelty and violence of animal agriculture, and nourishes us all. Sustainability requires us to look at our food system holistically and live with the understanding that everything is connected. The well-being of all people depends on the well-being of the natural world we are a part of including the ecosystems, habitats, air, water, soil, nutrient cycles, and the animals who share this endangered and beautiful planet with us. The next agriculture is regenerative, healing the farmer and the farm, the innocent and the wild. The next agriculture is a climate recovery plan. The next agriculture sows compassion and common sense. The next agriculture ensures a future for all and a harmless harvest. This is sustainability.

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