

#EAT4CLIMATE

PURCHASING GUIDE

**KISS
- the -
GROUND**



THIS GUIDE OUTLINES:

How you can eat well, build soil, and regenerate the planet by making conscious purchasing decisions.

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AN INTRODUCTION TO WHAT'S POSSIBLE:

Regenerative agricultural systems produce healthier and tastier food, support clean air and water, and contribute to a future we can proudly pass on to our grandchildren. The following guide will illuminate the ways we can help build, support, and contribute to these systems right now.

REGENERATIVE AGRICULTURE

Regenerative Agriculture is a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. It aims to capture carbon in the soil and aboveground biomass (plants), reversing current global trends of atmospheric accumulation and climate change. At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming and ranching communities. (www.terra-genesis.com)



THERE ARE 2 WAYS TO THINK ABOUT EATING FOR THE CLIMATE:

1

MITIGATION: Reducing Carbon Loss/GHG Release

- Was your food farmed in a way that released carbon from the soil?
- How much nitrogen from applied synthetic fertilizer was lost to the atmosphere?
- Was your food grown on land converted from forest to agriculture?
- How much energy went into the processes of growing your food (i.e. pumping water for irrigation, producing fertilizers, running tractors)?
- How much energy went into the packaging and production of your food?
- How many miles did your food travel before it reached your plate?

Agriculture and land use changes are responsible for nearly a quarter of global greenhouse gas (GHG) emissions, primarily from deforestation, irresponsible livestock management, soil degradation, and synthetic fertilizer application. When you also factor in GHG emissions caused by distribution and refrigeration, the food system as a whole becomes one of the largest contributors to global warming.

Currently, the widespread use of conventional farming practices is damaging soil ecosystems, reducing biodiversity, and heating up the planet. However, we can change this by introducing regenerative agricultural practices that restore ecosystems and rebuild soils. By stopping deforestation, integrating soil health principles into crop and livestock management, and creating localized food systems, we can decrease our nonrenewable energy needs, regenerate the Earth's arable land, and sequester carbon in the soil and aboveground biomass to reverse global warming.

2

SEQUESTRATION: Increasing Carbon Drawdown

- Is the farm that grew your food capturing carbon in the soil and aboveground biomass (plants)?
- Is the farm that grew your food increasing biodiversity, water holding capacity, and nutrient cycling in the soil?

Food can be grown in ways that build healthy soil and draw carbon out of the atmosphere (sequester carbon). Remember photosynthesis? Plants use the energy from the sun to convert carbon dioxide (CO₂) and water into oxygen and carbohydrates (sugars). Plants then release some of these sugars into the soil to feed microorganisms. In turn, the microorganisms make otherwise inaccessible nutrients available for plants! More carbon in the soil = less carbon in the air!



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FARMER GABE BROWN'S FIVE FUNDAMENTALS OF SOIL HEALTH

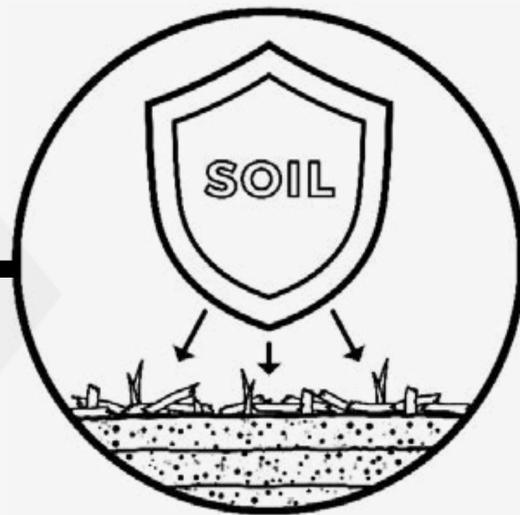
While every farm is different, there are several basic principles that farmers use to build healthy soil. As you get to know your local farmers, be sure to ask them about the practices they use!

And remember, healthy soil supports vibrant, nutrient-dense plants that draw carbon out of the atmosphere and into the soil via photosynthesis. Purchasing from farmers that are building healthy soil is good for both you and the climate.



1 LESS DISTURBANCE

It's important to avoid plowing the soil, and abstain from using harmful chemical amendments. These practices make it difficult for a complex soil ecosystem to thrive.



2 SOIL ARMOR

Keeping the soil covered with living plants or trampled/dead plant material reduces erosion and helps lower soil temperatures.



3 INCREASED BIODIVERSITY

Growing a diversity of plants helps cultivate nutrient dense soil, increase soil carbon, and reduce the risk of pests and diseases.



LIVING ⁴ ROOTS

Keeping living roots in the ground year-round (or for as long as possible) provides a steady source of food for organisms in the soil. In turn, soil microorganisms help prevent soil erosion, increase water infiltration rates, and provide plants with key nutrients.



ANIMAL ⁵ INTEGRATION

Remember Old MacDonald? He had all kinds of animals on his farm, but most farms today have none! Including animals in the farming system closes the nutrient loop and reduces the need for imported fertilizers. Deciding which are the right species of animals to incorporate depends on each farm's unique ecosystem and climate.

Take an hour to go deep on this topic with **Gabe Brown, Keys to Building Healthy Soil**



www.youtube.com/watch?v=9yPjoh9YJMk

ALSO ASK YOUR FARMERS ABOUT:

No waste/On-Site Fertility: When you manage the farm as an ecosystem, all of the nutrients are recycled, and the concept of “waste” is eliminated. Composts and animals fertilize the land, so the farmer is freed from using synthetic fertilizers and chemicals.

DID YOU KNOW?



There are more microbes in a teaspoon of healthy soil
than there are people on the planet!

From *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*

Composting, Page 62

8 STEPS TO #EAT4THECLIMATE

- 1 Know Your Food Source**
- 2 Grow Your Own**
- 3 Compost**
- 4 Choose Meat that's Regenerating Land**
- 5 Choose Dairy that's Regenerating Land**
- 6 Revitalize Ocean & River Ecosystems**
- 7 Know Your Annuals & Perennials**
- 8 Go Beyond Food**



KNOW YOUR FOOD SOURCE

In order to create food systems that are healthy for both people and the planet, we have to invest in local food economies.

When you purchase from local sources, you can ask questions about how your food was grown, or even visit the farm to see it for yourself. Shop at a farmers market, or buy through a CSA (Community Supported Agriculture) that delivers to your house or workplace whenever you can.

Find a local farmer's market or CSA: localharvest.org/farmers-markets

Ask your farmer:

- ✓ How do you keep your soil fertile? Do you add compost? Do you practice no-till agriculture? Do you use cover crops?
- ✓ Do you use synthetic fertilizer, fungicide, or herbicides? Some farms may require the use of synthetic inputs as they build up the soil's fertility, but ultimately these chemicals can destroy soil life and make their way into both the foods you eat and the water you drink.
- ✓ Do you rotate crops? Different crops have different nutrient requirements. By rotating them to different places on the farm, you can ensure that fields don't become deficient in one nutrient or another.
- ✓ Who works on your farm? Some farms view their workers as part of a vital team, and some exploit farm workers as cheap labor.

Beware! "Local" doesn't always mean "good". Local simply means the food was produced near to where you live, making it easier to use your own judgment and investigative skills to know if it was grown in a healthy way. Try to eat a regionally and seasonally appropriate diet that incorporates a variety of foods from farms around you employing good soil practices.



What should you do when you can't find something grown locally from farmers who are building healthy soil?

Purchase from companies that practice transparent sourcing and are investing in soil health within their supply chains. There are many companies who care. Get to know the brands you purchase from, examine their ethos, and ask them direct questions about soil health. Utilize third-party certification labels (USDA Organic, Demeter Biodynamic, Fair Trade, etc.) to identify food that's produced more responsibly.



EAT WHAT'S IN SEASON

When you eat what is grown locally and in season, you are eating more nutrient dense foods, decreasing the demand for food from other bioregions, reducing food transportation miles, contributing to the local economy, and shrinking your carbon footprint.



Plus, you can discover new, locally grown fruits and vegetables. Have you heard of Southern California zapotes or Costa Rican breadfruit? Find out what's unique to your area!



Are there certain foods you want to eat year-round? When your favorite produce is in season, don't forget that you can preserve or can it! Have fun with friends and family making marinara sauce, pickled veggies, fermented sauces, and canned preserves.



EAT FOODS THAT ARE WHOLE

The more we process foods, the less healthy they are for our bodies and for the planet. More processing means more factory production, more chemicals, more sugar, more preservatives, and more shipping.

- ✓ Eat as many whole foods as possible.
- ✓ Read the ingredients list. Look for products that use whole foods and just a few ingredients. Avoid ingredient lists that include chemicals or items you can't pronounce or don't recognize.
- ✓ Remember that processed foods are designed to be addictive. Stick to whole foods, and your taste buds will quickly adapt and begin to appreciate the amazing taste of fresh fruits and vegetables. Fruits and vegetables that taste the best are often the most nutrient-dense.



Watch this video by Dan Kittredge on taste and nutrition

www.youtube.com/watch?v=LnCl45yAVkI



CHOOSE RESTAURANTS SUPPORTING HEALTHY SOILS

Eat at restaurants sourcing from farmers who are engaging in the 5 Fundamentals of Soil Health. Engage with chefs, and encourage restaurants to support the soil health movement.

Ask questions like:

- Do you buy from local farmers?
- Do the farmers you buy from invest in healthy soils?
- Do any of your menu items contain organic ingredients?
- Do any of your menu items include perennial fruits or grains?
- Are your meats pasture-raised, grass-fed, and grass-finished?
- Do your dairy products come from animals that are pasture-raised and grass-fed?
- Are your products such as coffee and cacao Fair Trade Certified?
- Are your fish Certified Sustainable Seafood?



GROW YOUR OWN

Whether you have a potted plant or a full front yard, everyone can grow something. Plus, because fruits and vegetables lose much of their nutritional value in the first day after they're picked, having your own garden instead of buying from a store allows you to incorporate more fresh, nutrient-dense, and great-tasting foods into your diet.

TIPS FOR A SUCCESSFUL GARDEN:

- Test for heavy metals that may be present in your urban soil to protect your health, but don't worry too much about the other nutrient levels you observe in your initial test. Your soil will naturally begin to improve and balance out over time as you compost and grow a diverse array of plants.
 - » Heavy metal test (Total Sorbid Metals Test), \$55
- Use Youtube! There are so many gardeners and farmers with helpful instructional videos online. Look for the ones who are growing food without chemicals.
- Ask a gardener in your neighborhood for tips, or connect to your local master gardener network.
- Use compost! Make your own or buy organic compost.



COMPOST

REDUCE FOOD WASTE

Globally, over 1.3 billion tons of food worth nearly \$1 trillion in retail value are thrown away. Over 51% of the trash going to landfills is compostable, including food scraps, paper, yard trimmings, and wood.

Unfortunately, the environmental costs of food waste worldwide are staggering, and 3.3 billion metric tons of carbon dioxide released into the atmosphere each year through the production, harvesting, transporting, and packaging of (ultimately) wasted food. Even more troubling: once food waste reaches the landfills, it begins to decompose and emit methane gas. Methane has 21 times the warming potential of carbon dioxide—meaning it has an even greater impact on global warming than CO₂.

You can reduce your food waste by buying only what you need, and taking responsibility for your food scraps by returning these nutrient-dense items to the earth. Composting fertilizes future plants, clears space in landfills, and dramatically reduces your personal greenhouse gas emissions.

HOW TO COMPOST:

Compost food, paper, yard trimmings, wood, and other materials to reduce your carbon footprint and regenerate healthy soil. Layer “browns” (dead leaves, twigs, paper) with “greens” (grass clippings, food scraps, coffee grounds) in a compost pile or bin to close the nutrient cycle and put these materials to good use in the form of rich gardening soil.



The Compost Story
www.thecompoststory.com

The Compost Hack with Amy Smart
www.youtube.com/watch?v=3cmXmQ_bVUg

DID YOU KNOW?



By reducing food waste by just 50% by 2050, we could stop 26.2 gigatons of carbon dioxide from entering the atmosphere. Reducing food waste also means that less land is cleared for farming, which could keep an additional 44.4 gigatons of carbon in the ground.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Reduced Food Waste, Page 42

Don't have space to compost at home? Use your municipal compost bin or a worm composter for inside!



Don't have a municipal compost bin? Ask your local representative for one! Most composting programs can take all of your food scraps except for meat, dairy, and bones. And remember! Never put toxic or non-compostable items in your organics bin.

A SIMPLE 50/50 MIX OF GREENS & BROWNS

Remember to balance in volume not weight.

GREENS

- FOOD WASTE
- GRASS CLIPPINGS
- ALFALFA HAY
- COFFEE GROUNDS
- MANURES (NO PET WASTE)

ADD WATER



BROWNS

- LEAVES
- STRAW
- SAWDUST
- WOOD CHIPS
- CARDBOARD
- PAPER

KEEP YOUR COMPOST PILE MOIST AND TURN IT OCCASIONALLY TO ALLOW AIR FLOW

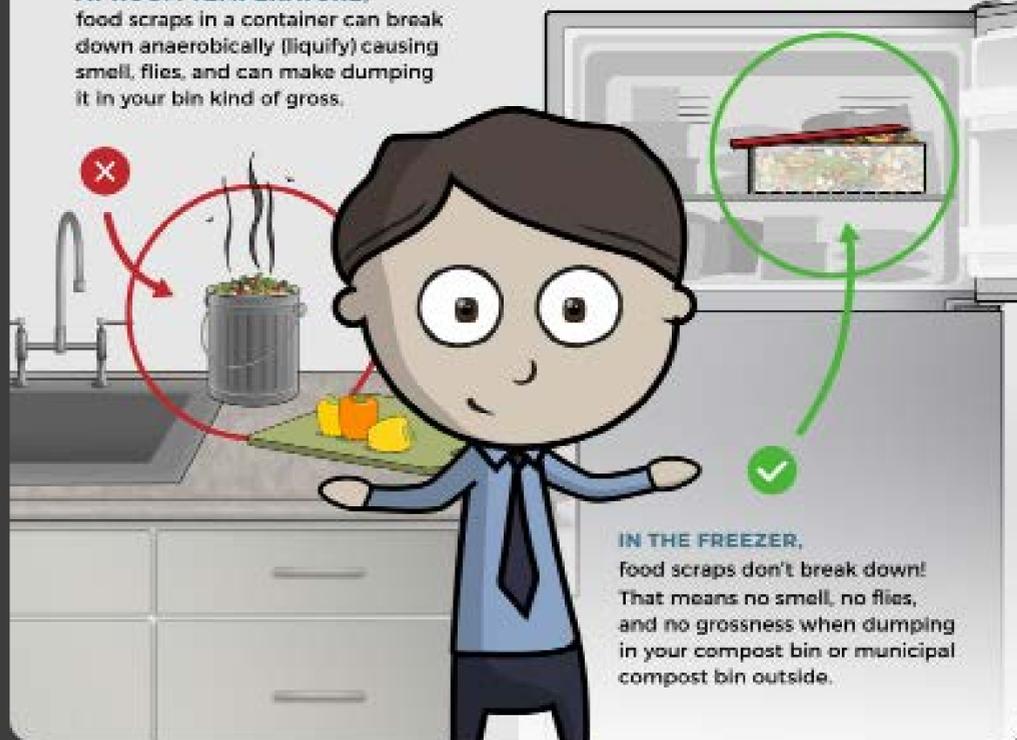
If there are unpleasant odors, add browns, mix, and make sure food scraps remain covered with browns.

THE GAME CHANGER

For composting at home or municipal compost bins. Put it in your freezer!

AT ROOM TEMPERATURE,

food scraps in a container can break down anaerobically (liquify) causing smell, flies, and can make dumping it in your bin kind of gross.



IN THE FREEZER,

food scraps don't break down! That means no smell, no flies, and no grossness when dumping in your compost bin or municipal compost bin outside.

KEEP IT COVERED

Prevent pests and smells by always covering your food scraps with browns.



VIEW THE FULL INFOGRAPHIC



CHOOSE MEAT THAT IS REGENERATING LAND

Animals are an **essential part of the nutrient cycle**, and managing them properly within our agricultural systems is critical for **restoring soils and balancing the climate**.

CHANGING THE SYSTEM

Most of the animals in our modern food system have been removed from farmland altogether and housed in Confined Animal Feeding Operations (CAFOs). The raising and slaughtering of livestock in this conventional (industrial) model breaks the nutrient cycle, creates pollution, and contributes to global warming.

However, a small percentage of farmers and ranchers have figured out how to raise animals in a different way, rapidly restoring landscapes by moving livestock over the land in ways that mimic the impact that large herds of herbivores once had on grassland ecosystems. In these carefully managed systems, cows, sheep, and other animals are moved around various pastures on timed intervals to improve the land's health and resiliency. In some cases, animals can even be allowed to graze amongst trees (a technique called silvopasture) to further promote carbon sequestration and ecosystem biodiversity. Be aware that animals on grass have to be carefully managed and moved between pastures quickly so as not to overgraze or damage the land. Support farmers and ranchers who are practicing rotational grazing as a way to regenerate the land and build soil. This will help to spread their practices far and wide.

THE PROBLEMS WITH INDUSTRIALIZED MEAT PRODUCTION:

- Land is being deforested to support herds of grazing animals, disrupting the natural ecosystem.
- CAFO animals are often stressed and very unhealthy. 99% of all “animal units” in the United States are fed antibiotics and growth hormone to keep them alive.

CONTINUED...

CHOOSE MEAT THAT IS REGENERATING LAND



CONTINUED...

- CAFOs concentrate animal excrement in large pools that release large amounts of ammonia (a public health concern) and methane (a greenhouse gas) into the air.
- Massive industrialized corn and soybean fields are needed to produce the food to feed CAFO animals, degrading the land and releasing carbon from the soil.
- Mass-scale slaughter is often inhumane and unsanitary.
- Even grass-fed cows can be detrimental to the land and climate if they're poorly managed and allowed to overgraze.
- The transportation and slaughter of animals, as well as the packaging and delivery of meat have high fossil fuel costs.

THE BENEFITS OF REGENERATIVE MEAT PRODUCTION

- Animals are moved across the land on carefully timed intervals, helping to restore native grasslands.
- Animals are moved quickly across the land in tight bunches, spurring new plant growth and fertilizing the soil.
- As animals stimulate and fertilize the land, biodiversity increases, soil health improves, and carbon is sequestered.
- Animals are stronger and healthier, moving according to their natural rhythms and eating the kinds of food they evolved to eat.

CHOOSE MEAT THAT'S REGENERATING THE LAND

The vast majority of meat around the world is being raised in a way that's detrimental to both the land and to the climate. Only buy meat from ranchers and farmers who are utilizing regenerative models of meat production. Support businesses that are restoring soils and native grasslands, taking good care of their animals, and sequestering carbon through healthy soil practices and holistic management. If you use the same meat budget that you currently have, but align your meat purchases with animal and planetary welfare principles, then you will find that you naturally consume much less of it. You may even consider approaching meat and dairy as a side dish, rather than as a main entrée.

DID YOU KNOW?



If 50 percent of the world's population ate 2,500 calories per day and reduced meat consumption overall, then an estimated 26.7 gigatons of emissions could be avoided from dietary change alone. If avoided deforestation from land use change is also included, an additional 39.3 gigatons of emissions could be avoided, making healthy, plant-rich diets one of the most impactful tools to fight global warming.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Plant Rich Diet, Page 39



COWS, BISON, SHEEP

Ultimately, cows, bison, and sheep should be allowed to live in the way that their ancestral herds did: moving quickly around grasslands or through trees in tight bunches, eating deeply rooted perennial grasses, legumes, and weeds (plants that readily sequester carbon), and spending no more than a few days in any one spot due to predator pressure.

Farmers regenerating land move livestock from pasture to pasture at the right time—allowing the animals to fertilize the land, gently disturb and aerate the soil, and trigger vegetation to re-enter its growth phase. The livestock must be moved onto new pasture before they trample the land or begin to eat too close to the ground (impeding plant growth). When done correctly, planned grazing (especially in concert with silvopasture) can actually increase biodiversity, improve levels of soil organic matter, and sequester carbon.

TIPS FOR PURCHASING:

- ✓ Purchase 100% grass-fed, grass-finished meat raised in a highly managed, rotational system that's regenerating land. Be careful—a lot of meat in the supermarket will say “grass fed”, but the animal was actually only fed grass at one point in its life (rather than for its whole life). Get to know your ranchers and their farming practices.
- ✓ Cut out meat from CAFOs from your diet entirely.
- ✓ Find your local Savory Hub on savory.global/network and check out their Land to Market Program.
- ✓ Look for important food labels:
 - “Grassfed” by the American Grassfed Association
 - Global Animal Partnership (GAP) Steps 4 and 5
- ✓ Ask your farmer if they have a grazing plan, and if they are working with their animals to maximize plant recovery and growth.

DID YOU KNOW?



Farmers who carefully manage and move their herds have seen perennial streams that once went dry return. On farms that utilize intensive 1-2 day pasture rotations, the capacity of the land to support cattle has increased by 200 to 300 percent. Native grasses re-establish themselves. Farmers stop having to till, sow, and weed, which dramatically decreases their fuel and equipment costs. Plus, the behavior of the cattle also changes. Rather than moving slowly over the land, cattle learn to move more quickly, and begin eating protein-rich weeds in addition to their typical diet of grasses.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Managed Grazing, Page 73

How Does PLANNED GRAZING Impact Our Earth?

ABOUT

80%

OF OUR AGRICULTURAL
LAND IS USED FOR
RAISING LIVESTOCK



Our *lack* of
**PROPER GRAZING
MANAGEMENT**
is *desertifying* this land,
making it *less productive*

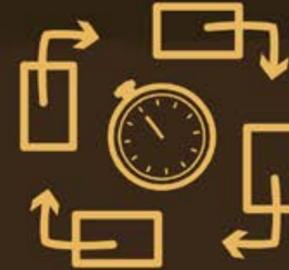


The solution:

PLANNED GRAZING

A method of grazing management that focuses on the **timing & duration** of animal grazing that can rehabilitate landscapes on a large scale.

Key features of Planned Grazing



PLANNING

Planning is the piece that makes it all work. Intentionally thinking about how and when to move animals across the landscape is critical for ecosystem health.

INCREASE FORAGE & GROUND COVERAGE

When the ground is **fully covered**, it **acts as a buffer** from rain and sun – **reducing erosion, runoff and evaporation.**



DISTURBANCE

The soil crust needs to be disturbed by hooves – this **helps seeds get buried**, **creates indentations for water** to collect, and **breaks down** dead vegetation.

STOCK DENSITY

Animals are confined to a **smaller area** and **moved more frequently**. This ensures they eat a **wider variety** of plants, and more land gets disturbed and **fertilized** by their excrements.



REST

Plan a time the grazing animals are **not on the landscape** – this gives the land a **chance to recover** and **avoid desertification.**



CHICKENS & TURKEYS

Most industrial farms cram their birds into crowded, dark spaces and feed them industrial soy to provide them with large amounts of cheap protein. Unfortunately, industrially produced soy is destructive to the soil because it requires heavy tilling and pesticide use.

The natural diet for chickens includes nuts, seeds, insects, and small sprouts. In a regenerative system, birds are eating the protein they find naturally on the farm, including insects, worms, seeds and even nuts and mulberries. They're allowed to behave and feed as they evolved to do, and help fertilize the soil, aerate the land, and even eliminate common pests. Poultry do especially well too in silvopasture systems in which they're integrated and allowed to graze between trees.



Check out mainstreetproject.org and their video — www.youtube.com/watch?v=HxqbbqloSdU



GOATS

Goats are great at eating everything. They're adept at both clearing overgrown land to get it ready for planting, and clearing brush to help prevent fires.



Check out the [Goats in the City](https://www.youtube.com/watch?v=0Gc6gBYgO9c) video www.youtube.com/watch?v=0Gc6gBYgO9c



SILVOPASTURE: COMBINING FORESTRY & GRAZING

In the United States, we've mostly separated our animals from farms that grow both perennial and annual crops. However, there are still many farmers worldwide (and increasingly in the U.S.) who are farming in a more integrated way, mimicking a natural forest and allowing farm animals to move freely through the trees.

Pigs in particular are great at eating fruits and nuts that fall to the forest floor, and help till and aerate the soil with their feet. They can be moved around a forested area to help fertilize the soil. Cows, sheep, chickens, and turkeys can also be raised in forested areas.



Watch this Mark Shepard video
www.youtube.com/watch?v=___6tEiECa4

DID YOU KNOW?



Pastures that contain trees sequester 5–10 times as much carbon as pastures that are treeless. If silvopasture expands by roughly 200 million acres by 2050—out of the 2.7 billion acres theoretically suitable for this type of agriculture—then carbon dioxide emissions could be reduced by 31.2 gigatons. Farmers could realize \$699 billion in financial gains—a number the far outweighs the estimated \$42 billion required for implementation.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Silvopasture, Page 50

CHOOSE MEAT THAT IS REGENERATING LAND



When we raise animals in a way that mimics nature, there are more opportunities for carbon to be drawn out of the atmosphere through photosynthesis, and for healthy soil to store it.

Bison have evolved with the prairies in North America for thousands of years, and can be used to restore grassland ecosystems if properly managed. Support grass-fed and grass-finished buffalo products from sources you know and trust.

MEAT CERTIFICATIONS:

When purchasing meat, the best thing you can do is get to know a local farmer or rancher, and understand both their practices and the impact that their animals are having on the land. If you can't find a farmer or rancher who you know and trust, it's important to know which certifications can help you make better purchasing decisions.

LOOK FOR THESE CERTIFICATIONS:

- ✓ Global Animal Partnership Certified (Steps 4 and 5)
- ✓ Raised without Antibiotics
- ✓ Pasture Raised
- ✓ American Grassfed Association (AGA Certified)
- ✓ Animal Welfare Approved

DISREGARD THESE MISLEADING LABELS:

- ✗ Natural
- ✗ No added hormones
- ✗ Cage Free
- ✗ Free Range
- ✗ USDA Grassfed



CHOOSE DAIRY THAT IS REGENERATING LAND

Make the choice to purchase dairy from animals that live on pasture or in a silvopasture systems (rather than in confinement, like most dairy animals do). Make sure the animals are grass-fed and grass-finished, and that they're raised by farmers who consciously rotate their animals to produce the healthiest pastures they can.

Be aware that for animals to produce milk, they must have recently given birth. Take the time to learn about how the animals are being treated before you purchase dairy products.



Watch how one dairy is following regenerative principles.
www.youtube.com/watch?v=PUiD5RnXxyE



REVITALIZE OCEAN & RIVER ECOSYSTEMS

The oceans are currently absorbing so much carbon dioxide due to global warming that they are acidifying. This is leading to species extinction and coral bleaching. Concurrently, harmful fishing techniques and pollution have caused almost complete ecosystem failure in some places, and the Food and Agriculture Organization has reported that most fisheries around the world are now declining. We are at a tipping point when it comes to the world's oceans, and it's up to us to be aware of what kind of fish we're eating, how it was fished, and where it was caught.

WAYS TO SUPPORT HEALTHIER FISH AND WATER ECOSYSTEMS:

- ✓ Look for the Sustainable Seafood Certification logo when buying seafood.
- ✓ Download the Seafood Watch App on your phone, and consult it for all your purchasing choices.
- ✓ Explore localcatch.org and connect with local fishermen to learn about the fishing practices they employ.
- ✓ Avoid farmed fish that are being fed conventional soy and corn. Fish raised in poorly constructed farmers are often sick and unhealthy, and can pass disease on to wild fish.
- ✓ Support the removal of dams, and other efforts to restore rivers.
- ✓ Learn about ocean remediation projects. For example, there are people re-planting kelp in the oceans to restore native habitat and provide food for humans. Plus, kelp can grow more than a foot a day, sequestering carbon in the process!



Learn more:

SeaLegacy.org/fishfarms | GreenWave.org
PharmerSea.com | OmegaBlue.us



SUPPORT HEALTHY WATERS BY BUILDING HEALTHY SOIL

This year, the Dead Zone in the Gulf of Mexico was the largest it's ever been—over 5,000 square miles in size. Dead zones are areas in bodies of water where there isn't enough oxygen in the water for life to survive. Dead zones are primarily caused by nitrogen fertilizer runoff from farms with poor erosion control.

What can you do? Every time you eat from a farm that is taking care of its soil, you are also helping to restore and protect local waterways (and ultimately the ocean) from toxic chemical runoff. Plus, farms with healthy soil that are sequestering carbon help reverse global warming and ocean acidification.



WHAT ARE ANNUALS?

Annual plants are those that only live for one growing season, and must be replanted every year. Annuals generally take more time and energy to grow and manage. Their root structures are typically smaller, so they can't access the same nutrients and amount of water. Plus, young seedlings are more vulnerable to weather, pests, and diseases. Many plants in our diets are annuals, including: corn, beans, wheat, rice, lettuce, carrots, and potatoes.

Annual agriculture can be destructive to soil, especially if farmers till the same land year after year and harm the underlying fungal network. However, some farmers are figuring out how to do things differently, and have begun growing annuals using the Five Fundamentals of Soil Health: Less Disturbance, Living Roots, Soil Armor, Animal Integration, and Increased Biodiversity. These practices help to sequester carbon in the soil, protect the land from erosion, and make the entire system more resilient to storms and droughts.

- ✓ Get to know your farmers and start asking questions about how they raise their annuals.
- ✓ Take farm tours and see for yourself how your favorite annuals are grown.
- ✓ Grow your own—it's easy to grow lettuce, carrots and other veggies and herbs at home.
- ✓ Learn about perennial alternatives to your favorite annuals, such as a new perennial wheat called Kernza. Its roots can grow up to twenty feet deep—helping to sequester carbon and build soil structure.



WHAT ARE PERENNIALS?

Perennials are plants that live longer than two years. In the case of trees and bushes, they may even live for hundreds of years. In general, perennials are better for the environment because they establish deep roots in the soil, protecting the land and drawing down carbon year after year. In fact, multistrata perennial systems can sequester more carbon than any other known agricultural production system, sequestering 2-9 times more carbon than most improved annual cropping and grazing systems.

Perennials:

Are better able to withstand harsh weather events

Maintain more consistent groundcover

Maintain a strong root structure for multiple years

Require less frequent manual soil disturbance (digging, tilling, etc.)

Know Your Farm

Be aware that not all perennial farms are created equal. Imagine a farm where shade-loving berries thrive under the canopy of a diverse species of trees. Now imagine animals grazing between the trees, fertilizing the soil. This system mimics a natural forest, whether it's hardwood or tropical, providing greater resilience and ecosystem health. This would be a great farm to eat perennials from. Now, imagine rows of mono-cropped almond trees stretching out as far as the eye can see, with no sign of life between them (nothing else planted, no animals grazing). This would be a farm that you wouldn't want to eat perennials from. Choose perennials from farms like the first example—those implementing healthy soil practices and regenerative techniques to take care of the land and soil.

In addition, always ask questions about how farmworkers are treated and paid. Avoid perennial crops that have been sprayed with lots herbicides, pesticides, and fungicides. And don't buy from systems that were planted following deforestation (as is the case with most palm oil plantations, for example). Investigate how your favorite crops are grown and cultivated.



EXAMPLES OF PERENNIALS YOU MAY ALREADY EAT REGULARLY:

- Walnuts
- Peaches
- Apples
- Coconuts
- Olive oil
- Asparagus
- Bananas
- Cacao
- Oranges

There are many perennial crops that you may be less familiar with that can be staple crops in the same way that wheat and rice are. Chestnut, acorn, breadfruit, and moringa are just a few perennial crops that have the potential for becoming staple food crops in the Western diet.



Let your knowledge of perennials and annuals extend to liquids and beverages as well. Many of our favorite products come from perennial plants, including:

- Coffee and tea
- Wine and cider
- Vinegar
- Grape, apple, orange, grapefruit, and pomegranate juices



Check out:

FairWorldProject.org's Justice in the Fields Report to learn more about which fair trade certifications have the best environmental standards.

fairworldproject.org/wp-content/uploads/2016/10/Justice-In-The-Fields-Report.pdf

DID YOU KNOW?



Multistrata agroforestry systems can prevent erosion and flooding, recharge groundwater, restore degraded land and soils, support biodiversity, and absorb and store significant amounts of carbon.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Multistrata Agroforestry, Page 46

DID YOU KNOW?



Shade grown coffee plants live 2-3 years longer than sun grown plants. They also have better natural pest control, fertilization, and water absorption—all of which save farmers money. Needing fewer (if any) chemical inputs, shade grown, multistrata coffee plantations also make for safer workplaces.

From Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Multistrata Agroforestry, Page 46



OILS

Oils are also derived from either annual or perennial crops. Look for local oils at your farmers market made by farmers who are caring for their soil, or buy from companies that maintain strong environmental commitments.

EXAMPLES OF OILS MADE FROM PERENNIAL CROPS:

- Avocado Oil
- Coconut Oil
- Olive Oil
- Palm Oil

Note: Make sure these products are produced from trees grown in an integrated or silvopasture farming system. Coconut oil and palm oil plantations in particular can be very environmentally destructive, making it essential to research how they are being managed and what kind of impact they're having on the environment.

EXAMPLES OF OILS GROWN FROM ANNUAL CROPS:

- Corn Oil
- Soy Oil
- Canola Oil
- Peanut Oil
- Sunflower Oil

Note: If you buy these oils, make sure they're produced from products grown using the 5 Fundamentals of Soil Health.



CLOTHING

Just like food, our clothing choices can have a positive or negative effect on our environment. By making smart clothing choices, you can help restore soils and rebalance the carbon cycle.

- ✓ Support fibers grown in farming systems that are regenerating land. Choose hemp, organic cotton, and wool over synthetic fibers like polyester, nylon, and rayon.
- ✓ Choose used or upcycled clothing.
- ✓ Purchase wool clothing from sheep that are helping to restore grasslands.
- ✓ Look for naturally dyed garments.
- ✓ Don't be fooled by "sustainable" bamboo—it takes a lot of chemicals to make something as hard as bamboo as soft as a t-shirt.
- ✓ Choose leather products made from animals that are helping to restore grasslands or grazing between trees (silvopasture).
- ✓ Avoid purchasing clothes made from synthetic fibers derived from plastic. In the washing machine, these fibers break down and contaminate your washing machine's wastewater with tiny plastic microfibers. When this wastewater eventually enters our waterways and oceans, it releases these little pieces of plastic into delicate ecosystems.
- ✓ Invest in timeless, high quality pieces that will last. Repair and repurpose clothing whenever possible.



Visit fibershed.com to learn more about how this organization is helping build local, climate-beneficial, fiber economies.



Watch these videos to learn more:

Fibershed — www.youtube.com/watch?v=rPlpL4HU4Y

Huston Textiles — www.youtube.com/watch?v=Oso-cCTr6rM



FLOWERS & HOUSEPLANTS

Ever stop to wonder where your dozen roses were grown, or how far the houseplant you bought at the local hardware store had to travel before landing in your living room?



Instead, find a **local farm** or **garden** that is growing flowers/plants in your area in an ecological and biodiverse way.



COSMETICS

Purchase biodegradable soaps and cosmetics that are safe for your body and safe for the environment.

If you can't imagine feeding your cosmetic to a hypothetical fishpond in your backyard, then don't use it. Many conventional cosmetics are unregulated and contain toxic ingredients. When we use these products, their components are flushed into waterways or absorbed through our skin, harming our health and polluting the environment.

Instead, buy locally-produced cosmetics that contain easily recognizable, eco-friendly ingredients. Shop at farmers markets and health stores, and consult the Environmental Working Group's Skin Deep Cosmetic Database to find safer products.



SANITARY ITEMS

Seek out **organic, chlorine-free** tampons and pads, or opt for a reusable menstrual cup. Conventional tampons and pads can contain pesticides, harmful dyes, and toxins.



CLEANING SUPPLIES

Ever stop to think about **what cleaning supplies looked like before we went to buy them from the store in plastic bottles?**

Salt, lemon, vinegar, and baking soda can be used to make great DIY home cleaners. There are also great books, blogs, and other resources that outline other natural recipes for home cleaners.



Don't forget to source your lemons and even vinegar from farms building healthy soil.



For tips on making your own household cleaners and body products: trashisfortossers.com



PACKAGING

Reduce the purchase and consumption of single use plastics by:

- ✓ Avoiding items with **lots of packaging**
- ✓ Carrying a **reusable water bottle**
- ✓ Carrying **reusable silverware** and **metal, bamboo, or glass straws** with you
- ✓ Using **diva cups** instead of tampons with plastic applicators
- ✓ Using **reusable grocery bags**
- ✓ Bringing your own **reusable take out containers**
- ✓ Buying your own **reusable produce bags**
- ✓ Investing in **bamboo** rather than plastic **toothbrushes**



Watch this video to learn about compostable food packaging.
www.youtube.com/watch?v=rgsMIC22aL4

HUMAN HEALTH

Eating food from farms that are **regenerating land** could lead to better health.

IMPROVE YOUR GUT HEALTH

You are what you eat. In the wake of extensive microbiome research, we now know how important a diverse gut biology is to our overall health and immunity. Eating foods grown in biodiverse, healthy soils, eating fermented foods and probiotics, and avoiding pesticides and antibiotics all improve our gut health. Learn more about gut health and fermented foods by checking out the Human Microbiome Project (hmpdacc.org), and reading **Wild Fermentation** by Sandor Katz.

AVOID TOXINS

Get your glyphosate levels tested here: hrilabs.org. Glyphosate is one of the most harmful chemicals in our environment today. The herbicide has been listed by the state of California as a known carcinogen. Today, as a result of its widespread use in industrial agriculture, glyphosate is showing up in everything from oatmeal to rainwater. Avoid conventionally produced food products to decrease the agricultural use of glyphosate, and stop its release into the environment. In addition, avoid using any product containing glyphosate on your lawn or other outdoor spaces.



SUGGESTED READING

Start here & check out a full list of resources on our website at kisstheground.com.

Kiss the ground
Josh Tickell

Soil will Save Us
Kristin Ohlson

Soil, Grass, Hope
Courtney White

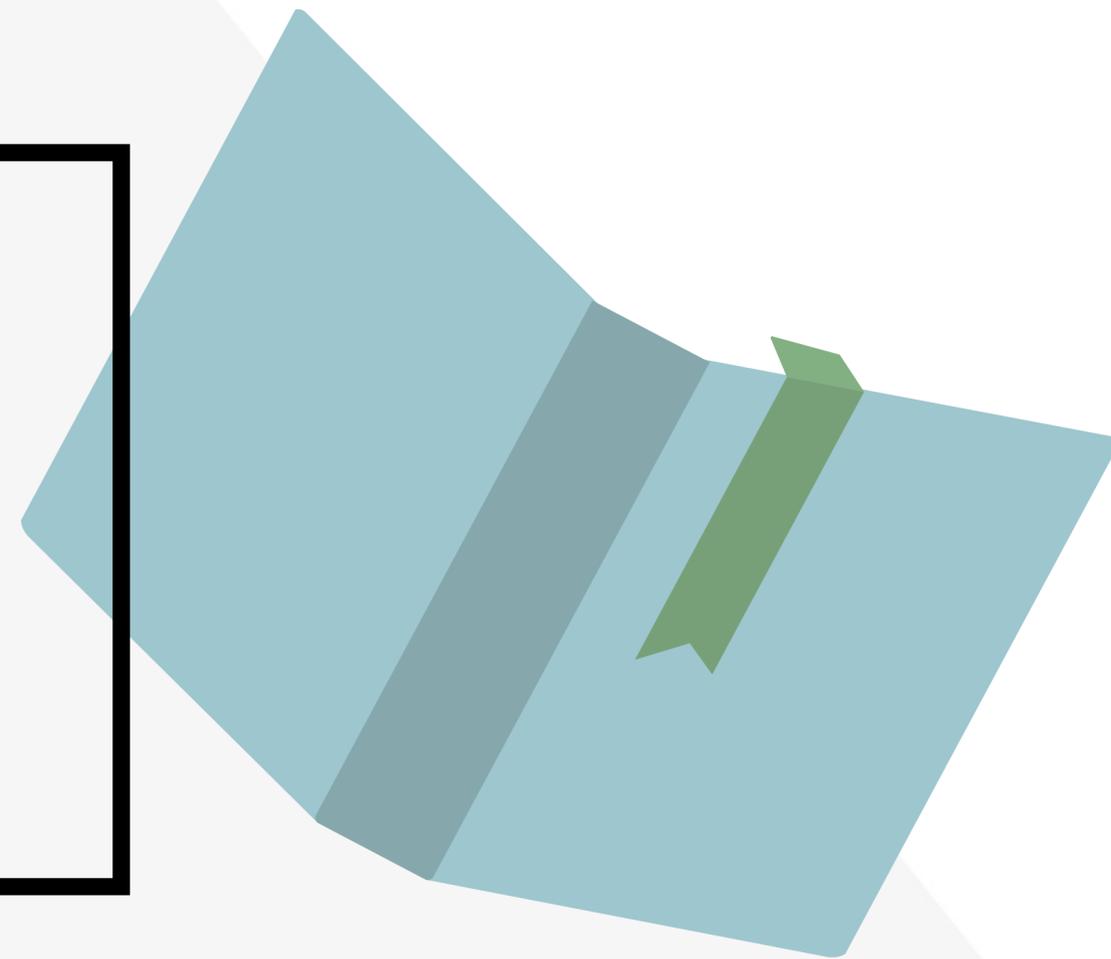
**Dawn Again: Tracking the
Wisdom of the Wild**
Doniga Markegard

Drawdown
Paul Hawken

Diet for a Hot Planet
Anna Lappé

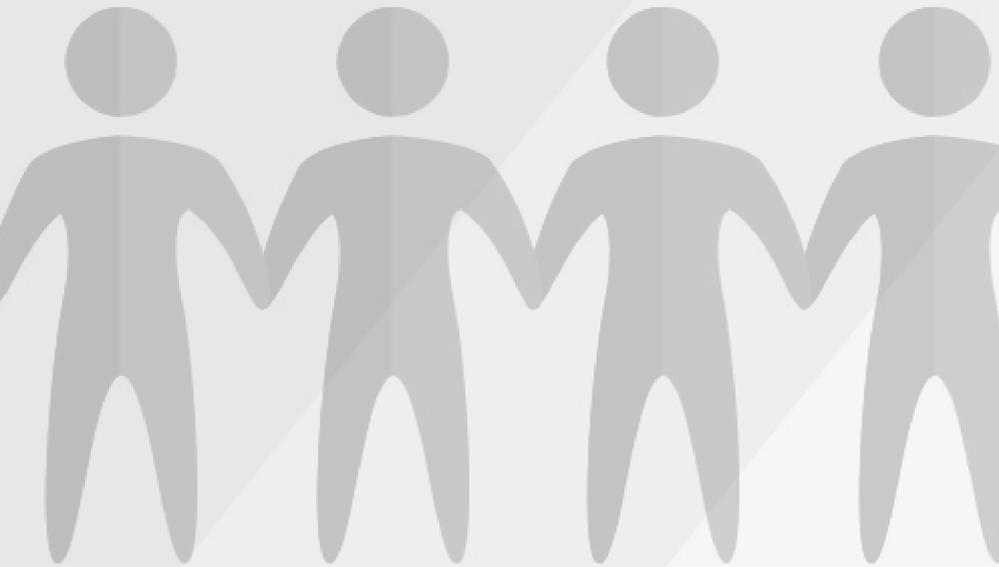
Cows Save the Planet
Judith D. Schwartz

Growing a Revolution
David Montgomery



FIND YOUR FRIENDS

Kiss the Ground, a nonprofit, started in a living room as a group of concerned friends learning together about how agriculture focused on soil health could positively impact the environment and balance the climate. Investing in soil health and regenerative agriculture reverses climate change through carbon sequestration, cleans up our air and water, heals our bodies, produces healthier and more delicious food, increases biodiversity, and restores critical habitat. In four years, we've gone from teaching each other to promoting soil health to governments, businesses, and communities worldwide. So start something in your living room—it can become your passion and even your full-time job. If you begin meeting regularly, send us an email at info@kisstheground.com and let us know how it's going!



LINKS/INTERNET REFERENCES:

In addition to utilizing the following references, we interviewed and consulted over 20 experts, farmers, and scientists in the soil health and regenerative agriculture field.

<http://certifiedhumane.org/free-range-and-pasture-raised-officially-defined-by-hfac-for-certified-humane-label/>

http://derraik.org/resources/Publications/003.Derraik_2002-Mar_Poll_Bull.pdf

<http://news.nationalgeographic.com/news/2015/01/150122-food-waste-climate-change-hunger/>

http://wwf.panda.org/what_we_do/endangered_species/cetaceans/threats/fishstocks/

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<http://www.fao.org/newsroom/common/ecg/1000505/en/stocks.pdf>

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<http://www.npr.org/sections/thesalt/2017/03/22/520015345/why-more-farmers-are-making-the-switch-to-grass-fed-meat-and-dairy>

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<http://www.worldbank.org/en/topic/climate-smart-agriculture>

<https://animalwelfareapproved.us/standards/guide/>

<https://fairtradeusa.org/what-is-fair-trade/faq>

<https://permaculturenews.org/2012/06/06/perennial-plants-and-permaculture/>

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<https://www.nature.com/news/one-third-of-our-greenhouse-gas-emissions-come-from-agriculture-1.11708#/b1>

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<https://www.scientificamerican.com/article/how-does-mercury-get-into/>
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<https://www.usda.gov/media/blog/2012/03/22/organic-101-what-usda-organic-label-means>
https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf
<https://aag.secure-abstracts.com/AAG%20Annual%20Meeting%202018/abstracts-gallery/16791>

JOIN THE MOVEMENT

Kiss the Ground's mission is inspiring participation in global regeneration, starting with soil.

KISS
- the -
GROUND

TOGETHER, WE CAN DO THIS!

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