

Comments Received on Regenerative Agriculture Definition*
Comment Period: April, 2024

*These are written comments received via email to RegenerativeAg@cdfa.ca.gov or through chat box via public listening sessions. Written comments submitted in the Zoom chat box during public listening sessions and work group sessions will be posted elsewhere. You may submit a written comment at any time to RegenerativeAg@cdfa.ca.gov through July 2024. Comments will be posted at the end of each month.

Date	Written Comment
4/1/24	<p>Our family company, Dr. Bronner’s, is located in Vista, North County San Diego, employs over 300 people and generated \$200 million in net revenue last year. We source our major raw materials from farming communities around the world that are certified to the Regenerative Organic Certified standard. I’m including two blogs I wrote as part of my formal comment here: the first Regenetarians Unite that led to the formation of the Regenerative Organic Certification that we helped launch with our partners at Patagonia and Rodale; and the second Regenerative Agriculture: the Good the Bad and the Ugly.</p> <p>Summarizing the latter, there’s widespread agreement in the movement about what constitutes regenerative practices on a farm or ranch: managed grazing, cover crops, diverse crop rotations, minimal soil disturbance, etc. However the focus of my blog and comment here is on off-farm feed and synthetic inputs, which is under-appreciated and if not addressed in a real and credible way, will undermine the promise that regenerative agriculture has to mitigate climate change and restore soils.</p> <p>Starting with off farm feed, something like 40% of American ag land is dedicated to growing feed crops--- soy, corn and alfalfa for livestock, generally raised in confined animal feeding operations, or “factory farms”. The general regenerative consensus is that cows, pigs and chickens should be raised on pasture in a way that is beneficial to the soil biology and ecology of a given farm or ranch. However, monogastric pigs and chickens are omnivores like us, and require just as much if not more grain when raised on pasture than their factory farm counterparts. They can supplement with insects, worms and seeds on pasture, but still require most of their caloric intake from grain. Nothing will change the vast monoculture deserts of soy and corn in this country, if the definition for regenerative livestock does not address how the off farm feed is grown. If that feed is grown in a regenerative way, great, but if its not then just measuring soil carbon on a given ranch gives a false impression of regenerative impact, when the soil that the feed is grown in is being stripped of fertility and life. So defining regenerative in a way that accounts for how</p>

	<p>off farm feed is grown for livestock is key, not simply what the practices and soil carbon levels are on a given farm or ranch that livestock are being raised on.</p> <p>As far as synthetic fertility and pesticide inputs, regenerative practices will turbocharge the soil biology and fertility of a given farm or ranch, allowing for the reduction and eventual elimination of synthetic inputs over time. Especially synthetic nitrogen that is the largest greenhouse gas contributor in agriculture. The test of a true regenerative farm or ranch operation is being able to graduate off synthetic fertility and pesticides at some point. If we define “regenerative agriculture” to not include the reduction and eventual elimination of synthetic inputs, then we will sabotage the promise that regenerative ag has of mitigating climate change. It is of course awesome to cut synthetic inputs in half, but if that’s all regenerative ag accomplishes, then that’s like saying to the automobile industry in California, it’s OK for fleets to go hybrid as the end goal, and not worry about going completely electric. Cutting fossil fuel reliance in half via hybrid technology is great, but it’s also not remotely good enough; going completely off fossil fuels is what we need, and we should define the end goal of regenerative ag similarly. A farm or ranch is regenerative to the extent that they graduate off synthetic fertility and pesticides in some reasonable time bound way. Rick Clark for example who farms 7000 acres organic no till in Indiana, advises five to seven years is plenty of time.</p> <p>California also has the opportunity to define regenerative ag more expansively to include fair labor and animal welfare criteria, rather than just in terms of soil health. We envision a regenerative future where people, land and animals are treated with respect, and rural economies are thriving. My two blogs linked above go into these and other issues in more depth, and I hope regenerative agriculture in California sets a real credible bar and example for the rest of the world to follow.</p>
4/19/24	<p>Regenerative Agriculture</p> <p>Our soils, air, water, and ecosystems are inextricably tied. Regenerative agriculture recognizes that our soil is a living ecosystem comprising billions of diverse microorganisms. Regenerative agriculture supports practices that enhance the ability of soils to store, transform, and cycle nutrients in the soil, grow healthier food, retain more water, and better absorb carbon that can help slow or reverse the impacts of climate change. In short, if we take care of our soils, our farms prosper, more water is conserved, and therefore more water is available for beneficial uses, and our environment thrives. That is why Metropolitan is engaged in this effort.</p> <p>Metropolitan believes a broad definition of ‘regenerative agriculture’ should be considered for the Environmental Farming Act Science Advisory Panel. A broad definition is appropriate given the diversity of California and its agriculture. This definition should account for differences in climate, agricultural practices, crops grown, and support a definition applicable to all of California’s diverse agricultural regions.</p>

Preferred Definition

Based on the widely recognized principles of soil health from the Soil Health Academy, the Metropolitan Water District recommends the definition focus on the following principles:

1. Minimize soil disturbance. Healthy soils contain soil aggregates, mycorrhizal networks, and living roots that feed beneficial microorganisms, trap moisture, capture carbon, and create pore spaces for air and water. Tillage can impair these structures and reduce the number of microorganisms in the soil by exposing them to heat and UV rays from the sun.

Recommended practices: Use no- or low-tillage practices such as no-till drills for seeding. Preserve living roots in the soil by crimping crop stubble instead of discing.

2. Minimize chemical application. Some applied chemicals have a detrimental impact on surface and groundwater quality. While striving toward zero or near-zero chemical applications, ongoing reductions should be pursued. The use of compost builds a healthier soil biology.

Recommended practices: Use manure, compost, biosolids, or other organic fertilizers. Design crop rotations to provide beneficial soil inputs (e.g., nitrogen-fixing crops such as peas and vetches.) Consider natural soil amendments such as biochar to improve the infiltration and water-holding capacities of poor-quality soils.

3. Keep soils covered. Bare soils lose moisture to evaporation and expose microorganisms to high temperatures and topsoil to erosion. Both crop stubble and cover crops can be used to armor the soil to prevent these losses.

Recommended practices: Terminate crops using crimper-rollers to flatten stubble rather than discing, to create a layer of 'armor' on top of the soil. Plant cover crops in between cash crop rotations rather than leaving fields idle.

4. Encourage crop and microbial diversity. Monoculture tends to exhaust soils and reduce the variety of microorganisms, creating the need for large fertilizer inputs. A well-designed crop mix and crop rotation can be used to counteract these effects. For example, multispecies mixes of cover crops can be customized to provide the right balance of nutrient inputs, including species selected for their nitrogen-fixing, soil loosening, and pest-repelling abilities.

Recommended practices: Diversify crops and design crop rotations to incorporate a variety of compatible crops, including multispecies cover crops.

5. Recognize Context- regional variation and limitations. Not all practices will be suited for every agricultural region of the state. For example, some areas have soils with significant amounts of clay, and tillage may be necessary to prepare the soil for planting. In others, seeds from cover crops may interfere with neighboring fields. For these reasons, any regenerative certification should reflect context and recognize the unique soil conditions and climates of different areas of the state while pursuing measurable improvements through ongoing use of the above recommended practices.

4/26/24

There is no step-by-step process for creating a regenerative system on a piece of land, but there are fundamental principles that underlie achieving regenerative systems. In public stakeholder meetings, several groups have referenced primary principles that constitute a basis for site-specific regenerative agriculture. The undersigned are offering six fundamental principles that we believe align with other verbal and written comments provided by groups, and reflect the

Noble Research Institute's regenerative principles. These are:

1. Know Your Context
2. Manage Disturbance
3. Maintain Living Roots
4. Support Biodiversity
5. Keep Soil Covered
6. Integrate Animals

California is agriculturally unique and geographically one of the most diverse states in the country, growing over 400 different specialty crops and housing over 70,000 farms and ranches. With state-specific contexts and the breadth of

California's agricultural diversity in mind, we recommend that CDFA's efforts define regenerative agriculture in the following ways:

- Recognize Traditional Ecological Knowledge (TEK) and ways of living and understanding natural systems,
- Acknowledge that regenerative is a journey of holistic farming, ranching, and land management systems, with multiple pathways for achievement tailored to individual operational contexts,
- Focus on improving soil health and increasing biodiversity and quality nutritious food as its core principles and goals,
- Incorporate measures to promote equity and inclusion, particularly for socially disadvantaged ethnic groups involved in California agriculture,
- Adapt practices to accommodate the ecological, geographical, and historical condition of a place (context), and acknowledge the variability of effectiveness of these practices across different environments,
- Avoid overly restrictive or prescriptive definitions that discourage on-farm innovations, a historical hallmark of California agriculture,
- Avoid references to third-party certifications,
- Guard against degenerative agricultural practices that do not advance the intentions and goals of the state's programmatic definition and the regenerative movement as a whole,
- Commit to reducing and then eliminating chemical inputs over time, such as synthetic herbicides and pesticides,
- Support ecological outcomes verification of progress that are rigorous but not economically burdensome for

producers,

- Incentivize consistent long-term management that's needed to truly realize the benefits of land regeneration, increased biodiversity, and resilience to extreme weather such as droughts and wildfires,
- Recognize farmworker well-being as an important human outcome, acknowledging their frontline role in agricultural operations, and
- Keep in mind that the costs for transitioning to regenerative agriculture may be substantial, and may require financial incentives and technical assistance that de-risk the transition for producers, especially those who are smaller-scale, under-resourced, or socially disadvantaged.

In regenerative agriculture, specific practices and approaches of land stewardship may vary between farmers and ranchers. While farmers emphasize techniques like cover cropping and reduced tillage, ranchers prioritize grazing management and biodiversity preservation. Despite this difference between farming and ranching practices, it's important to acknowledge that the core principles of regenerative agriculture—such as improving soil health, enhancing biodiversity, and promoting ecosystem resilience—are shared among both groups.

Being such a diverse state, our definition should be flexible and adaptable across many varieties of systems and contexts.

A successful regenerative farming system hinges on the producer's intimate understanding of, and connection to, the land on which they work.