

Comments Received on Regenerative Agriculture Definition*
Comment Period: February, 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 May 2024. Comments will be posted at the end of each month.

Date	Written Comment
1/31/2024	On the note of organic matter, it's a great soil health indicator, but the ability (and degree) to build organic matter in our agricultural soils is significantly influenced by geography and that should be considered: It's much easier to build organic matter in areas where it is cool and moist (like Humboldt) versus where it is hot and dry (like Fresno).
1/31/2024	I'll leave an example definition of regenerative agriculture that includes some of the details I think are important. It shouldn't require certifications and should be flexible enough to allow all farmers to adopt regenerative agriculture management strategies as they can (scaffolding). Nobody should be excluded from programs because they can't conform to a certification.
1/31/2024	Regenerative agriculture is a system of land management strategies that supports soil health, soil ecology including the microbiome, nutrient cycling, biodiversity (microbe, insect, plant, animal, etc.), the water cycle such that more water and carbon are sequestered than emitted. These strategies help to mitigate climate change by reducing the greenhouse effect through soil and biomass carbon and water sequestration, and help agriculture products (plants, animals, and soils) build resilience to climate change (reduce the adverse effects of climate change such as more frequent warmer than average high temperatures).
1/31/2024	Core principles of regenerative ag should be reduction or elimination of soluble sources of nutrients. Soluble nutrients breaks the symbiosis between the beneficial soil biota and the plants degrading soil health, pest and disease resistance.
1/31/2024	Living Roots Maximize photosynthesis, continue pumping liquid carbon sugars into the ground to feed microbes.

	<p>Soil Armor Keeps the soil covered with living plants or crop residue, wood chips, or mulch. Bare soil gets much hotter at midday & more vulnerable to wind/water erosion. Animal Integration Animals big and small play a pivotal role in nutrient cycling and regenerating landscapes. Increased Biodiversity Biodiversity of plants increases beneficial biodiversity below and above ground as well as increases the functionality and resilience of the ecosystem. Context No two farms are alike. From brittle environments to more moist ones, from different crops to livestock, from no funds to extensive funds, context is key. How you will go about regenerating land will vary and depend on many key components. A holistic framework is necessary to successfully transition to regenerative.</p>
1/31/2024	<p>Sustainable pest management is a key component of regenerative agriculture and the work that went into the SMP roadmap should definitely be integrated into the regenerative conversation. The principles we landed on in a multistakeholder process in California (RegenScore) included Keep the ground covered, reduce disturbance, tighten nutrient cycles, reduce inputs, maximize water use efficiency, promote biodiversity, promote animal welfare, promote equity and worker welfare, monitor outcomes and adaptively manage</p>
1/31/2024	<p>We view the primary six principles of regenerative agriculture as: 1. Know Your Context, 2. Manage Disturbance (low or no till - minor tillage can create benefits on speciality crop operations), 3. Maintain Living Roots, 4. Support Biodiversity, 5. Keep Soil Covered, 6. Integrate Animals Including human principles such as human and labor rights in the context of this definition is certainly a worthy and relevant consideration.</p>
1/31/2024	<p>1. We need outcomes, principles, and practices to be different (this will help coordinate with all other work happening out there). 2. Rehydration/water flow, is essential to track over just carbon tracking - both can be done from space at high accuracy. 3. We need to prop up the meaning of the words as our strongest asset. Regeneration means regeneration. Regenerative therefore is something causing regeneration. Regenerative Agriculture is Agriculture causing regeneration.</p>
2/8/2024	<p>I would like to understand the difference between regenerative agriculture and organic farming. Our farm is currently 100 percent certified organic. We made the transition after farming conventional since 1912. We have always been good stewards of the land, but we realized that organic practices were the only way to truly be regenerative with land stewardship. One of our customers set up a sustainable ranking in the past. It failed because conventional growers were able to get a better ranking even while using systemic herbicides and other strong conventional practices. My concern is that something along this line could</p>

	<p>happen with this initiative. I do fully support moving as much agriculture in California to regenerative practices as possible, but not by dilution of organic certification.</p>
<p>2/27/2024</p>	<p>What suggestions do you have regarding a “broad” vs. “focused” definition of regenerative agriculture for state policies and programs?</p> <ul style="list-style-type: none"> • The definition should be focused enough to ensure the agricultural practices put in place regenerate the land and surrounding ecosystem considering many ecosystem services such as water infiltration, storage and availability, soil health and fertility, soil organic matter and carbon storage, biodiversity, human health, erosion prevention, while broad enough to allow the land manager to adapt to changing conditions. <p>What data gaps need to be addressed to create a working draft definition of regenerative agriculture for state policies and programs?</p> <ul style="list-style-type: none"> • A definition should be drafted that will allow for practices to be tailored to the unique characteristics and the natural resource constraints of the place and agricultural system where the regenerative agriculture will be implemented. The diversity of California makes filling all data gaps expensive and time consuming. The definition should allow for regenerative agriculture to be informed by new data as it becomes available. The data should inform what makes agriculture technically regenerative. <p>What suggestions do you have to help form a working DRAFT regenerative agriculture definition for State policies and programs?</p> <ul style="list-style-type: none"> • Conduct extensive outreach to solicit feedback. Work with a diversity of land managers including those invested in early implementation of regenerative agriculture to those hoping to implement regenerative agriculture practices to ensure the definition is clear and makes sense for on the ground applications.
<p>2/13/2024</p>	<p>"Sustainable agriculture" means that soil does not have a half-life and that a farm or ranch is in harmony with natural biogeophysical cycles, like the water cycle, the nitrogen cycle, the sulfur cycle, the carbon cycle. It means that soil is used but not used up.</p> <p>Regenerative agriculture is about making soil rather than using it up, keeping insynchrony with nature. Hence, the principles behind regenerative agriculture are these:</p> <ol style="list-style-type: none"> 1. minimal disturbance of the soil, which means: <ol style="list-style-type: none"> a. reduced or no-tillage; b. reduced chemical practices that alter the soil microbiomes; c. restoration of lost carbon, both organic materials and pyrocarbons. 2. diversifying vegetation, which means <ol style="list-style-type: none"> a. cash crop rotations, interseeding, polycropping, etc. b. cover crop rotations, multi-blend covers with diverse root systems (shallow, medium & deeper depths).

	<p>3. year-round living roots that include buffers, beneficial bug strips, etc.</p> <p>4. vegetative covers that stall splash erosion and runoff, eliminating rills and gullies, retaining nutrients at an ecological baseline.</p> <p>5. (perhaps optional) incorporating livestock, or closing the loop by recycling manure. (see NRCS CPS 590)</p> <p>Use of these principles maintains fertility and tilth - macropores and micropores in soils, the water-holding capacity of carbon in the soil, and the microbes and macroinvertebrates that live in the microbiome of the soil.</p> <p>Regenerative agriculture does not so much "preserve" the soil, but preserves the processes that make soil. [To edify this concept, Fort Vancouver, Oregon's NPS unit, has an historical orchard that the law says must be preserved - "natural and historic objects." Trees die, and the decision was to maintain the gene pool of the existing trees in the orchard, not the trees themselves.]</p> <p>A Yolo County employee once told me about a vast extinction that goes unnoticed - anecic worms (incl. earthworms) which cycle surface duff and organic matter and take it into their burrows. The first article ever on nitrates appeared in the (British) Journal of Chemistry in the late 1800's, and the article noted that granddaddy worms often tunneled a yard or deeper into the soil. Plowing destroys wormholes and kills worms that aerate and move carbon around. Not by definition, but by inference, regenerative agriculture husbands worms and promotes the biological glues that hold soil particles together to form un-slake-able macro- and micro-pores.</p> <p>The shortfall of all this is a competing label - Organic agriculture versus regenerative agriculture. Under NOP rules, Organic farmers "maintain or improve the resources, including soil and water." To an extent, the two practices, Organic & regenerative, coincide, but not always - and marketing savvy says that if you locate a restaurant at a crossroads corner, 1% of passers-by patronize the restaurant; if a competitor adds a restaurant so that two or three restaurants occupy the corner, 3% of passers-by stop. This marketing logic puts multiple gas stations on busy corners. So the question remains, can California champion regenerative agriculture without harming Organic markets? It may be necessary for the CDFA to undertake a huge educational campaign to teach consumers the in's and out's of both.</p>
<p>2/18/2024</p>	<p>1) A policy must measure the <u>inputs vs outputs</u> at each stage of agriculture production.</p> <p>Question: Should there be a maximum percentage of inputs allowed from outside of the soil area?</p> <p>As an organic certifier I reviewed 430 organic farms and every single one imported from a different area either blood meal, manures, kelp and other nutrients. Many farms take water away from a natural ecosystem and transport it to a normally dry area. Depleting another ecosystem or plot of land to increase another area is not regenerative. How regenerative is that system where you supposedly produce regeneratively while depleting another area?</p> <p>Unfortunately, the only time an agriculture system can be truly re-generative is when there is less exports going out than imports.</p>

	<p>It's a matter of ecological accounting at each step of the production cycle including transportation leading to a framework that must include balancing inputs vs outputs.</p> <p>2) A policy should consider <u>embodied energy</u> from the entire life cycle of all of the products involved. When one gallon gasoline is burned, it produces twenty pounds of carbon dioxide as well as trace quantities of other substances like nitrogen and sulfur oxides. There probably needs to be an "efficiency" coefficient or measurement or percentage of efficiency that a policy sets for a farm or production system to be called regenerative. For example, the use of plastic in many conventional and organic systems both used as weed/ moisture control and plastics used in cold frame/greenhouses. There should be a life-cycle analysis that revolves around a detailed understanding of the impacts incurred during an entire life-cycle, from the extraction of raw materials through manufacturing, use, and eventual recycling or discarding. Where does all of the plastic end up ultimately? Should plastic be part of regenerative agriculture?</p> <p>3) Policy needs an <u>outcome-based verification</u> process that measures underground soil characteristics. Ideally having regional baselines (to allow for differences in soil texture and climate) for the measurements of soil carbon/organic matter, nutrients and soil/plant biodiversity. Unfortunately, striving for maximum yield vs optimal yield cannot be re-generative. Anyway, one tries to justify it, you simply cannot take out more than what you put in. It's not re-generative agriculture. That is depleting the carbon amounts and nutrients. Carbon/organic matter percent and soil/plant diversity should be part of the policy in measurable way.</p>
2/20/2024	<p>I am here to ask that CDFA define regenerative with organic as the starting point.</p> <p>Organic certification requires that I protect people and the planet. I am required to conserve natural resources, to focus on soil health, and to manage pests and diseases without synthetic pesticides. Under organic certification, our soil organic matter has increased providing more carbon storage, we have more pollinators, more water infiltration, and less soil erosion. Organic farming regenerates.</p> <p>I am concerned that a weak definition of regenerative that does not start with organic will put me out of business. I cannot compete with farmers who are subsidized by the government but are not required to meet the same high standards that I am.</p>