



Sun+Earth is a new regenerative cannabis standard.

It was created with the help of a Technical Advisory Committee comprised of cannabis farmers, certification professionals, and environmental and social activists. The Technical Advisory Committee met eight times in 2018 to discuss the development of the standards. A total of 34 people participated during bi-weekly phone calls or an in-person meeting

A pilot program to ground-truth and test the standards was conducted during the summer and fall of 2018. A total of 14 farms in Northern California participated in the Pilot Program. The Pilot Program farmers also contributed feedback and advice for the successful implementation of this new third-party certification. A draft standard was circulated for a 60-day public comment period. The current version of the Sun+Earth Standard was finalized in January of 2019.

The language and concepts expressed in the Sun + Earth standard were carefully designed to meet minimum organic standards as defined by the International Federation of Organic Agriculture Movements (IFOAM). A guidance tool developed by IFOAM called the Common Objectives and Requirements of Organic Standards (COROS) was used to help ensure that these standards align with organic agricultural movements from around the world. However, the Sun+Earth Certified standards are intended to go beyond current minimum requirements for organic farming and many of the requirements go much further than current organic farming standards. The Sun + Earth standards are intended to evolve over time and some requirements merit further discussion and exploration.

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Introduction

The following document is a new regenerative cannabis standard. It was created with the help of a Technical Advisory Committee comprised of cannabis farmers, certification professionals, and environmental and social activists. The Technical Advisory Committee met eight times in 2018 to discuss the development of the standards. A pilot program to ground-truth and test the standards was conducted during the summer and fall of 2018. A total of 14 farms in Northern California participated in the Pilot Program. The Pilot Program farmers also contributed feedback and advice for the successful implementation of this new third party certification. The Sun+Earth Certified standards are intended to go beyond current minimum requirements for organic farming. Indeed, several of the requirements go much further and merit further discussion, and exploration. The language and concepts expressed in this standard were carefully designed to meet minimum organic standards as defined by the International Federation of Organic Agriculture Movements (IFOAM). A guidance tool developed by IFOAM called the [Common Objectives and Requirements of Organic Standards \(COROS\)](#) was used to help ensure that these standards align with organic agricultural movements from around the world.

Earth Care and Cultivation

These standards represent an evolution beyond organic by embracing the concept of regeneration. For crop production, this means building soil quality through mulching, crop rotation, and reduced tillage. The cannabis farm envisioned through these standards might use mulch to reduce weed pressure, conserve soil moisture, enhance habitat for beneficial soil flora and fauna, increase organic matter while also interplanting potatoes, lettuce, and marigolds within rows of cannabis. The farmer would be boosting soil fertility on the farm through the strategic use of cover crops, compost, compost teas, and homemade plant ferments derived from local resources.

Human Empowerment

In addition to regenerative farming practices, these standards also attempt to address the rights of farm workers, who as a social group within agriculture have long been exploited and marginalized. Current organic standards don't deal with worker rights, but if a farmer wants to describe their farm as regenerative, shouldn't farm workers also be treated fairly? Regenerative farming is intended to renew the ecosystem and people—this means caring for farm workers.

Community Engagement

Finally, the standards include language that requires the farm to engage their local community with greater focus and intention. This community piece is far outside the realm of existing organic certifications and represents fertile ground worthy of exploration. Building soil has been seen as a vital activity of an organic farm yet a truly regenerative farm also realizes building community is just as essential.

Standards Structure

There are three levels of the Sun+Earth Certified program: Gold, Green, and Brown.

Gold and green are the highest levels of certification. The Brown designation, is for farms that don't meet all the Sun+Earth Certification core requirements. This tiered approach enables producers to actively reclaim and restore degraded landscapes overtime, while benefiting from participation in programmatic activities. It also allows for continuous improvement and evolution towards more sustainable farming practices.

Gold Level: To realize Sun+Earth Certified at the Gold level, the farm must meet all Sun+Earth Core Requirements and Gold Level Requirements. Product labeling as Sun+Earth Certified is permitted. Annual certification is required.

Green Level: To achieve Sun+Earth Certified at the Green level, the farm must meet the Sun+Earth Core Requirements. The farm must achieve Sun+Earth Gold Level Requirements within a reasonable period of time, according to site specific conditions and local policies. Product labeling as Sun+Earth Certified is permitted. Annual certification is required.

Brown Level: Farms that don't meet the Sun+Earth Core Requirements are not eligible for certification, and must not use the Sun+Earth Certified logo or name. Brown Level farms interested in obtaining Green or Gold level certification can apply to participate in a Sun+Earth Certified accelerator program. The accelerator program will help transitioning farms develop an action plan for meeting the Sun+Earth Certified Core Requirements.

GOLD LEVEL	GREEN LEVEL	BROWN LEVEL
<p>To realize Sun+Earth Certified at the Gold level, the farm must meet all Sun+Earth Core Requirements and Gold Level Requirements. Product labeling as Sun+Earth Certified is permitted. Annual certification is required.</p>	<p>To achieve Sun+Earth Certified at the Green level, the farm must meet the Sun+Earth Core Requirements. The farm must meet Sun+Earth Gold Level Requirements within a reasonable period of time, according to site specific conditions and local policies. Product labeling as Sun+Earth Certified is permitted. Annual certification is required.</p>	<p>Farms that don't meet the Sun+Earth Core Requirements are not eligible for certification, and must not use the Sun+Earth Certified logo or name. Brown Level farms interested in obtaining Green or Gold level certification can apply to participate in a Sun+Earth Certified accelerator program. The accelerator program will help transitioning farms develop an action plan for meeting the Sun+Earth Certified Core Requirements.</p>

The Sun+Earth Standard

	Core Requirements	Gold Level Requirements
1.0	Administration	
1.1	The certified operation has a farm plan that reflects all key activities of the system.	
1.2	The certified operation maintains detailed records that reflects all key activities of the system.	
1.3	The operation follows local guidelines for cannabis production and maintains a valid local/state permit to produce, and/or process and distribute cannabis.	
2.0	Ecosystem Management	
2.1	Farm management activities must promote biodiversity on the farm.	
2.2	Farming practices must support ecosystem health and protect high value conservation areas.	
2.3	Farmers will monitor noxious weeds that disrupt the natural ecosystem and will pursue management efforts, when necessary.	
3.0	Resource Management	
3.1	Irrigation systems are appropriately designed to ensure water conservation, based on site specific conditions and available resources. Water usage must be documented.	
3.2	Plants are grown in natural sunlight. Supplemental lighting is only allowed during plant propagation. Carbon accounting and offsetting of energy consumption from any supplemental lighting is mandatory. Structures used for plant propagation with supplemental lighting must be managed to prevent light pollution between sunset and sunrise.	Plants are grown in natural sunlight without supplemental lighting.
3.3	Farm practices sequester carbon and reduce carbon footprint.	

4.0	Genetically Modified Organisms and Nanotechnology	
4.1	Cultivation does not use genetically modified organisms, genetic engineering, or nanotechnology.	
5.0	General Requirements for Plant Production	
5.1	Crop must be planted in soil that has been free of prohibited substances for <u>no less than three years</u> prior to harvest of the crop, and soil suitability must be established through soil testing for pesticide residues.	
5.2	Measures are taken to avoid product contamination.	
6.0	Seeds, Propagation Material and Seedlings	
6.1	Seeds and/or clones are acquired following the Seed/Clone Acquisition Hierarchy to the best ability of the cultivator. (See Annex 3).	The farm is actively participating in seed saving of cannabis and other crops. The farm participates in a Sun+Earth Seed Circle.
6.2	Seeds must not be chemically treated or genetically modified.	
7.0	Soil Conservation and Crop Rotation	
7.1	The farm must use cover crops, crop rotation, intercropping, or other diverse planting schemes.	
7.2	The farm must diversify crop production to avoid monoculture.	
7.3	Farming practices build soil and improve the biodiversity, organic matter, fertility and structure of the soil.	
7.4	Farm practices do not contribute to soil erosion and land degradation. The farm system does no harm and also enhances health and wellbeing of the entire ecosystem.	
8.0	Management of Soil Fertility	
8.1	Bare soil is avoided, and land retains cover year-round. If alternative methods prove ineffective, soil disturbance events are acceptable for planting crops, managing cover crops, and for dry farming.	

8.2	Crops must be grown in <u>living soil</u> . When native soil is not adequate, a farmer can petition to use imported growth medium if it meets organic standards and is managed according to Sun and Earth standards for at least one year. <i>Imported growth medium that does not meet organic standards is prohibited, and must be managed according to Sun and Earth standards for three years before it can be eligible for certification.</i>	Crops are grown in native, living soil.
8.3	Potting soil is acceptable for seedling and clone propagation; potting soil made from on-farm resources and native soil should be used whenever possible.	Propagation mixes (potting soil) will only use on-farm resources and native soil.
8.4	Composting systems must be used onsite. Off-farm manure and supplemental compost must be sourced locally.	All compost is produced onsite with plant or crop residue that comes from the farm and/or with manure from on-farm, non-caged livestock.
8.5	Soil fertility and plant health inputs must be produced on the farm through biological processes to promote measurable increases in soil organic matter over time. The use of non-manure soil fertility inputs manufactured off-farm should be minimized and must contribute to less than half of the total materials applied.	The use of non-manure soil fertility inputs manufactured off-farm are minimized and contribute to no more than the equivalent of 50 lbs/acre each of Nitrogen, Phosphorus, and Potassium per year.
8.6	Cultivation methodology uses only naturally occurring mineral fertilizers and only as a supplement to biologically based fertility methods, based on soil or plant tissue test results.	
8.7	Only approved production inputs may be used. (See Approved Material List Annex 1)	
8.8	Field burning is not allowed as a field preparation technique. However, crop residue can be burned to control plant pests and disease.	
9.0	Pest, Disease, Weed, and Growth Management	

9.1	Integrated pest management strategies are used to prevent and control pests and diseases, including regionally adapted cultivars.	
9.2	Pest control materials are limited to those listed on the Approved List (Annex 1).	
10.0	Processing and Manufacturing	
10.1	Documented procedures that prevent and minimize risk of contamination are in place.	
10.2	Measures are in place to prevent commingling of certified product and ingredients with non-certified products and ingredients.	
11.0	Ingredients and Processing Aids	
11.1	Multi-ingredient products must be made from certified cannabis and any non-cannabis ingredients must be certified organic or on Annex 2.	
12.0	Processing Methods	
12.1	Allowed solvents for cannabis extraction are listed on Annex 2.	
12.2	Any product labeled as certified cannot contain any ingredient from a genetically modified organism or any ingredient that was irradiated.	
13.0	Packaging and Containers	
13.1	Storage and packaging materials must not contaminate the product.	
13.2	Biodegradable, compostable, reusable, and recyclable packaging materials should be used whenever possible.	
14.0	Cleaning, Disinfecting, and Sanitizing Processing Facilities	
14.1	Facility sanitation practices must not contaminate ingredients or products.	
14.2	Allowed sanitizers and disinfectants are listed on Annex 2.	
15.0	Facility Pest and Disease Control	
15.1	In processing facilities, prevention and exclusion practices must be used, if these practices are ineffective then mechanical traps may be used	

	and as a last resort, facility pest control materials listed on Annex 2 may be used.	
16.0	Worker Rights	
16.1	Regenerative operations must have a documented policy regarding worker rights. This policy must apply to all workers.	
16.2	Regenerative operations must follow all applicable labor laws.	
16.3	All workers have the right to safe and healthy working conditions. If employees are provided with worker housing, it must be safe, sanitary, and adequate. Workers must be properly trained.	
16.4	All workers have the right to just treatment that promotes dignity and respect.	
16.5	All workers and job applicants are treated equally without regard to the person's race, color, gender, gender identity, pregnancy, sexual orientation, HIV/AIDS status, disability, marital status, age, religion, political opinion, nationality, class, or other personal characteristics.	
16.6	Harassment (verbal, physical, sexual, emotional, and any other form) based on any of the above characteristics is prohibited.	
16.7	All workers are entitled to fair compensation that supports a fulfilling lifestyle.	
16.8	All workers have the right to a work environment that fosters happiness and mutual appreciation.	
16.9	Products are never produced in a manner that violates human rights: such as forced or involuntary labor, or illegal child labor.	
16.10	Products are to be produced in a manner that respects indigenous people and their land rights.	
17.0	Contract and Negotiations	
17.1	All work is governed by written contracts that are fair, equitable, transparent and created through good faith negotiations.	

17.2	All contracts shall include a documented conflict resolution procedure that is freely available and includes a complaint and appeals process.	
17.3	All farmers and/or workers are free to associate and bargain collectively and can choose representatives in a process free of interference and/or intimidation.	
18.0	Community Empowerment	
18.1	Operations must have a written description regarding community engagement.	
18.2	Farms shall improve and engage with the local community.	
18.3	Certified farms must engage in a farming knowledge sharing activity annually.	
19.0	Labeling	
19.1	All ingredients must be accurately listed on the label and certified regenerative and/or certified organic ingredients must be identified.	
19.2	Labels must include the name of the certified entity.	

Annex 1 – Allowed Crop Inputs

Allowed Material	Restriction
Animal by-products Examples include: Blood meal, bone meal, crab meal, hoof and horn meal, feather meal, fish meal, fish waste, oyster shell meal, protein meal.	No restriction.
Animal manure	No restriction.
Beneficial insects.	No wild harvested ladybugs.
Biodynamic preparations	No restriction.
Biopesticides	Only if the product brand name is approved for use in certified organic farming.
Cardboard, paper	Non-waxed, non-fumigant treated.
Compost – Animal manure based	No restriction.
Compost – Plant matter based	No restriction.
Elemental sulfur	Non-synthetic sources. Only if the product brand name is approved for use in certified organic farming.
Essential oils	For pest control as a last resort only. Only if the product brand name is approved for use in certified organic farming.
Fermented plant matter	No restrictions.
Guano	Seabird guano only; no bat guano.
Horticultural oil	For pest control as a last resort only. Only if the product brand name is approved for use in certified organic farming.

Microorganisms	Must not be genetically modified.
Mined substances of low solubility Examples include: Basalt, bentonite, biotite, calcium carbonate (limestone), calcium sulfate (gypsum), chalk, charl, dolomite lime, feldspar, granite powder, greensand, kieserite, langbeinite, leonardite, magnesium carbonate, magnesium chloride, magnesium rock, magnesium sulfate (Epsom salts), marl, mica, potassium sulfate, pulverized rock, pumice, rock dust, sand, sodium bicarbonate, stone meal, sulfate of potash magnesia, vermiculite, zeolite.	Only allowed if needed based on soil or plant tissue testing. Only if the product brand name is approved for use in certified organic farming.
Neem	For pest control as a last resort only. Only if the product brand name is approved for use in certified organic farming.
Organic Molasses	No restriction.
Oilseed, oilseed meal	No restriction.
Peat	For potting mixes only. No synthetic additives.
Plant matter, crop residue, mulch	Must not be from GMO crops.
Potassium bicarbonate	For pest control as a last resort only. Only if the product brand name is approved for use in certified organic farming.
Seaweed	No restriction.
Seawater or evaporated seawater	No restriction.
Soap	No restriction.
Sticky traps/barriers	No restriction.

Sugar	Non-GMO.
Sulfur	For pest control as a last resort only. Only if the product brand name is approved for use in certified organic farming.
Vermicompost, vermicompost tea, worm castings	No restriction.
Vinegar	Non-synthetic.
Wood, wood ash, wood charcoal, wood shavings	From untreated wood sources only.

Annex 2 – Allowed Processing Inputs

Allowed Material	Restriction
Alcohol	For use as a sanitizer or as a solvent or winterization of oils.
Baking powder	No restriction.
Baking soda	No restriction.
Carbon Dioxide	For use as a solvent during extraction.
Citric acid	No restriction.
Hydrogen peroxide	For use as a sanitizer.
Microorganisms	Non-GMO.
Nitrogen	No restriction.
Paper	For rolled joints.
Peracetic acid	For use as a sanitizer.
Salt	No additives or anti-caking agents.
Yeast	Non-GMO.

Annex 3 –Seed/Clone Acquisition Hierarchy

Best Option	Seeds are saved on farm and used in the next cultivation cycle. Farm participates in a Sun + Earth Seed Circle to diversify genetics.
	Seeds are acquired from Sun + Earth Certified source.
	Clones are acquired from a local, Sun + Earth Certified source.
	Clones are acquired from a Sun + Earth Certified source.
	Seeds are acquired from a certified organic source.
	Clones are acquired from a local, certified organic source
	Clones are acquired from a certified organic source
	Seeds are acquired.
	Clones are acquired from a local source. Leaf tissue testing for pesticide residue is encouraged.
Worst Option	Clones are acquired. Leaf tissue testing for pesticide residue is encouraged.