Paddy Rice Production Guidelines
Soil Health & Land Management

The Soil Health & Land Management pillar of Regenerative Organic Certified® is dedicated to promoting agricultural practices that enhance soil health by increasing soil organic matter, biodiversity, and fertility, instead of degrading it.

Rice cultivation displays diversity globally, with approximately 50% being irrigated rice paddy, 25% rainfed rice paddy, 8% deep-water rice paddy (>50cm depth), and 13% rainfed upland rice fields. Regenerative organic practices for upland rice under the Regenerative Organic Certified Framework® adhere to traditional farming practices. The outlined standards solely apply to regenerative organic paddy rice production. To attain Regenerative Organic Certified status, all operations engaged in paddy rice production worldwide must comply with these standards, in addition to the requirements under the Soil Health & Land Management pillar.

Whether rainfed or irrigated, paddy rice production relies on water resources, underscoring the operation's shared responsibility in water management. Following a traditional farming calendar cycle, Operations ensure that water is managed as a communal resource within a local watershed. This approach accounts for the needs of agricultural watersheds, rice paddies, and the diverse biota of the rice paddy system, including farming and rural reservoirs, rivers, and waterways.

The Soil Health & Land Management pillar provides additional guidelines for all rice production, contributes to sustainable agriculture at a global scale, and specifies essential practices for upland and paddy rice. The standards in this document are intentionally crafted to introduce and encourage good agricultural practices that enrich soils and enable farmers to engage in activities tailored to their respective rice management options, considering local agricultural realities.

There are additional criteria for some required practices. In that case, the language presented in the Soil Health & Land Management module of the Regenerative Organic Certified® main Framework is still valid and needs to be observed.

1. Base Requirements	Practice Description	Bronze	Silver	Gold
1.1 Existing Certifications	All rice products intended to be sold with ROC™ claim must have proof of existing USDA Organic certification or recognized equivalent.	**R**	**R**	**R**
1.2 Regenerative Organic System Plan (ROSP)	*No additional criteria required. Please refer to the Framework.*			
1.3 Water	Operations must have a system to comply with local regulations and adhere to traditional practices to manage water resources effectively. Operations must contribute to the conservation of water resources and quality and communicate extensively with stakeholders who share water rights in the area and local governments. The paddy water bodies are home to a diversity of biota. They have developed symbiotic relationships, such as plants, insects (e.g., dragonflies, water beetles), amphibians (e.g., frogs), reptiles, shellfish, fish, birds, arthropods, invertebrates (e.g., aquatic earthworms), and other microorganisms that depend on paddy rice cultivation and the farming calendar. The operation, through its actions, must work to conserve and restore water bodies to contribute effectively to establishing an ecological network for water connectivity. The operation identifies and keeps records of the source and downstream locations of the water resources it uses and recognizes the condition and status of the water source area and waterways (especially ecological health, such as water continuity for organisms).	**R**	**R**	**R**

	The operation maintains updated plans to help prepare for future extreme weather events and anticipate water risk impacts (e.g., floods and droughts). The operation proactively cooperates with and contributes to local traditional watershed flood management efforts by providing knowledge and engineering for water management.			
1.4 Deforestation	*No additional criteria required. Please refer to the Framework.*			
1.5 Extractive Practices	*No additional criteria required. Please refer to the Framework.*			
2. Regenerative Practices	**Practice Description**	**Bronze**	**Silver**	**Gold**
2.1 Vegetative and Water Cover	The operations shall aim to cover land with living vegetative cover or water (wet soil condition) year-round. The operation prioritizes using traditional practices, vegetation, and water management, such as winter waterlogging and others inherited from local and agricultural land use prior to modernization (e.g., wetlands, winter snow cover). The time it takes for rice to grow in paddy fields, from sowing to harvesting, should be taken into account when calculating vegetative cover. During periods when rice is not growing, other field crops, green manures, cover crops, or water should be used to maintain soil protection,	**R** **Maintains year-round vegetative or water cover on 25-50% of all cultivated land.**	**R** **Maintains year-round vegetative or water cover on 50-75%- of all cultivated land.**	**R** **Maintains year-round vegetative or water cover on 75-100% of all cultivated land.**

	support soil and aquatic biota, and preserve the wetland environment and its characteristics. Living cover should be maintained on the terrestrial areas (e.g., bunds or dikes) surrounding the rice paddies. Dikes between paddies should create diverse habitats to foster rich agro-biodiversity, interact between aquatic and terrestrial environments, and protect and sustain rich biota. Dikes separating paddies, such as footpaths, are constructed using living vegetative cover. Existing soil dikes (footpaths) and earthen or traditional mounds, including those built with stone walls, should be maintained and preserved. If the footpath has already been concreted, no additional concreting should be undertaken. The use of herbicides and plastic mulch is strictly prohibited. The temporary use of artificial plastic corrugated plates to prevent water leakage from paddy fields is only permitted in emergencies for the minimum necessary period of time. Exceptions may be granted when operations cannot meet these guidelines due to unforeseen factors, such as extreme weather (e.g., snow accumulation). Documentation is required. CT: No vegetative or water cover maintained.			
2.2 Crop Rotation	Implementing a diverse crop rotation system and growing most crops can be a challenge in poorly drained soils. In			

	such cases, operations ensure that all rice straw is left in the field or returned to the soil, following the crop rotation guidance below. **Bronze:** The operations system must increase biodiversity, return all rice straw to the field and soil, and follow the guidelines outlined in the A7 Additional Guidance – Soil Health & Land Management document. Operations should aim to stagger the planting period and select rice varieties to maintain and improve biodiversity. **Silver:** Following the ROC framework guidelines on crop rotation, the year rice is not grown may be considered a fallow year. All the rice straw is returned to the field or soil during this period. **Gold:** Following the ROC framework guidelines on crop rotation, the year rice is not grown may be considered a fallow year. All rice straw is returned to the field or soil during this period. Mixed cropping, when applicable, such as growing two or more rice varieties simultaneously in the same field, can be considered intercropping in paddy rice cultivation. Also referred to as varietal mixture or varietal interplanting.	**Continuous rice production is allowed**	**Minimum of two crops rotated through the same area** See A7 Soil Health and Land Management for guidance	**Minimum of three crops rotated through the same area** See A7 Soil Health and Land Management for guidance
2.3 Minimal Soil Disturbance	The operation has a system in place to minimize soil disturbance and maintain records of all activities, along with a plan to reduce tillage over time gradually. Tillage practices can be used when preparing the field for planting or adding organic materials such as manure, compost, and plant biomass.	**R**	**R**	**R**

	. Operations consider the level of decomposition of the organic material and include only fully decomposed material. Operations avoid mixing undegraded organic material into waterlogged soil to prevent the growth of algae, diseases, insect pests, and reduce negative impacts on aquatic organisms, and methane release into the atmosphere.			
2.4 Rotational Grazing	*No additional criteria required. Please refer to the Framework.*			
2.5 Soilless Practices	*No additional criteria required. Please refer to the Framework.*			
2.6 Control of Invasive Species	*No additional criteria required. Please refer to the Framework.*	**R**	**R**	**R**
2.7 Protection for Endangered Plants and Animals	Operation implements active measures to prevent the establishment and challenging eradication of invasive species that can negatively impact local floral and fauna.	**R**	**R**	**R**
2.8 Regenerative Practices	Operations engage in additional regenerative practices to improve paddy rice production and promote the health and biodiversity of the paddy ecosystem. In addition to those practices listed in the standard framework, here are some additional practices that can be considered in rice cultivation: - Reduce tillage cultivation - Livestock can be incorporated into the cultivation	**Three of the practices listed are used in operation.**	**Four of the practices listed are used in operation.**	**Five or more of the practices listed are used in operation.**

	process - Preserve and restore water's continuous vertical and horizontal connections, and participate in watershed flood control - Install small earthen ditches to ensure water retentions and promote biodiversity - Installation and conservation of biotopes (conservation ponds) and ponds - Restoration and management of abandoned paddy fields, wetlands, reservoirs, waterways, and similar areas, whether or not they are traditionally managed by the community - Intermittent drying or maintaining flooding is done in a manner to allow for the development of aquatic organisms such as frogs and dragonflies - Maintenance of earthen waterways - Installation of fish passages - Fields can be flooded to provide a habitat for migrating birds - Field borders can be maintained with vegetation, serving as habitat for pollinators, insects, birds, and other animals - Intermittent drying periods to reduce greenhouse gas emissions			
3. Compost, Manure, and Fertilizers	**Practice Description**	**Bronze**	**Silver**	**Gold**
3.1 General	To support long-term soil fertility and ecological balance in paddy systems, operations must prioritize the return of organic matter, particularly rice straw and husks, to the fields wherever feasible. These materials should not be burned or treated as waste. If rice straw or husks are diverted for other beneficial uses, such as livestock feed or	**R**	**R**	**R**

	bedding, the operation must ensure that comparable organic matter is eventually returned to the paddy field system to maintain nutrient cycling. All organic materials (e.g., rice straw, chaff, husks) produced by paddy rice cultivation must be composted or appropriately decomposed prior to application in fields, particularly before water is introduced. Applying undecomposed organic matter to waterlogged fields can: • Trigger excessive algal growth and plant disease; • Attract and support insect pest populations; • Negatively impact aquatic organisms; • Increase methane emissions due to anaerobic decomposition; and • Cause nutrient runoff or contamination in adjacent fields or waterways. The operation must use a system of sound composting or decomposition practices that promote soil health, reduce pollution, and minimize climate impact.			
3.2 Crop Nutrient Demand	*No additional criteria required. Please refer to the Framework.*			
4. Facilities	**Practice Description**	**Bronze**	**Silver**	**Gold**
4.1 Wastewater	Operations maintain a documented system that considers the impact of their operations, particularly drainage on downstream areas. The system incorporates essential practices for water purification and the prevention of environmental contamination downstream. Operations maintain a documented high level of vigilance in regions or countries where water is shared for agricultural and domestic use (e.g., drinking water). Water is managed meticulously, being intermittently or continuously taken in and drained out in each field. This	**R**	**R**	**R**

	responsible approach aims to ensure that stakeholders who share water rights in the area and local governments can reuse this water. **Water Intake to Paddy** Operations must implement a water quality management system to ensure that water used in paddy fields is free from harmful contaminants, particularly pesticides and other chemical compounds. If water sources are contaminated or at risk of contamination, appropriate filtration methods must be used to mitigate environmental and agronomic risks. Acceptable filtration methods may include the use of porous charcoal filters enclosed in mesh bags or similar natural filtration systems. These filters should be strategically placed at water intake points and designed to: • Reduce or neutralize chemical contaminants; • Allow sufficient water flow for irrigation needs; and • Avoid obstructing the movement of aquatic organisms, such as fish and beneficial invertebrates. Regular maintenance and inspection of filtration systems must be conducted to ensure effectiveness and to prevent unintended ecological disruption.			

	Water Drainage from Paddy Operations do not pollute water, chemically or biologically, that is drained from paddy fields: **Prevention of the Spread of Non-Native Species from Paddy Fields.** To protect local ecosystems and prevent the introduction of invasive species, operations must take proactive measures to manage non-native plants, algae, or other non-native organisms within paddy rice systems. As much as possible, non-native species that appear in paddy fields should be: • Contained within the cultivated field to prevent escape; and • Removed or treated appropriately before water is discharged from the field. This ensures that such organisms are not dispersed through drainage systems into surrounding areas, where they could pose ecological risks or disrupt native biodiversity. **Sediment and Runoff Management in Paddy Rice Cultivation.** To protect surrounding ecosystems and maintain water quality, operations must implement measures to manage muddy water and sediment-laden runoff generated during field preparation activities such as plowing, harrowing, or leveling. As much as possible, muddy water containing suspended soil particles should be:			

	• Retained within the cultivated paddy field, allowing particles to settle before drainage occurs; or • Appropriately treated or diverted to prevent release into natural waterways or adjacent areas. Discharge of turbid water into drainage channels, rivers, or neighboring fields must be minimized or prevented. Operations are encouraged to use sediment traps, buffer zones, or other water management infrastructure where needed to ensure compliance with this requirement and to support downstream water quality and aquatic ecosystem health.			
4.2 Waste	*No additional criteria required. Please refer to the Framework.*	**R**	**R**	**R**

5. Use of Prohibited Substances – No additional criteria required. Please refer to the Framework.

6. Measurement- No additional criteria. Please refer to the Framework.

Terms and Definitions

Soil Health & Land Management

- **Paddy soil** constitutes an important group within the wetland soils, where water saturation dominates soil development and the types of plant and animal communities. Thus, paddy soils are defined as wetland soils with standing water in bunded and leveled fields used for cultivation of rice (bunds are small dikes around the field to keep the water from running off). Paddy soils may support an upland, nonrice crop in the dry season when soils are aerated, but insufficient drainage capacities often make rice the only possible crop choice in the lowlands of the humid tropics. Free surface water may occur naturally or rainfall, runoff, or irrigation water may be retained by field bunds and/or compacted subsoil layers. According to the Food and Agriculture Organization of the UN (FAO) World Reference Base for Soil Resources, most paddy soils are designated as Anthrosols (having a puddled surface layer and a plow pan) or as Gleysols, Fluvisols, Planosols, Plinthosols, and Histosols. Smaller areas of paddy soils fall within the gleyic soil units of Arenosols, Andosols, Cambisols, Solonetz, Solonchaks, Luvisols, Lixisols, Acrisols, and Alisols. Although Vertisols, Nitisols, and Ferralsols have no gleyic soil units, these soils may be artificially flooded and used for rice cultivation. The US Department of Agriculture Soil Taxonomy does not recognize wetland soils at the level of soil orders but classifies soils with aquic conditions at the suborder level and soils with hydromorphism at the subgroup level. Most paddy soils would be assigned to the aquic suborders of Andosols, Oxisols, Vertisols, Ultisols, Mollisols, Alfisols, Inceptisols, and Entisols. *Chapters and Articles PADDY SOILS C. Witt, S.M. Haefele, in Encyclopedia of Soils in the Environment, 2005 Distribution and Important Characteristics of Paddy Soils*

Document Revisions

Version Number	Date Approved	Description of Changes
1.1	July 07, 2025	Several minor edits in the requirements after the end of the pilot period.