Guidance to Sustainability Certification Schemes (SCS) for application of CORSIA Sustainability Criteria, Themes 4 to 8, for CORSIA Sustainable Aviation Fuel produced on or after 1 January 2024

Version 2 – November 2022

GUIDANCE TO SUSTAINABILITY CERTIFICATION SCHEMES (SCS) FOR APPLICATION OF CORSIA SUSTAINABILITY CRITERIA, THEMES 4 TO 8, FOR CORSIA SUSTAINABLE AVIATION FUEL PRODUCED ON OR AFTER 1 JANUARY 2024

This document provides guidance to Sustainability Certification Schemes (SCS) on the application of CORSIA Sustainability Criteria, Themes 4 through 8, for CORSIA Sustainable Aviation Fuel produced on or after 1 January 2024, to support globally uniform application, including potentially applicable parameters. The guidance focuses on documentation and information that an SCS can review from a feedstock or fuel producer, as well as potentially applicable parameters that an SCS can use to demonstrate compliance with Themes 4 through 8.

Table A shows the origin of the versions to this document over time, together with a list of the principal subjects involved.

Table A. Versions of the "Guidance to Sustainability Certification Schemes (SCS) for application of CORSIA Sustainability Criteria, Themes 4 to 8, for CORSIA Sustainable Aviation Fuel produced on or after 1 January 2024"

Version	*Source(s)*	*Subject(s)*
1	Meeting of the Committee on Aviation Environmental Protection on August 11th, 2021	First version of the document.
2	Twelfth Meeting of the Committee on Aviation Environmental Protection	Consequential amendments on the Themes numbering for consistency with the Third Edition of the ICAO document "CORSIA Sustainability Criteria for CORSIA Eligible Fuels"

Documentation/Information and potentially applicable parameters

Tables 1 through 9 provide the sustainability criteria included in Themes 4 through 8, as well as the type of documentation/information an SCS can review to ensure compliance, and potentially applicable parameters that the SCS can look for in the documentation to demonstrate compliance with the criterion. It should be noted that the level of compliance demonstration may be executed under a group auditing approach for smallholders per the requirements in the ICAO document "CORSIA Framework and Eligibility Requirements for Sustainability Certification Schemes".

Table 1: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 4.1.

Criterion 4.1: Operational practices will be implemented to maintain or enhance water quality.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Water quality management plan. 3. Water quality monitoring results. 4. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's water quality management documentation and evidence of implementation of operational practices to manage water quality, as well as mitigation and monitoring plans. Documentation could include evidence of: 1. Agricultural management practices implemented to control runoff and nutrient/pollutant release, such as: • Establishment of adequate buffer zones. • Use of contour farming. • Conservation tillage practices. • Efficient handling and use of on-site chemicals. • Reducing chemical usage or switching for less polluting products. • Cover crop usage. 2. Industrial management practices for: • Avoiding pollutant release. • Treatment/recycling of waste water. • Measuring of pollutant release. • Efficient handling and use of on-site chemicals. • Reducing chemical usage or switching for less polluting products. 3. Water quality monitoring results demonstrating maintenance or improvement of key water quality metrics year over year. 4. Documentation demonstrating reversal of any water quality degradation that occurred prior to certification due to the economic operator's activities.

Table 2: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 4.2.

Criterion 4.2: Operational practices will be implemented to use water efficiently and to avoid the depletion of surface or groundwater resources beyond replenishment capacities.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Water efficiency and use management plan. 3. Water use monitoring results. 4. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's water efficiency and use management documentation and evidence of implementation of operational practices to manage water use, as well as mitigation and monitoring plans. This could include: 1. A water management plan consistent with local rainfall conditions and in line with local and other applicable water management plans. 2. Documentation that the economic operator's operations and plans are in line with long-term water management plans and use of resources, recognizing that short-term variations in surface or ground water resources may occur. 3. Water management operational practices to optimize water use and reduce water waste. 4. Assessment of impacts of both raw material and fuel production on the water table, natural watercourses and reservoirs. 5. Water use monitoring results demonstrating the effectiveness of management practices and mitigation measures to ensure that the water used is not withdrawn beyond long-term average replenishment capacities and that the physical, chemical and biological equilibrium of watercourses is not modified.

Table 3: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 5.1.

Criterion 5.1 Agricultural and forestry best management practices for feedstock production or residue collection will be implemented to maintain or enhance soil health, such as physical, chemical and biological conditions.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Soil management plan. 3. Soil quality monitoring results. 4. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's soil management plan and evidence of the implementation of best practices for agricultural production or activity, and evidence of the effectiveness of these practices, as well as mitigation and monitoring plans. This could include: 1. Erosion prevention and control (for example by maintaining a permanent soil cover, managing transportation and industrial activities). 2. Soil structure protection (for example by direct seeding and preventing compaction caused by heavy machinery). 3. Soil organic matter protection (for example by assessing adequate residue collection rates). 4. Nutrient balance management (for example by crop rotation and/or assessing the nutrient demand of the plant).

Table 4: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 6.1.

Criterion 6.1: Air pollution emissions will be limited.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Air emissions control plan. 3. Air quality / emissions monitoring results. 4. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's air emission control plan and evidence that air pollutant emissions are minimized during feedstock, fuel or intermediates production, as well as mitigation and monitoring plans. This could include: 1. Identification of all potential air pollutants, sources, and their nature. 2. Air pollution mitigation strategies employed (for example the implementation of best available technologies). 3. Monitoring documentation to demonstrate the effectiveness of these strategies. 4. Evidence that there is no open-air burning of residues, wastes or by-products, nor open air burning to clear the land. 5. Evidence that there are strategies to phase-out open-air burning, if a relevant practice. 6. If burning has taken place, the SCS could verify details of burning practices and an assessment of risks to humans (both workers and neighbouring communities) and the environment.

Table 5: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 7.1.

Criterion 7.1: CORSIA SAF will not be made from biomass obtained from areas that due to their biodiversity, conservation value, or ecosystem services, are protected by the State having jurisdiction over that area, unless evidence is provided that shows the activity does not interfere with the protection purposes.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Conservation management plan. 3. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's conservation management plan and evidence/documentation of compliance, including mitigation and monitoring plans. This could include: 1. Identification of areas that are protected for their biodiversity, conservation values and ecosystem services on or in the vicinity of the area of operation (for example through the review of publicly available data and maps, the consultation of national or regional institutions at a landscape-level as well as a detailed site-level assessment including the consultation of local stakeholders). 2. Assessment of potential or actual impacts (for example loss of faunal diversity and animal species). 3. Evidence that raw material was not be obtained from areas designated by law or by the relevant competent authority for nature protection purposes and areas for the protection of rare, threatened or endangered ecosystems or species. 4. For protected areas where production is permitted, evidence that potential impacts on biodiversity and conservation value have been assessed and mitigated so as not to interfere with the protection purposes. **5.** For species in an economic operator's site that are identified as rare, threatened, endangered, or legally protected, evidence that hunting, fishing, ensnaring, poisoning, and exploitation activities are appropriately enforced.

Table 6: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 7.2.

Criterion 7.2: Low invasive-risk feedstock will be selected for cultivation and appropriate controls will be adopted with the intention of preventing the uncontrolled spread of cultivated alien species and modified microorganisms.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Legal permitting or evidence of allowable importation and cultivation. 2. Invasive species risk management plan. 3. Weed/Pest Risk Assessment. 4. Escape monitoring results and mitigation evidence. 5. Modified microorganism risk management plan. 6. Other valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's evidence that the importation and cultivation of species that are used for the production of the biomass are allowed by the relevant national or regional authority, and/or documentation that the species is not highly invasive under similar conditions (e.g., using Weed/Pest Risk Assessment methodologies/tools and consulting invasive species lists - e.g., national lists in the country of production, or IUCN Global Invasive Species Database). B. Review economic operator's invasive species risk management plan appropriate to the risk of invasiveness under similar conditions, including mitigation and monitoring plans. This could include: 1. Cultivation practices that minimise the risks of invasion. 2. Operational practices for containment of propagules during harvesting, processing and transport to manage pathways of introduction and spread. 3. Monitoring actions to detect escapes. 4. Planned and executed mitigation actions (eradication, containment or management) in the event of escape of a cultivated species. C. Review economic operator's modified microorganism risk management plan appropriate to the risk of escape and impacts, including mitigation and monitoring plans. This could include: 1. Culturing/growth practices that minimise the risks of escape. 2. Operational practices for containment during growth, management and transport to minimize risk of escape. 3. Monitoring actions to detect escapes. 4. Planned and executed mitigation actions in the event of escape.

Table 7: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 7.3.

Criterion 7.3: Operational practices will be implemented to avoid adverse effects on areas that, due to their biodiversity, conservation value, or ecosystem services, are protected by the State having jurisdiction over that area.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Conservation management plan. 3. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's conservation management plan, including mitigation and monitoring plans. This could include: 1. Identification of potential impacts on biodiversity, conservation value, and ecosystem services. 2. Identification of nearby areas that are protected due to their conservation values. 3. Assessment of potential impacts on adjacent/nearby protected areas. 4. Mitigation measures planned or undertaken by the economic operator as appropriate.

Table 8: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 8.1.

Criterion 8.1: Operational practices will be implemented to ensure that waste arising from production processes as well as chemicals used are stored, handled and disposed of responsibly.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Chemical and waste management plan. 3. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's chemical and waste management plan covering the storage, handling and disposal of wastes and chemicals, including mitigation and monitoring plans. This could include: 1. Minimizing waste. 2. Operational practices for safe handling and disposal of waste, with priority given to recycling or reuse of organic wastes for soil health. 3. Provisions to ensure that the manufacturer's safety instructions for the storage, handling, use, and disposal of chemicals are followed. 4. Minimizing contamination of soil, air and water, and the implementation of clean and efficient processes for conversion of wastes and by-products into energy and / or other products. 5. Evidence that any plant protection products applied are registered in the country of use or permitted as appropriate, and acknowledge any local restrictions and any bans or restrictions by conventions such as the Rotterdam Convention, the Stockholm Convention on Persistent Organic Pollutants (POPs), and/or the Montréal Protocol on Substances that Deplete the Ozone Layer. 6. Application of best practices for the safe and proper disposal of obsolete chemicals (e.g., prohibited in the country of use, banned or restricted by convention, or deteriorated).

Table 9: Documentation and potentially applicable parameters to ensure compliance by economic operators with CORSIA Sustainability Criteria 8.2.

Criterion 8.2: Responsible and science-based operational practices will be implemented to limit or reduce pesticide use.	
Documentation/Information that can be provided by economic operators	**Potentially applicable parameters that can be used by the SCS**
1. Environmental impact assessment addressing multiple CORSIA SAF Sustainability Themes. 2. Pesticide management plan. 3. Valid permits or licenses used for regulatory compliance that are in line with the SAF Sustainability Criterion.	A. Review economic operator's (e.g., raw material producer) evidence of operational practices to limit or reduce pesticide use, as well as mitigation and monitoring plans. This could include: 1. The implementation and monitoring pest management techniques, including an approach to reduce pesticide usage or to switch to less harmful products. 2. Good practices for the handling, storage and disposal of pesticides. 3. Evidence of pre-application practices (spray equipment selection, equipment serviceability, adjustment and control checks). 4. Evidence of field application practices (field survey, meteorological considerations, treatment timing, sprayer field settings, chemical handling, container handling). 5. Evidence of post application practices (container cleaning, disposal of surplus spray, disposal of empty containers, equipment maintenance and storage, pesticide storage). 6. Documentation demonstrating year-over-year reduction of pesticide use.

Existing resources on established practices

The following non-exhaustive list of existing resources can provide information on established best practices for feedstock or fuel production relevant to Tables 1 through 9.

- International standards that broadly address sustainable production include ISO 13065:2015 *Sustainability criteria for bioenergy* (ISO 13065:2015, 2015).
- Resources developed in the framework of the United Nations include the Global Bioenergy Partnership (GBEP), (FAO/GBEP, 2019) more specifically the *Global Bioenergy Partnership Sustainability indicators for Bioenergy: Implementation Guide* (GBEP, 2020). Other UN resources include the *Good Environmental Practices in Bioenergy Feedstock Production* (Bioenergy and Food Security Criteria and Indicators Project, 2012), the *Sustainability Assessment of Food and Agriculture Systems (SAFA) program*, which includes a framework, indicators, an evaluation tool, and a small-holders' specific application (FAO, 2013), and *Sustainable Land Management contribution to successful land-based climate change adaptation and mitigation* (Sanz, et al., 2017).
- Additional resources to address feedstock production include the Sustainable Organic Agriculture Action Network's *Best Practice Guideline for Agriculture and Value Chains* (SOAAN, 2013) and the "Conservation Agriculture" system developed by the UN FAO (FAO, 2021).

Additional resources relevant to specific themes include:

- *Water: IEA Bioenergy's Best Practices Guidelines for Managing Water in Bioenergy Feedstock Production* (Neary, 2015)
- *Soil*: U.N.'s *Aims and techniques of soil management* (Kelley, 1990) and the FAO webpage devoted *to* good practices for land and soil conservation (FAO, 2021).
- *Air Quality*: The Regulatory Assistance Program's *Climate-Friendly Air Quality Management: Strategies for Co-Control* (James & Schultz, 2011) and *Best Practices for Achieving Cleaner Air and Lower Carbon* (James C. , 2019)
- *Conservation*:
  - The FAO's *Pest Risk Analysis for Quarantine Pests Including Analysis of Environmental Risks* (FAO, 2004) *and Guidelines for Weed Risk Assessment in Developing Countries* (Williams, 2003).
  - The International Union for Conservation of Nature (IUCN) *Global Invasive Species Database* (Invasive Species Specialist Group, n.d.).
- *Wastes* and Chemicals:
  - Conventions: The *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (UNEP, 1989), the *Rotterdam Convention* addressing and environmentally sound use of hazardous chemicals, including Annex III listing chemicals subject to prior informed consent for health or environmental reasons (UNEP, 1998), and the *Stockholm Convention on Persistent Organic Pollutants* (UNEP, 2001),
  - The and Agriculture Organization and World Health Organization's *International Code of Conduct on Pesticide Management* (FAO and WHO, 2016),
  - World Health Organization's *Recommended Classification of Pesticides by Hazard and guidelines to classification* (WHO, 2020),
  - The Food and Agriculture Organization's guidance documents and environmental tool kits published under the *Obsolete Pesticide Programme* (FAO, n.d.)

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