The ISCC CORSIA Certification System

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ISCC is a leading sustainability certification system

ISCC
International Sustainability & Carbon Certification

- ISCC is a global **sustainability certification system** operational since **2010**
- ISCC is used by more than **5,500 companies** in over **100 countries**
- ISCC is governed by the **ISCC Association**, a **multi-stakeholder non-profit organization** with currently approx. 200 members
- The ISCC Association features stakeholders from across the value chain, NGOs, research organisations and regulatory bodies

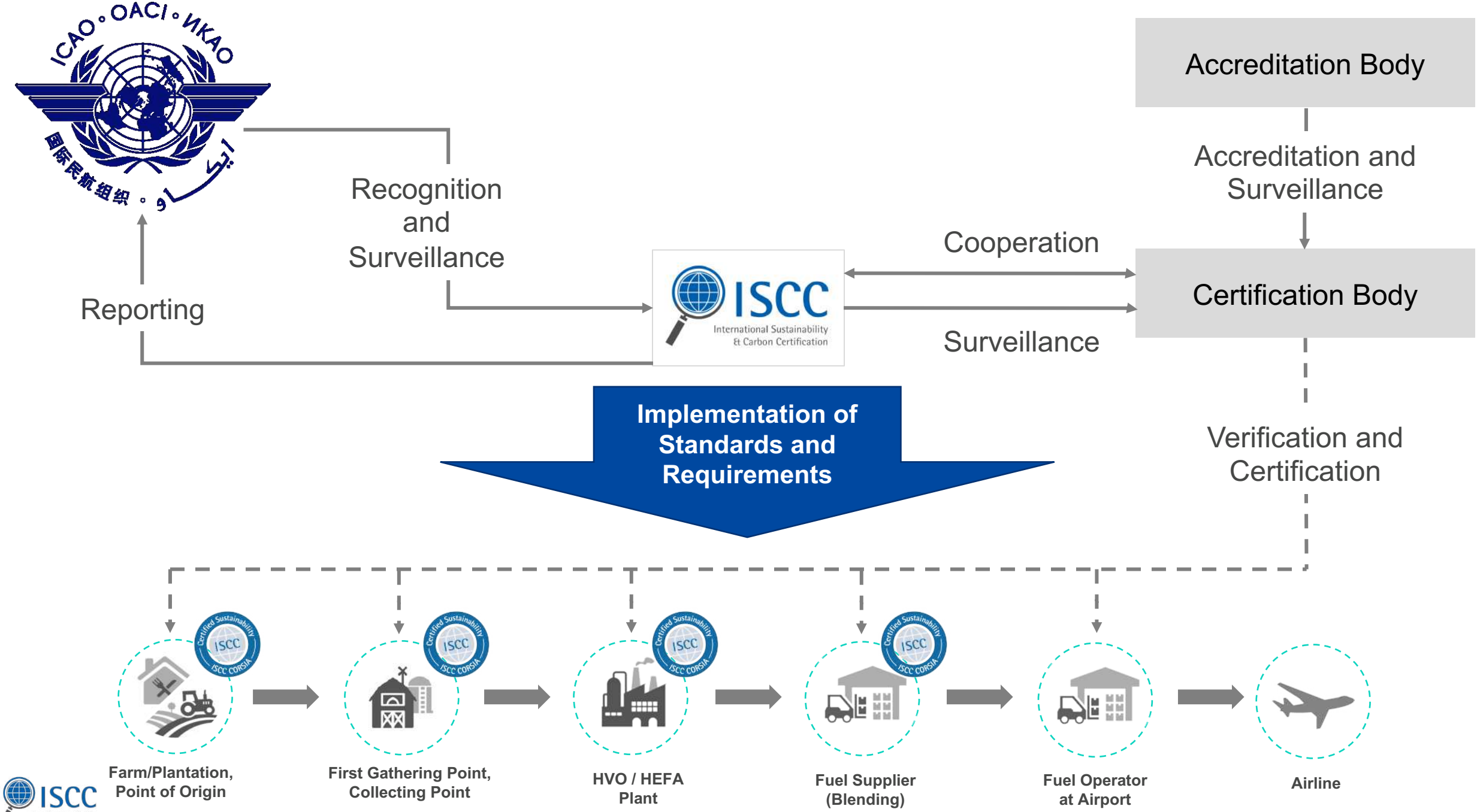
CORSIA

- ISCC certification is **recognized** in important energy markets to demonstrate compliance with sustainability requirements, including **CORSIA**, the **EU**, **Japan** and **Australia** (Queensland)
- ISCC is also recognized by **company specific initiatives** as well as important **standards and platforms** (e.g. Unilever's Sustainable Agriculture Code)

- ISCC currently has **60+ economic operators ISCC certified in Africa**
- Most heavily represented are South Africa, Ghana, Côte d'Ivoire, Burkina Faso, Egypt, Tunisia and Morocco
- Most prevalent **ISCC certified raw materials in Africa** are shea, used cooking oil, animal fats

ISCC supports the aviation industry in achieving its climate targets

- Several **ISCC members and system users** are active in the field of sustainable aviation fuels (SAF)
- With American Airlines and DPDHL, **major airlines recently** joined the ISCC Association
- ISCC is an active member of the **CAEP Fuels Task Group within ICAO** that is working on the further development of CORSIA eligible SAF and LCAF (lower carbon aviation fuels)
- ISCC currently has 16 certified operators under its **CORSIA standards**, 12 certificates covering **co-processed SAF**, 12 covering **HEFA**, and 160+ covering **HVO**



16 economic operators have already received ISCC CORSIA certification, including feedstock and fuel producers. Further certifications are in the pipeline

Sustainability certification schemes recognized under CORSIA ensure that SAF is produced in accordance with the requirements for CORSIA eligible fuels

ISCC CORSIA Certification ensures

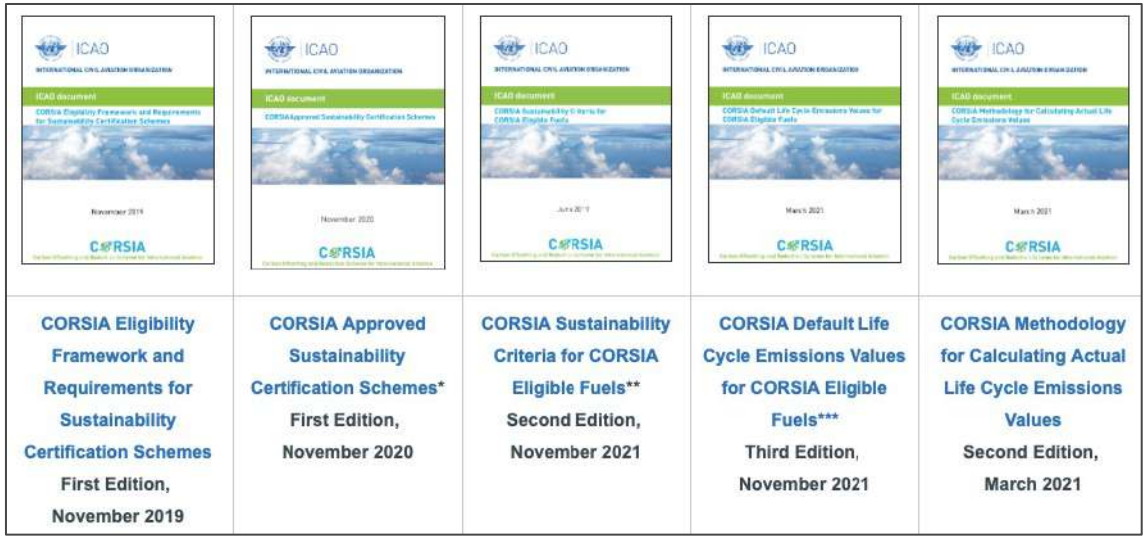
Compliance with sustainability requirements for feedstock production

Traceability of sustainable materials through the supply chain

Verified reduction of life cycle emissions

The **System Documents** build the basis of the ISCC CORSIA certification system

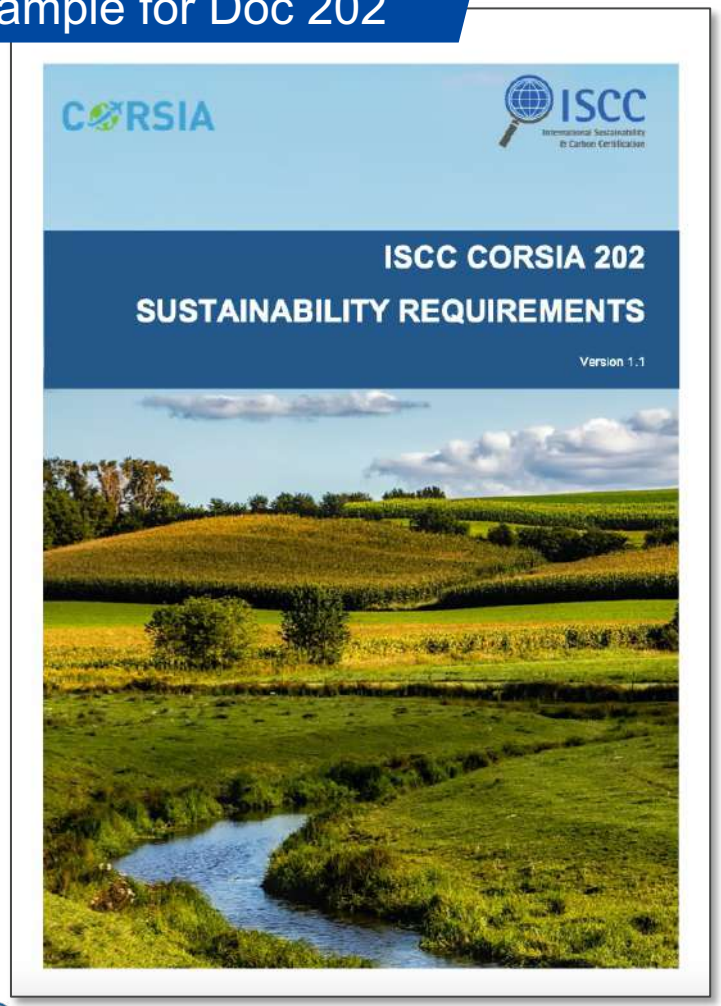
- The System Documents
  - **translate the ICAO documents** on CORSIA Eligible Fuels into the SCS' requirements and processes "on the ground"
  - lay down all relevant **certification requirements and processes** for Certification Bodies and System Users (i.e. certified companies)
  - are **publicly available** on the ISCC website



CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes First Edition, November 2019	**CORSIA Approved Sustainability Certification Schemes*** First Edition, November 2020	**CORSIA Sustainability Criteria for CORSIA Eligible Fuels**** Second Edition, November 2021	**CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels***** Third Edition, November 2021	**CORSIA Methodology for Calculating Actual Life Cycle Emissions Values** Second Edition, March 2021

Auditors verify compliance with the standard's requirements via so-called **audit procedures**. These are based on the System Documents

Example for Doc 202



Extracts

ISCC

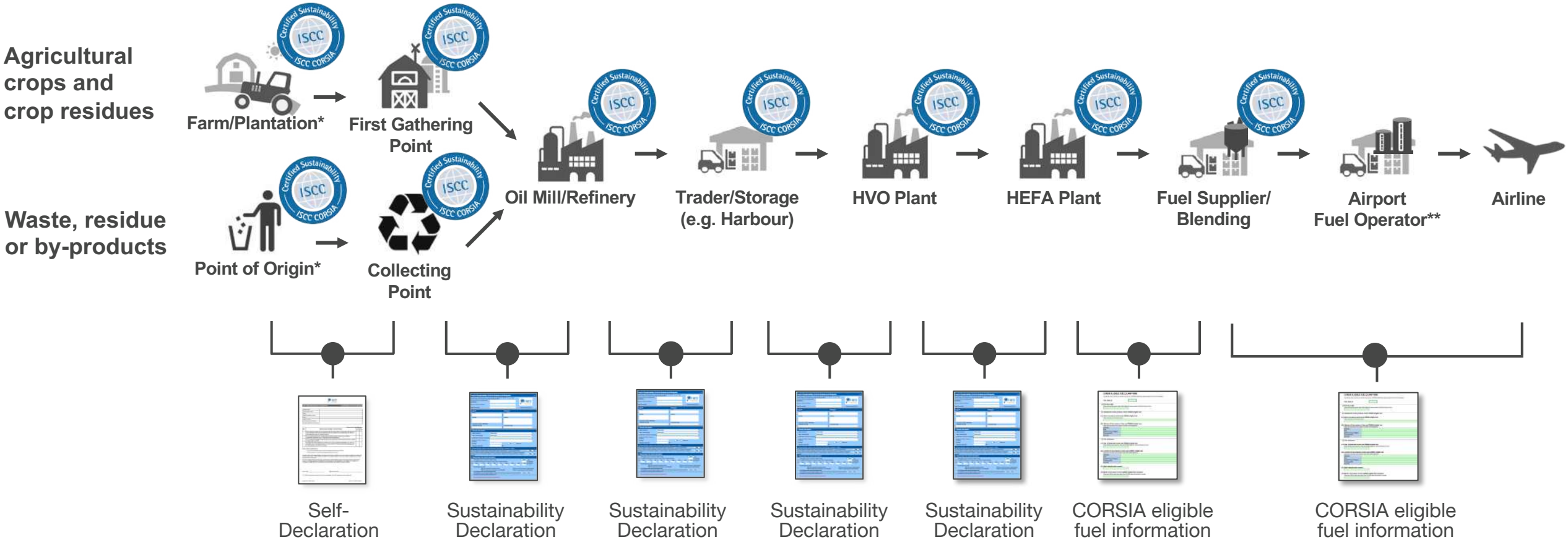
ISCC CORSIA and ISCC CORSIA PLUS Audit Procedures for Farm/ Plantation

No.	Template	Remarks	Risk level	Audit intensity
0.	Basic data	Basic data of the farm/plantation audited	Not applicable	
1	Verification of land use and land use change	ISCC Principle 1, Requirements for the production of biomass according to ISCC 202 Sustainability requirements for the production of biomass		Risk assessment, and by that, the sample size has already been determined by the auditor in the framework of the audit of the first gathering point
	Ecological and social sustainability	ISCC Principle 2 – 6, Requirements for the production of biomass according to ISCC CORSIA document 202 Sustainability requirements for the production of biomass		
2	Traceability	Within Template No. 3 the risk of a flawed documentation has to be evaluated (applicable for individually certified farms/plantations)	High	The documents of three successive months should be checked completely
			Medium	The documents of one month should be checked completely and random samples should be taken from three successive months
			Regular	Documents taken from random samples of three successive months should be checked
3	Life Cycle Emissions	Application and calculation of Core Life Cycle Assessment (LCA) default values or Actual core LCA values (individually calculated values).	Not applicable	Mandatory

No.	Requirements	Verification guidance	Evidence/ Documents	Category		Findings	Conformity	
				Major Must	Minor Must		Yes	No
01.01.18	Are the current ISCC terms of use available and signed?	Verify if the current ISCC terms of use are available and signed. Check ISCC website for latest version.	Signed current ISCC Terms of use	X				
07.	**Farm/ Plantation**							
07.01.	**Audit of sustainability criteria**							
CORSIA Sustainability Criteria								
07.01.00	Is it ensured that biomass is not obtained from land converted after 1 January 2008 that was primary forest, wetlands, or peat lands and/or contributes to degradation of the carbon stock in primary forests, wetlands, or peat lands as these lands all have high carbon stocks?[2]	CORSIA eligible fuel shall not be made from biomass obtained from land converted after 1 January 2008 that was primary forest, wetlands, or peat lands and/or contributes to degradation of the carbon stock in primary forests, wetlands, or peat lands as these lands all have high carbon stocks. In the event of land use conversion after 1 January 2008, as defined based on IPCC land categories, direct land use change (DLUC) emissions shall be calculated.	Evidence of compliance can be demonstrated by e.g. comparing aerial photographs, satellite images, land register documents (e.g. field record system, documents of land registry, land certificates, GPS-based crop yield), maps, site surveys or management plans from 31.12.2007 or earlier with today's status of the farmland. Environmental assessments at expansions since 1st January 2008 show that no conversion of forestland took place. Appropriate assessment tools are e.g. databases like GRAS, Modis Land Cover Database, Intact Forest Landscapes database etc., and/ or maps by NGOs (e.g. IUCN, WWF-especially in Indonesia, Vida)	X				

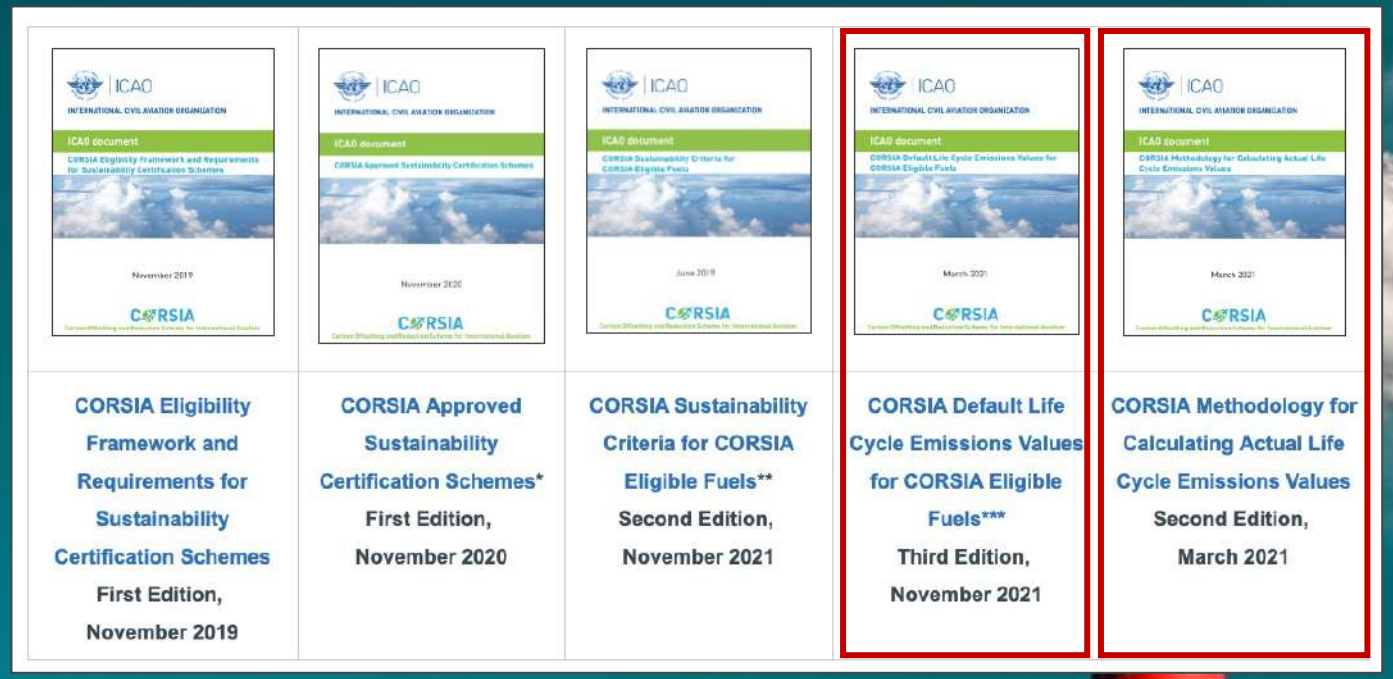
Traceability of sustainable material is ensured through the certification of every supply chain element

Simplified supply chain



*Group certification approach possible

ISCC provides the methodology and rules for calculating and verifying GHG emissions reductions of CORSIA eligible SAF



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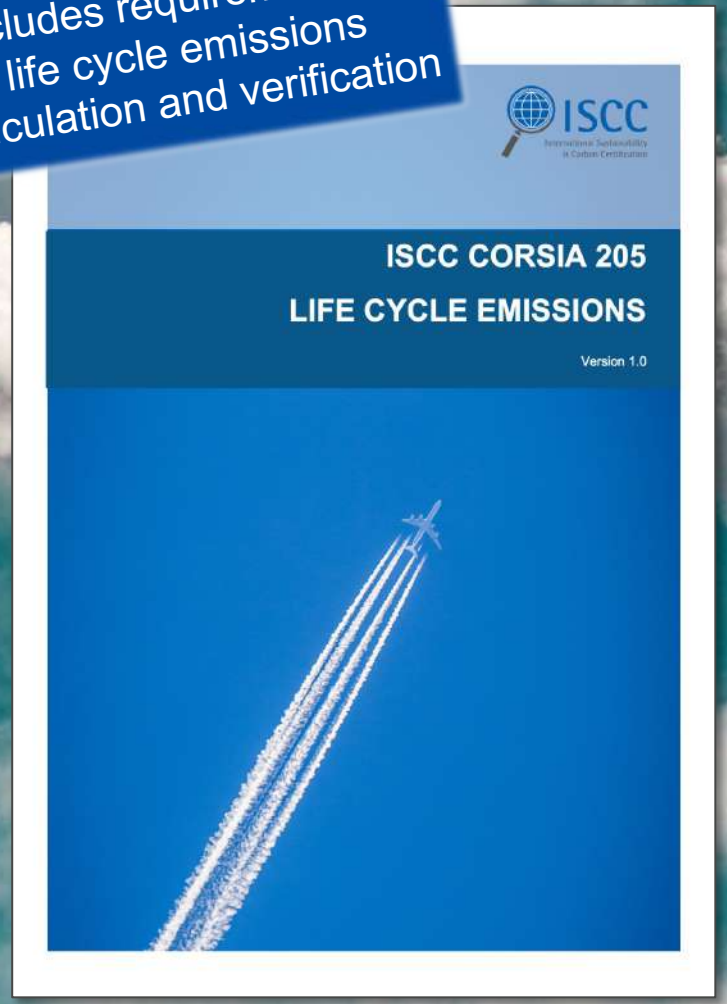
Includes requirements for life cycle emissions calculation and verification



ISCC provides the methodology and rules for calculating and verifying GHG emissions reductions of CORSIA eligible SAF (II)

Extract

3.3 Total life cycle emissions value

After the core LCA value has been calculated according to the methodology described below or has been obtained via a default value, the appropriate ILUC value must be added in order to generate the total life cycle emissions value (LS_f). The ILUC value must be gathered from the ICAO Document "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels" or in the Annex of this document. The unit of the LS_f is grams of CO_2e per megajoule of fuel produced and combusted in an aircraft engine, in terms of LHV (gCO_2e/MJ).

Core LCA value + ILUC LCA value = LS_f (gCO_2e/MJ)

4.3.5.1 Calculation formula for processing emissions

The calculation must be based on the following formula:

$$e_p\left[\frac{kg\ CO_2eq}{ton}\right] = \frac{(EM_{electricity} + EM_{heat} + EM_{inputs} + EM_{wastewater})\left[\frac{kg\ CO_2eq}{yr}\right]}{\text{yield product}\left[\frac{ton}{yr}\right]}$$

For all types of products, the yield shall refer to the dry matter content. If not calculated per dry ton directly a correction needs to take place (please find the formula in chapter 4.2).

The emissions of the different inputs (EM) must be calculated according to the formulas below and divided by the yield of the main product.

Formula components for calculating EM are:

$$EM_{electricity} = \text{electricity consumption}\left[\frac{kWh}{yr}\right] * EF_{regional\ electricity\ mix}\left[\frac{kg\ CO_2eq}{kWh}\right]$$

Checked and verified by the auditor before GHG value can be forwarded

Greenhouse Gas (GHG) Emissions Calculation of an Aviation Fuel Plant

General Data

Name of the processing unit		
Name	Green Company	
Street, Number	345 Lake Street	
Postal code, City	Greenfield, CO 35482, USA	
Contact person	Beverly Hampton	

Production capacity		
Production capacity of the processing unit	68.531,0	metric tons (mt)/year

Time period of data input		
Initial date	Based on design data	mm/dd/year
Ending date	Based on design data	mm/dd/year
The time frame of data collection should be 12 months. It is suggested, if possible, to consider the 12 months prior to the audit		

Outputs processing unit

Production main product			Source
Aviation fuel	34.963,2	mt/year	Green Company
Isooctane	34.963,2	mt/year	Green Company

Production co-products			Source
Corn oil	8.146,9	mt/year	Green Company
Dried Distillers Grains with Solubles (DDGS)	78.648,2	mt/year	Green Company
Moisture content of DDGS	0,0	%	Green Company
Isobutanol	53.117,9	mt/year	Green Company

Total input needed			Source
Total input required for all products	169.139,6	mt/corn	Green Company
Total input required for all products	143.768,7	dry-mt corn	Green Company

Calculation of GHG savings

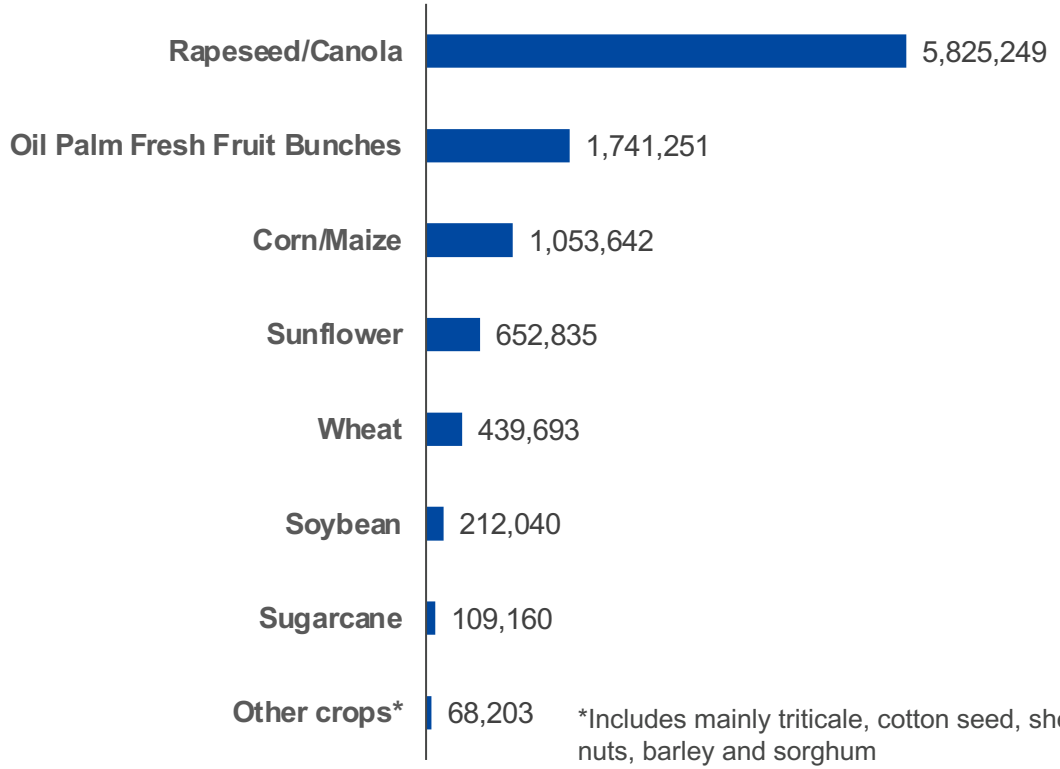
Total emissions of Jet fuel in g CO_2e/MJ after allocation		
Emissions from the extraction or cultivation of raw materials (e_{ec})	6,9	g CO_2e/MJ
Emissions from processing (e_p)	16,8	g CO_2e/MJ
Emissions from transport and distribution (e_t)	3,0	gCO2eq/MJ
Emission saving from soil carbon accumulation via improved agricultural management (e_{sca})	0,0	g CO_2e/MJ
Total emissions of aviation fuel in g CO2e/MJ	26,7	g CO_2e/MJ

Fossil reference value			Source
GHG emission fossil reference	94,0	g CO_2e/MJ	EU RED: 2009/28/EC
GHG savings compared to fossil reference	68	%	

To enable rapid SAF scale-up, a broad feedstock basis will be needed.
More than 86 million metric tons of feedstock were ISCC certified in 2020

More than **70 million metric tons of crops** were certified under ISCC in 2020

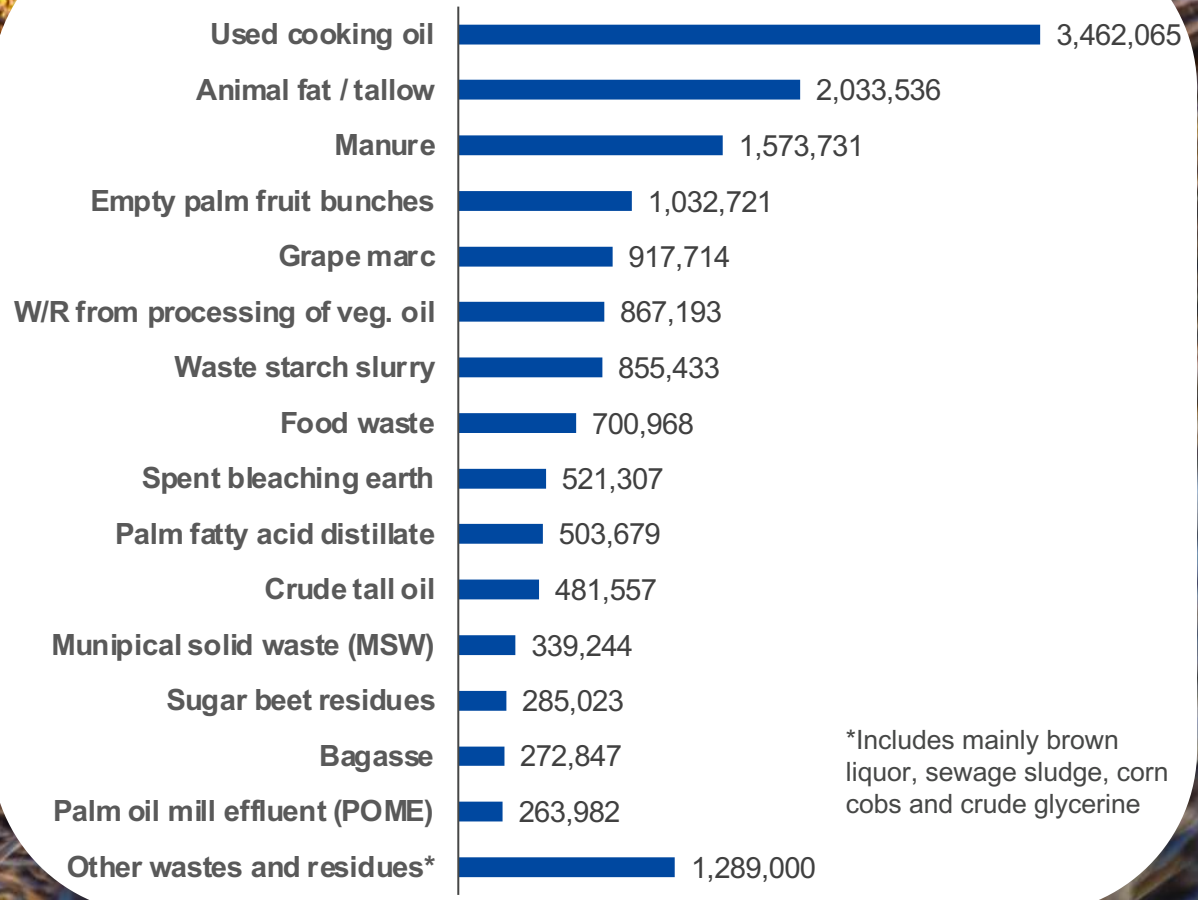
Crops – Certified Cultivation Area (in hectare)



*Includes mainly triticale, cotton seed, shea nuts, barley and sorghum

More than **15 million metric tons of waste and residues** were certified under ISCC in 2020

Wastes and Residues (in metric tons)



*Includes mainly brown liquor, sewage sludge, corn cobs and crude glycerine

Feedstock with a low risk for land use change can contribute to the feedstock basis. There are two approaches for producing such feedstock under CORSIA

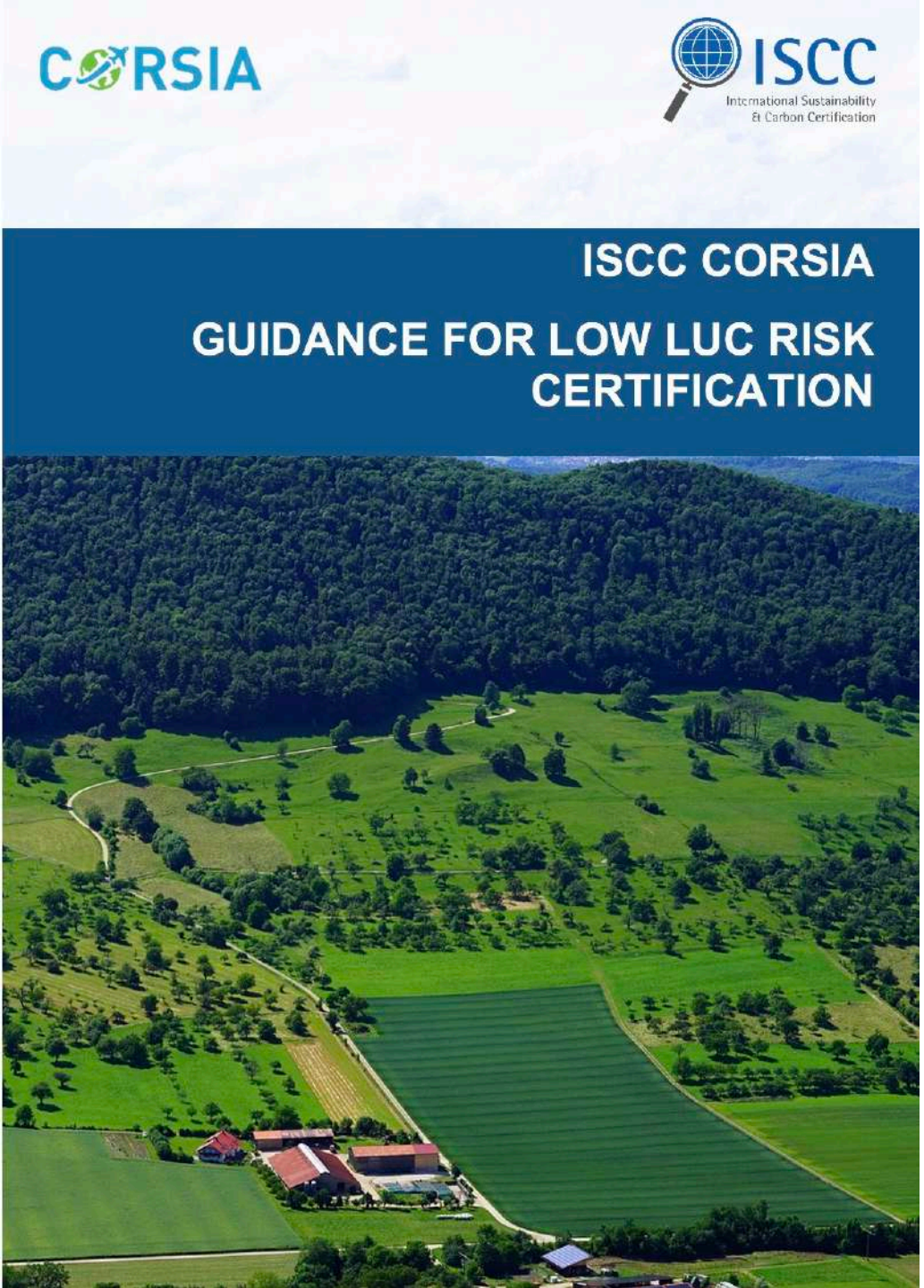
Yield Increase Approach

Where feedstock producers are able to increase the amount of available feedstock out of a fixed area of land

Unused Land Approach

Where previously unused land is used to cultivate sustainable feedstocks for CORSIA eligible fuel production

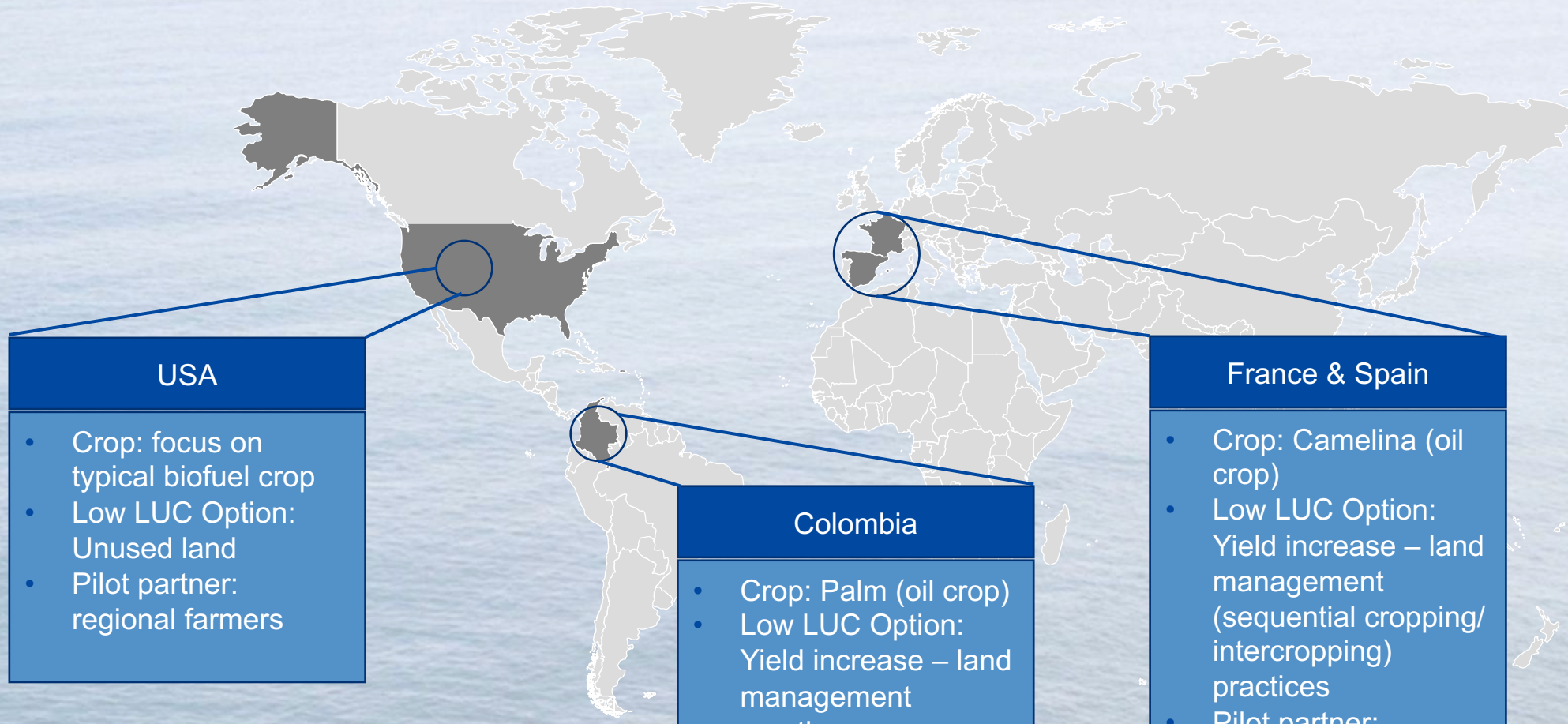
Source: ICAO document - CORSIA Methodology For Calculating Actual Life Cycle Emissions Values; ISCC CORSIA Guidance for Low LUC Risk Certification



ISCC has developed the ISCC CORSIA low LUC risk add-on

- The add-on allows for the **certification of low LUC risk feedstock** for CORSIA eligible fuel
- The add-on complements the general ISCC CORSIA certification
- ISCC has drafted a guidance document, including **detailed guidelines and practical examples** for both farmers and auditors
- Audit procedures have been drafted to allow for a **consistent and robust verification** by ISCC auditors
- **Approach is continuously refined** through learnings from pilots

Different low LUC risk approaches under ISCC CORSIA have already been successfully tested in pilot audits. First actual certifications are in the pipeline



USA

- Crop: focus on typical biofuel crop
- Low LUC Option: Unused land
- Pilot partner: regional farmers

Colombia

- Crop: Palm (oil crop)
- Low LUC Option: Yield increase – land management practices
- Pilot partner: palm oil producer

France & Spain

- Crop: Camelina (oil crop)
- Low LUC Option: Yield increase – land management (sequential cropping/ intercropping) practices
- Pilot partner: camelina seed producer, regional farmers

Remote sensing is a useful tool to support the certification of low LUC risk feedstock. Example: Identifying and verifying unused land status

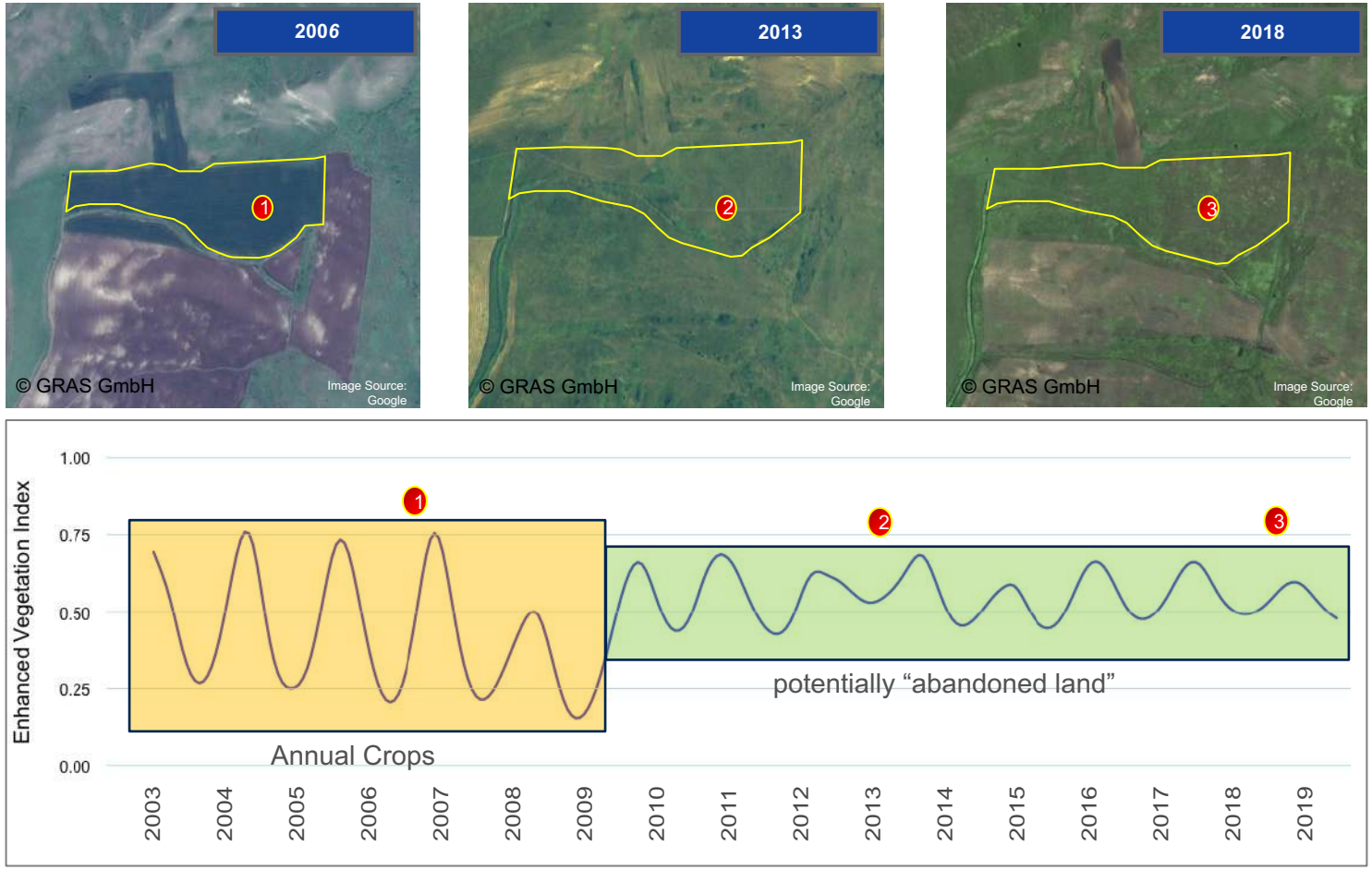
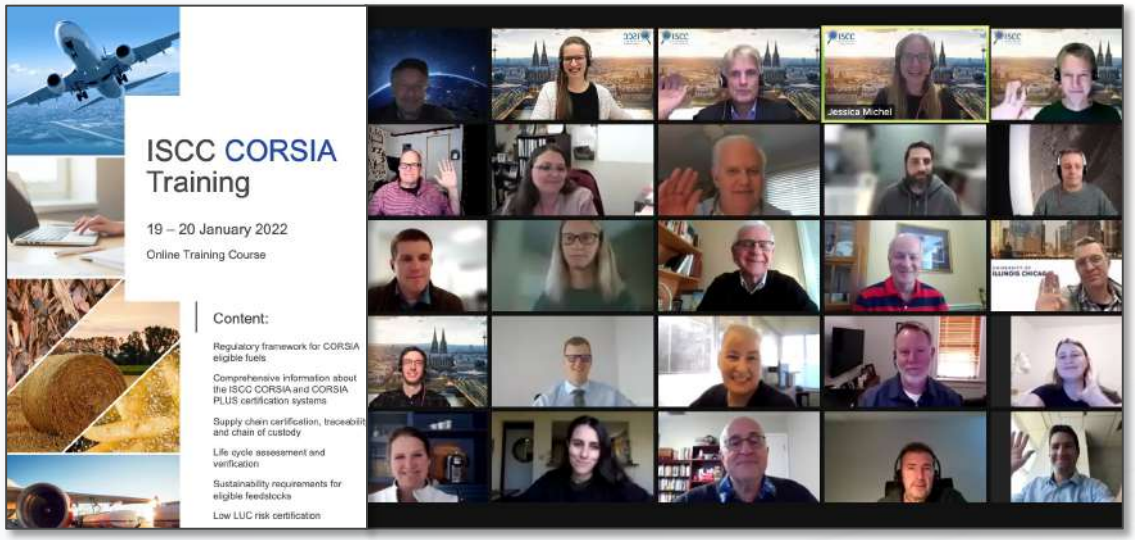


Figure provided by GRAS

- The **Enhanced Vegetation Index (EVI)** provides information on the "amount of green vegetation" of an area and thus can be used to determine and verify land use, deforestation, etc.
- **ISCC uses GRAS** (Global Risk Assessment Services), as an integrated web-tool to verify and monitor land use change change activities
- Scenario example:
- This **land** was detected through the **heatmap** as **potentially unused** since **2009**
- If the **unused land status** is **confirmed on-site** and the **sustainability criteria** are verified, measures to re-start cultivation could lead to the production of **low LUC risk feedstock**

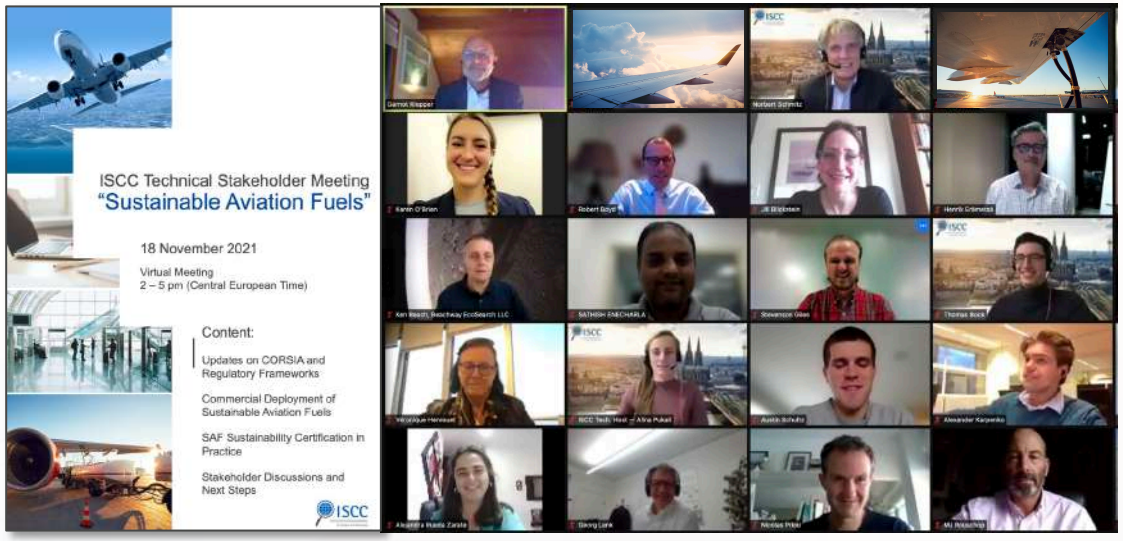
ISCC puts emphasis on stakeholder dialogue and qualification of system users and auditors

ISCC CORSIA Training



- **Provides in-depth training** around the ISCC CORSIA standard to auditors and third parties
- **Three trainings** conducted so far with **150+ participants**, including regulators, airlines, SAF producers and suppliers
- **50+ auditors** have successfully passed the training and are in the position to conduct ISCC CORSIA audits

Technical Stakeholder Committee „Sustainable Aviation Fuels“



- Set up to enable a **regular stakeholder dialogue on SAF**
- **150+ participants** attended the first meeting
- **Topics under discussion** include regulatory developments, SAF market ramp-up, SAF sustainability certification and more
- **Contributors and speakers** include regulators, airlines and operators along the SAF supply chain

Thank you!

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