



Implementing Low LUC Risk under Corsia

Practical Case

08-13-2024

Agenda



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1. ABOUT FS
2. METHODOLOGY FOR THE EVALUATION LOW LUC RISK FEEDSTOCK PRODUCTION
3. CERTIFICATION SCOPE
4. IMPLEMENTATION OF LOW LUC RISK FEEDSTOCK CERTIFICATION
5. CHALLENGES DURING THE IMPLEMENTATION OF THE LOW ILUC RISK CERTIFICATION
6. CONCLUSIONS



About FS (1/2)

FS is a pioneer in the Brazilian corn ethanol market. With its plants located in Mato Grosso, FS operates on a national scale, combining strong growth and financial performance with low carbon emissions and a strong sustainability agenda.



1st Brazilian industry to produce ethanol exclusively from corn



4th largest ethanol producer in Brazil



Lowest production cost among the largest ethanol producers in Brazil



Combining **Scale** with **Strong Growth** and Financial **Performance**



Low carbon emissions

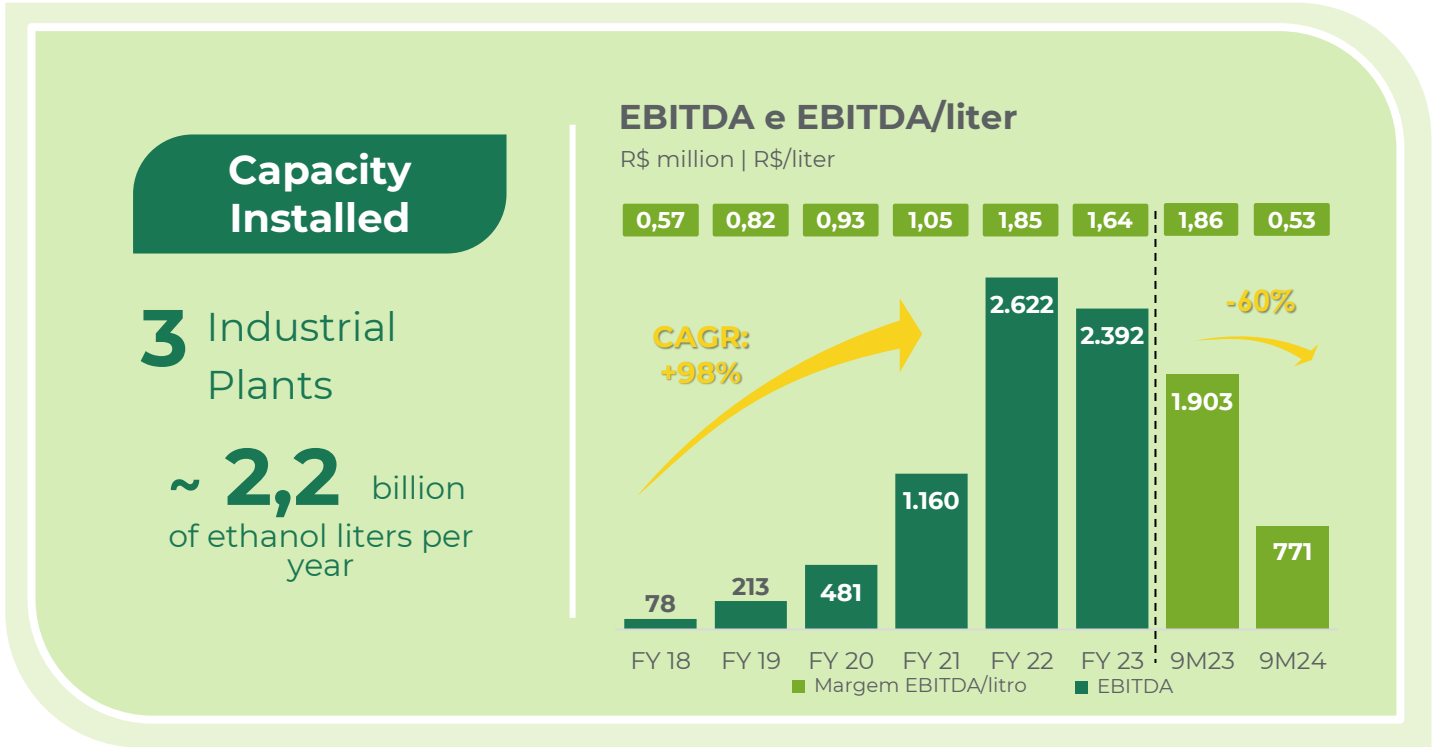
3Q24 LTM Financial and Operational Highlights

R\$ 8.0 bi
Net Revenue

R\$ 1.3 bi
EBITDA

15.8%
EBITDA Margin

-1.2%
Net Margin

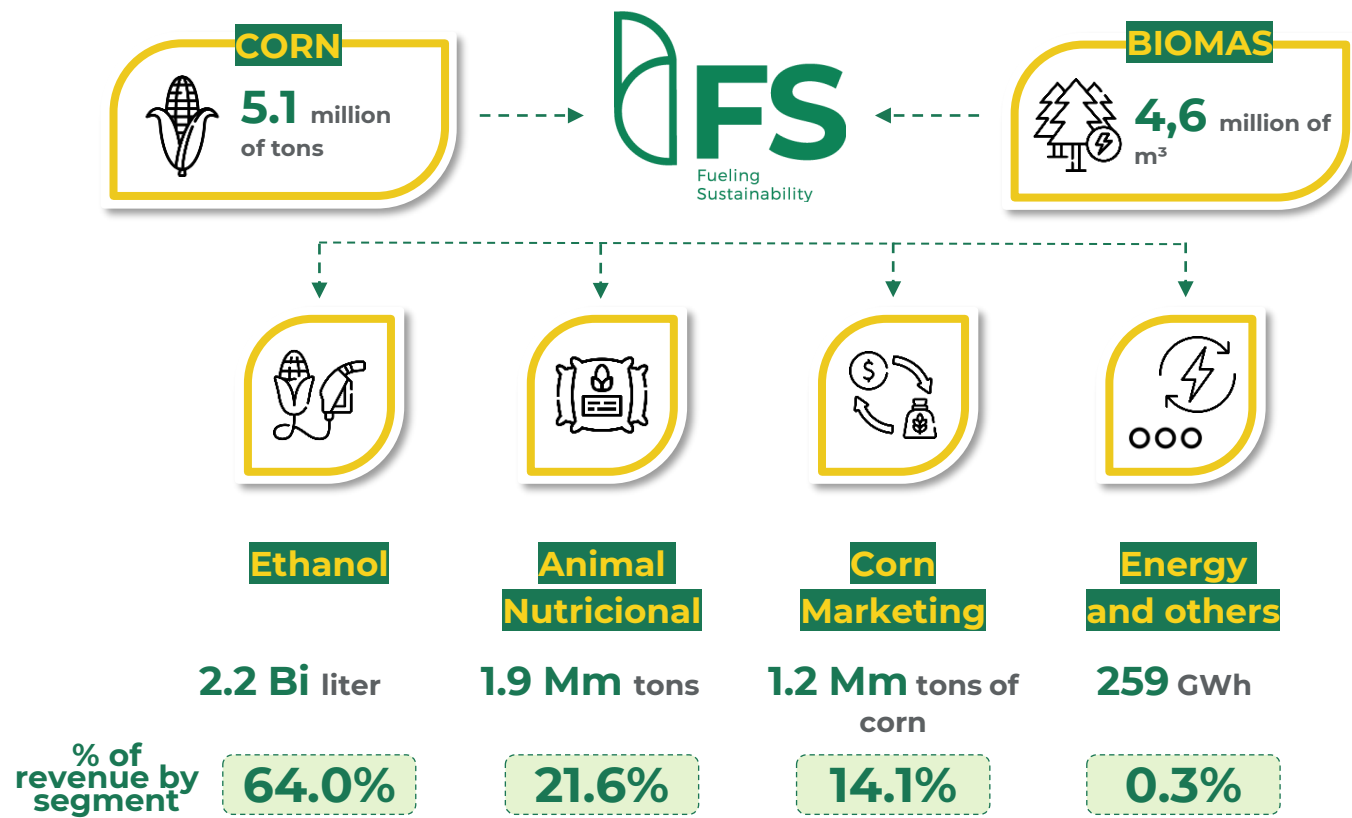


Notes: ¹ Installed capacity considering the operation of the three industrial plants as of January 2024. Source: Company studies, public data from companies in the sector, dynamic panel of ethanol producers by ANP, Novacana and UNEM
Base Date: December 31, 2023.

About FS (2/2)

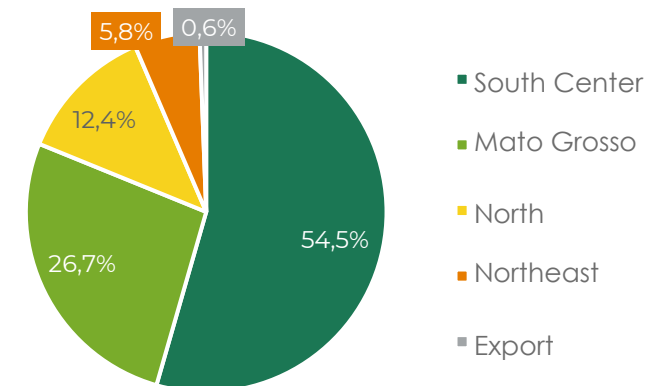
- Conversion of corn and biomass into ethanol, high value-added animal nutrition products, energy and steam
- **24/7 operation** all year round with **99%+ availability**; 5 days of scheduled shutdown

Operational Highlights⁽⁴⁾

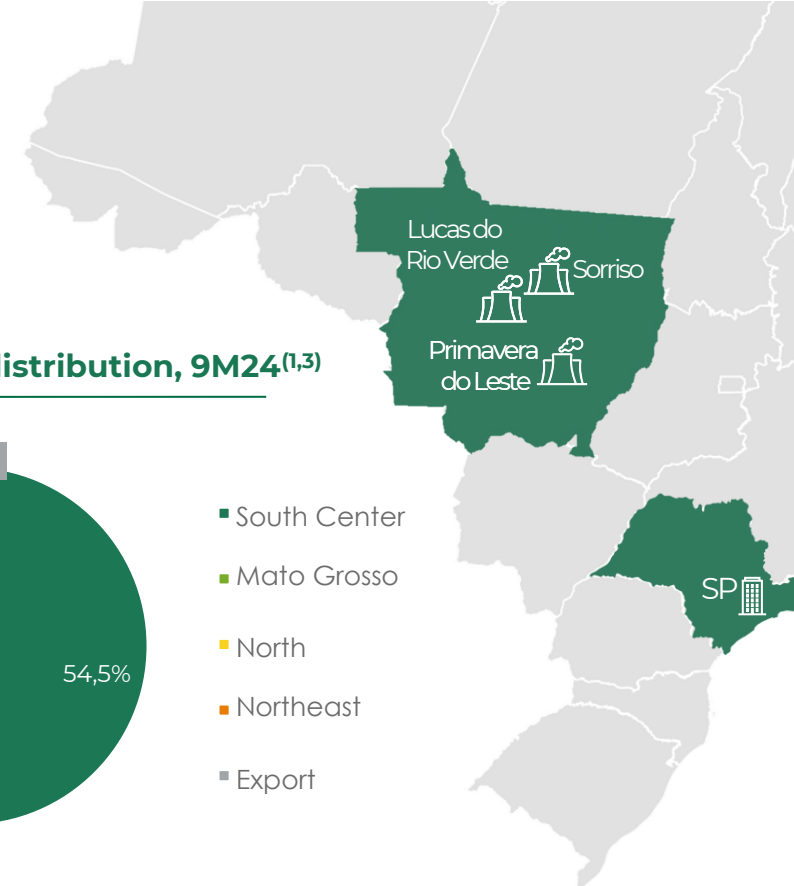
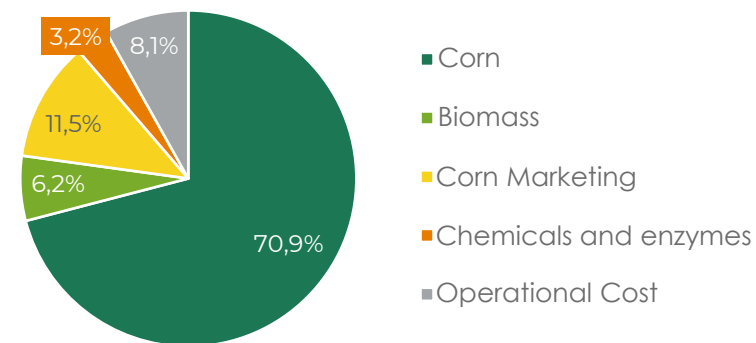


Notes: ¹ Geographic breakdown of gross revenue. ² FY23 net revenue. ³ Geographic and cost distribution for the nine months ended December 31, 2023. ⁴ Installed capacity considering the operation of the three industrial plants as of January 2024. Source: Company operational information

Geographic distribution, 9M24^(1,3)



Cost Distribution, 9M24⁽³⁾



METHODOLOGY FOR THE EVALUATION LOW LUC RISK FEEDSTOCK PRODUCTION

01

For the purposes of CORSIA, using certain types of land, land management practices (LMP), and the incorporation of innovative agricultural practices could all be considered as contributing to low risk for land use change and therefore receive a value of zero for ILUC (ICAO document);

02

Certain types of land use and the implementation of best agricultural practices can mitigate this risk, resulting in what is known as Low Land Use Change Risk (Low LUC Risk) (ISCC, 2022);

03

Low LUC Risk practices for SAF production aims to avoid actions that cause land use change and promote increased raw material productivity in the same area without the need to expand production to new areas, thus ensuring that fuel derived from these sources is eligible for CORSIA (ISCC, 2022);

04

Both ISCC and RSB provide methodologies.

METHODOLOGY FOR THE EVALUATION LOW LUC RISK FEEDSTOCK PRODUCTION

- Yield Increase

Applies to any situation where feedstock producers are able to increase the amount of available feedstock out of a fixed area of land.

- Unused Land

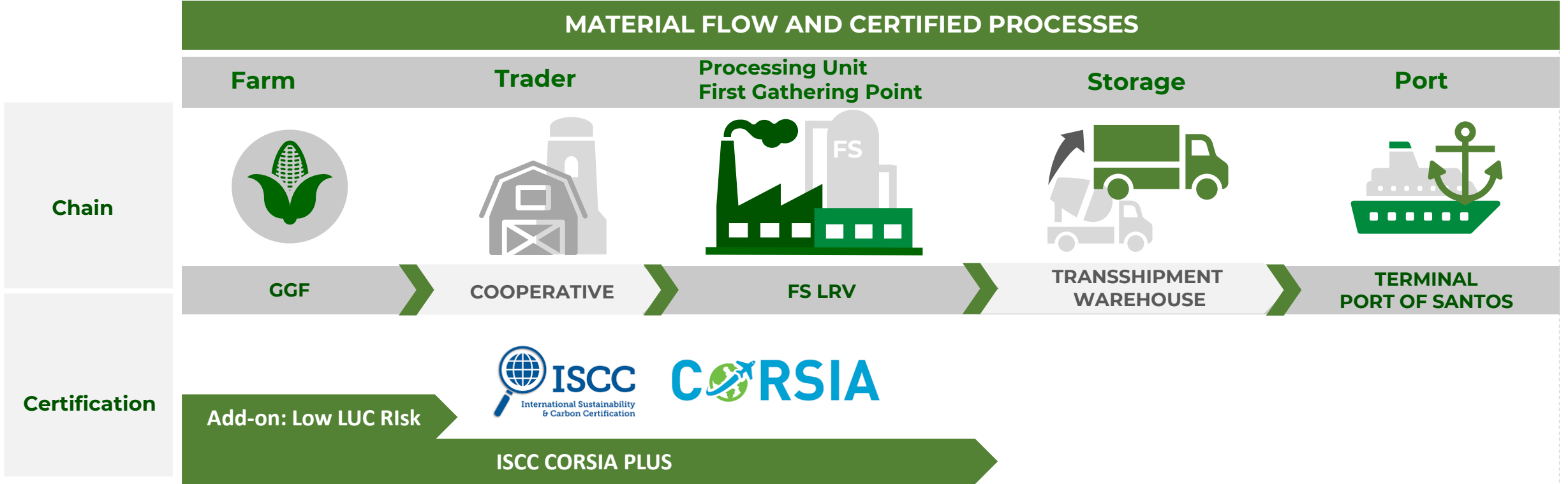
Previously unused land is used to cultivate sustainable feedstocks for CEF production.

The amount of additional available raw material considered eligible for Low LUC Risk raw materials was calculated based on:

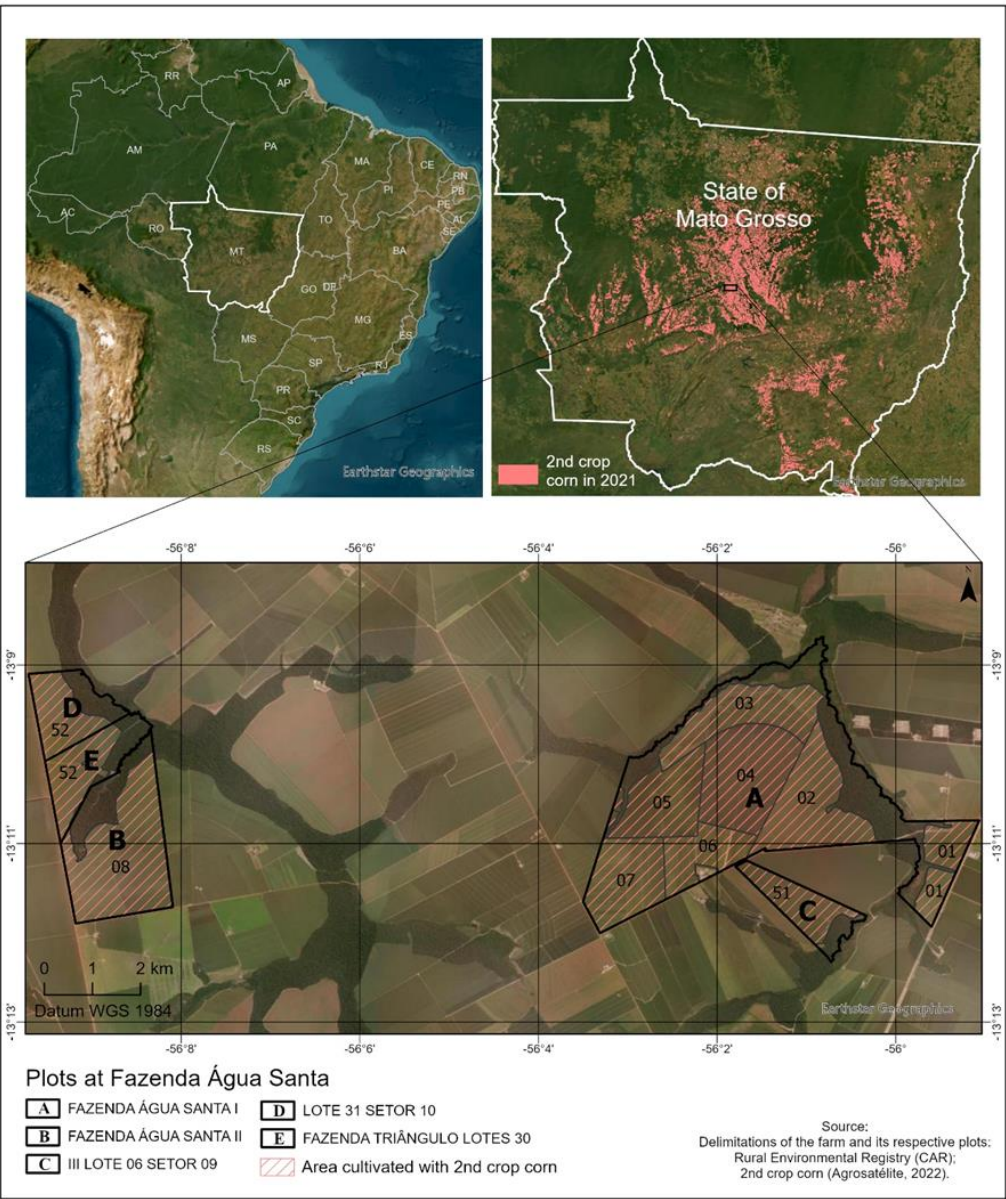
- A** Determination of productivity baseline
- B** Determination of raw material/biomass produced
- C** Additional raw material corresponds to the production gain resulting from agricultural practices implemented after the baseline (2016)

CERTIFICATION SCOPE

ISCC CORSIA Low LUC Risk



SCOPE - Description of the corn plots selected at Água Santa Farm



- The Água Santa Farm is located in the municipality of Lucas do Rio Verde-MT, in the Central-West region of Brazil, and is comprised of five CARs (Rural Environmental Registry) (Figure on the side).
- The Table below shows the plots analyzed in the accounting of Low LUC Risk corn production at the Água Santa Farm.

Property	Map code	Total Area (ha)	Plot	Managed area of the plot in 2023 (ha)
Fazenda Água Santa I	A	2,093	1	131
			2	317
			3	247
			4	348
			5	239
			6	164
			7	240
Fazenda Água Santa II	B	578	8	457
Lote 06 Setor 09	C	180	51	146
Lote 31 Setor 10	D	217	52	319
Fazenda União Triângulo - Lotes 30	E	220		
Total	-	3,288		2,607

IMPLEMENTATION OF LOW LUC RISK FEEDSTOCK CERTIFICATION

According to the ISCC CORSIA document (ISCC, 2022), an increase in harvested feedstock can be result of the following actions:

- A** Improvement in agricultural practices
- B** Intercropping
- C** Sequential cropping
- D** Improvements in post-harvest losses
- E** Mechanical improvements
- F** Non-mechanical inputs

Some challenges are connected with the implementation of CORSIA certification, given that the initial framework is the CORSIA guidance, and the Low LUC Risk is merely an add-on.

CHALLENGES DURING THE IMPLEMENTATION OF THE LOW ILUC RISK CERTIFICATION



Clear Guidelines

There is a reference date of 2016, but it is possible to go back to 2013 if it can be demonstrated that LLR practices were adopted after this date. There is a lack of clarity on how could be demonstrated.

Types of evidence required



Data Availability and Verification

Historical productivity data for project is a challenge and comparing with current data presented by plot is quite challenge.

Evidencing requires the producer to have recorded information about when practices were applied.

Requires well documented yield data.

CHALLENGES DURING THE IMPLEMENTATION OF THE LOW ILUC RISK CERTIFICATION



Qualified Producers and Engagement

Challenge in identifying highly technified producers.

Difficulty in engaging producers and cooperatives.

Small-scale producers may face even greater restrictions in certification due to the level of documentation and the need for robust management.



Certification Scalability and Auditing Limitation

Costs associated: SCSs, investments in the adaptation of properties and certification processes, staff training costs, headcount, fees, travels costs.

Annual on-site audit.

Scaling up to a larger number of producers, the process becomes impractical.

CHALLENGES DURING THE IMPLEMENTATION OF THE LOW ILUC RISK CERTIFICATION

	Base Case - Volume 8,500m ³		Projection - Volume 500,000m ³	
	# Certificate	Days	# Certificate	Days
Farm	1	1	$\sqrt{400} = 20$	40
Low LUC	1	1	$\sqrt{400} = 20$	
Industrial Plant	1	1	1	1
Trading	1	1	1	1
Storage	1	1	1	1
Cooperative	0	0	$\sqrt{10} = 4$	8
TOTAL²	5	5	34	51

CONCLUSIONS



Engagement

Convincing producers. The Corsia process requires **greater participation** from the producer and **may require significant investment**.



Data collection and evidence

Evidence to show the yield improve. For Low LUC Certification data since 2011 was required, the acceptance for regional data makes the process feasible.

Challenges

Socioenvironmental Assessment

Cut off date 2008: Ensure that environmental and social assessment will be fair to all nations - most favorite nations..
In cases of no-compliance allow restoration engagement;

Social aspects: Social diagnoses require a series of evidence and evasive approaches.

Availability of auditors

There are currently 2 Certification Bodies available in Brazil, few auditors available especially in periods of conflict with other certifications.



Operationalization of Certification

Guarantee mass balance of all producers, intermediaries, plants, warehouses that are under our certificate. Systems automation required.

Compatible certification schedule.

Costs and Scalability

Annual recertification processes with local audits and farmers involvement. If we scale up to a plant with **400** producers on average, we will have to apply certification based on the square root of producers, which requires **2 days per farm**, and we would have 40 days of certification per year, per plant.



Certificate

according to the
Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
As developed by the International Civil Aviation Organization (ICAO)

Certificate Number: ISCC-CORSI

SCS Globa
2000 Powell Street, Emeryville, CA 94608
certified



FS Indústria de Bio
Estrada A-01, a 900m do KM 7 da Avenida das
Atílio Fontana, 78455-000, Lucas do Rio Verde, MT

complies with the requirements of C
ISCC COR
(International Sustainability
which is approved by the International Civil Aviation Organization (ICAO))

This certificate is valid from
The site of the system
First Gathe
Ethanol
Point of
Central Office of

Emeryville, CA,
29.07.2024
Place and date of issue

The issuing Certification Body is responsible for the accuracy of this document.
Version / Date: 1 (no adjustments) / 29.07.2024



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Annex to the certificate:

This certificate is only valid in combination with the following certificate:
ISCC-CORSIA-PLUS-Cert-US201-144962024 issued on 29.07.2024, which additionally covers the following scopes: Ethanol Plant, Point of Origin, Central Office of Points of Origin.

Raw material ¹⁾	Low LUC risk approach ²⁾	Brief description of applied low LUC risk practices
Corn grain	1	Improvements in agricultural practices and the implementation of sequential cropping (soybean, corn)

1) According to ICAO CORSIA methodology, raw material(s) certified as having a low risk for land use change (LUC) are assigned an iLUC value of zero (0) instead of the default iLUC value.
2) 1: Yield Increase Approach
2: Unused Land Approach

The issuing Certification Body is responsible for the accuracy of this document.
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Thanks

Claudia Romeiro

dfs

Fueling
Sustainability