Addressing the sustainability of sugarcane

Sugarcane is one of the major feedstocks used in the production of ethanol, accounting for 80% of the sugar produced worldwide. According to the OECD-FAO Agricultural Outlook 2016, around 22% of the total production of sugarcane will be used for ethanol production by 2025. This alcohol-based biofuel enjoys great popularity in the biofuels industry due to its low carbon footprint, reducing greenhouse gas (GHG) emissions by 71% by default compared to fossil fuel. Furthermore, it is a very efficient crop, producing around 600-800 gallons of fuel per acre, which is about twice as efficient as corn.

Despite the many positive aspects of sugarcane biofuel, sustainability challenges such as the need to protect high-biodiversity and high-carbon stock areas as well as to implement good agricultural and social practices cannot be neglected.

**ISCC – solution provider for sustainable and deforestation free ethanol and sugar**

In order to address these challenges while complying with national and international regulations on the sustainability of biofuels, many companies are choosing ISCC (International Sustainability and Carbon Certification) to prove compliance and show their commitment towards sustainable production. ISCC is a global certification scheme widely recognised for biofuels and bioliquids, and recognised by the European Commission under the Renewable Energy Directive (RED). Since its start of operation in 2010, over 16,000 certificates in more than 100 countries have been issued. An increasing number of certificates also cover markets for food, feed and biochemical.

ISCC provides full traceability along the supply chain through site-specific ISCC certificates issued by independent certification bodies. Certification of sugarcane ethanol starts at the plantation level where land and labour related criteria such as the protection of biodiversity, the preservation of carbon sinks, good agricultural practices and the respect of human and social rights are verified. Along the supply chain, processing units and traders are controlled with respect to traceability, quality management and GHG emissions. All ISCC certificates are published on the ISCC website and enable each player to source sustainable products from any certificate holder.

**How does ISCC ensure credibility of its system?**

Credible certification is essential in order to have a real impact on the above-mentioned challenges. The ISCC system uses and provides innovative tools and technologies which ensure a credible, effective and cost-efficient certification process. ISCC applies a high sustainability standard and strict rules of implementation and verification. ISCC certified supply chains are deforestation free and sustainable. Compensation for new plantings is not allowed.

In order to verify that no illegitimate land use change has taken place, ISCC uses GRAS (Global Risk Assessment Services), a web-based tool based on remote sensing technology which provides comprehensive sustainability-related geolocated information on biodiversity, land use change, carbon stock and social indices. It even allows its users to identify replanting activities, grassland conversion and cropping activities. Occurrence of land use change can be verified by using a simple to interpret greenness index called the Enhanced Vegetation Index (EVI). Using EVI time series

**Fig. 1:** Conversion of tropical forest to sugarcane in Thailand 2013

![EVI Time Series](image)
from 2000 until today, GRAS users can differentiate among the types of green cover, see the history of the land use, and most importantly detect the exact point in time of land use change (see example in Figure 1). For producers, the use of GRAS is a secure and credible way to prepare for sustainability certification and to verify implementation of deforestation commitments.

Auditors can use it for risk analysis prior to certification.

The major growth area for sugarcane lies within smallholders who depend on selling their agricultural products for their livelihoods but often face problems of low yields, little income and lack of market access. Sometimes the only option smallholders see to increase their income is to expand into forested areas. Certification can provide an option to increase productivity and thus increase income, raise attention to potential customers and ease selling products, taking away the need to further expand into forested areas. ISCC has developed a smallholder certification process addressing these issues. Apart from certification it is important to increase transparency to identify potential starting points for improvement in order to develop a region. Certifying plantations that are located in critical areas by means of compensation for deforestation activities does not solve the problem of deforestation and does not provide the right incentives.

To improve the audit and certification process, ISCC has developed an electronic tool, called Audit Procedure System (APS), increasing the efficiency of the audit process and decreasing the costs of certification. This tool assists auditors in conducting audits and makes the documentation process easier as it displays only applicable criteria. APS also generates automatically summary audit reports which are published on the ISCC website, contributing to increased transparency.

ISCC works continuously on improving the integrity and credibility of certification. Through its unique Integrity Programme, compliance of certification bodies and certified companies with ISCC requirements is monitored. The programme helps to increase the quality of certification. Three independent ISCC auditors conduct integrity audits. In 2017, 66 integrity assessments in Europe, Asia and North America were conducted. Furthermore, continuous multi-stakeholder dialogues around the globe support the practical implementation, verification and adequate increase of sustainability requirements. For example, a working group on social issues has been set up and continuous dialogue with companies, NGOs, research organisations, certification bodies and authorities takes place in order to discuss how to address pressing issues in the best possible way.

**Certification examples for ethanol and sugar**

More and more sugarcane producing and processing companies are getting certified under ISCC. They appreciate the opportunity to provide their ISCC product to all markets such as the bioenergy, food, feed and chemical markets with just one certification scheme. Since 2010, more than 200 ISCC certificates have been issued for sugar producing, processing and trading companies in the sector. Companies such as Pantaleon in Guatemala and Ingenio Sucroalcohlero Aguai in Bolivia have certified their sugar mills and ethanol plants under ISCC, as it enables them to not only supply their certified sustainable ethanol to the biofuels market but also their certified sustainable sugar under ISCC PLUS, meeting the sustainability requirements of major food producing companies.

Pantaleon for example, has made commitments to social sustainability for both employees and local communities, as well as to environmental sustainability. As sugarcane is a thirsty crop, they are especially putting efforts into the reduction of water usage. Claudia Asensio, head of Sustainability for Pantaleon, says: “Our team and natural resources are both at the heart of our business. We find the ISCC sustainability principles to be robust, therefore ISCC certification is one of the vehicles to show our high standards to our customers and stakeholders”.

Ingenio Sucroalcohlero Aguai was facing major ecological and social sustainability issues, which they addressed and worked against through the adoption of respective policies. Those are embedded throughout their decisions, processes and business partners, and reflect the shareholders vision and desire of building a sustainable company from the ground up. Cristóbal Roda Vacca, CEO of Aguai, points out: “The efforts made by Aguai have been backed by norms like ISCC, because they support the work we do, and encourage us to continue to pursue the well-being of all our stakeholders. With ISCC we have set ourselves apart as an example to our community as the leaders in environmental and human protection”.

In economic terms, ISCC EU has opened the doors for mills like Aguai and Pantaleon, allowing them to export most of the ethanol produced. Thanks to ISCC PLUS, their second product (sugar) is also more attractive to larger corporations who value and only accept products that derive from a certified sustainable production. Through the ISCC logo on their product, the companies differentiate their products in the local market leading to improved sales opportunities (see Figure 2).

**References:**


**For more information:**

This article was written by Myriel Camp, ISCC systems manager and Dr. Jan Henke, director of Meo Carbon Solutions.

Visit: www.iscc-system.org/