EMPOWERING COFFEE COOPERATIVES WITH DIGITAL DATA MANAGEMENT

A case study on carbon insetting and traceability using the Beyco platform in Colombia

beyco

Powered by Progreso

Solidaridad

INTRODUCTION

The importance of data within coffee and cocoa supply chains has grown significantly in recent years. Farmer-generated data is becoming increasingly important for informed decision-making, ensuring traceability, facilitating certification, measuring impact, and compliance with regulations. While digital tools facilitate data collection, they are often controlled by external actors—buyers, certifiers, or financiers—leaving farmers without true ownership or control over their own data, thereby creating dependency.

To address this imbalance, Solidaridad and Progreso Foundation have partnered to give farmers control over their own data through the Beyco farmer platform. In a pilot project in Colombia within the Climate Heroes programme of Solidaridad, seven coffee cooperatives adopted climate-smart agroforestry practices and used Beyco to digitize data collection, improve traceability, and link sustainability-linked data to carbon insetting. This case study presents the outcomes of this pilot.

TOOLS

- Beyco Farmer platform (app and dashboard)
- Beyco Traceability Platform

PARTNERS

- Funder: Dutch Postcode Lottery
- Lead implementation partner: Progreso Foundation
- Programme lead: Solidaridad
- Coffee Cooperatives: Global Cafes, Asprotimana, Asprodig, Identidad Cafetera, Asopep, Asproccan and Asodesarrollo

BACKGROUND: WHY DATA OWNERSHIP IS IMPORTANT

WHY DATA OWNERSHIP MATTERS — FOR FARMERS

When cooperatives and producers manage and own their data, they gain more than just visibility. Data ownership empowers them to make informed decisions, comply with emerging regulations, and unlock new forms of income.

Digital tools and data analysis can enable informed decision-making to increase organizational performance of producer organisations and improve farm productivity, resilience to climate change, and market access. However, without clear ownership structures, farmers risk losing control over how their data is collected, used, or monetized—often reinforcing power imbalances in supply chains. Ownership ensures that data remains a strategic asset for cooperatives, not only supporting internal decision-making but also enabling additional sources of income through access to carbon markets along the coffee value chain.

Through the Beyco Farmer Platform, producers can collect, visualize, and export their data. Through the Beyco Traceability Platform, they can transfer the data to their buyers supported by blockchain technology, including geolocation and sustainability data, to enhance product value.

Crucially, data ownership enables cooperatives to create new revenue streams, for example, by linking farmers' agroforestry efforts with carbon platforms that issue Carbon Removal Units (CRUs) based on measured biomass growth. As farmers become more involved in sustainability initiatives, the ability to track and prove their contributions can increase their leverage and income—ensuring they are recognized not just as producers, but as active climate actors.

WHY DATA OWNERSHIP MATTERS — FOR COMPANIES

While empowering farmers, producer-level data ownership also brings clear advantages to companies engaged in climate action and sustainable sourcing. Grounding insetting strategies in verified, farmer-owned data ensures greater transparency and credibility—especially important as reporting requirements tighten and stakeholders demand proof of impact.

Through the Beyco traceability platform, companies gain access to reliable, traceable data directly from the farm, simplifying Scope 3 reporting and building trust across the supply chain. For EUDR compliance, the platform enables the collection of georeferenced plot data, streamlining verification processes for traders and importers. This reduces friction and lowers the cost of compliance.

One key challenge in linking CRUs to coffee volumes lies in tracing their origin. Without clear data pathways, companies struggle to validate where carbon benefits were generated. With this pilot we aimed to establish an insetting case through the traceability tool within the Beyco platform, proving that insetting activities are taking place in the supply chain. This case study highlights the importance of early alignment on data transparency and traceability, ensuring that companies can not only claim impact, but also trace it back to specific producers.

BEYCO TOOLS EXPLAINED

In this pilot we implemented:

1. BEYCO FARMER PLATFORM

Target users: Producer organisations
Purpose: Direct data collection at the farm level (app) and data management (dashboard)

The Beyco Farmer App is a mobile application designed to collect data directly in the field, even offline. It is mainly used by field staff or cooperative technicians to capture:

- Farmer profiles
- Farms and plot locations (GPS points or polygons)
- Deliveries of coffee or cocoa products from farmers to producer organizations (POs)
- Registration of payments made to farmers
- Internal farmer loans and repayment tracking
- Additional information via customizable forms (e.g. certification or carbon-related data)

2. BEYCO TRACEABILITY PLATFORM

Target users: Cooperative managers, traders, exporters, NGOs
Purpose: Data analysis, traceability, transaction and reporting management

The Beyco Traceability Platform is a web-based platform for contracting coffee and cocoa, transferring data, and accessing trade finance, supported through blockchain technology. Through the platform, product and financial traceability can be established through blockchain technology, as well as the traceability of carbon insetting data to plot level. As a non-profit platform, Beyco offers a cost-effective solution compared to commercial alternatives.

HOW IT WORKS: TRACKING DATA FROM PRODUCER TO BUYER

MILESTONES

- 350 coffee producers being trained
- 4,290.5 kg CO2 Eq / kg cps measured and traceable
- 1,677,208.2 kg cps of coffee produced and traceable

PROJECT SETUP

PHASE 1: CONNECTING THE BEYCO FARMER PLATFORM

The ‘questionnaires’ functionality was developed in the Beyco Farmer Platform. This functionality allows cooperatives to design custom forms and collect customized farmer data. By creating questionnaires for the collection of data based on the Cool Farm Tool methodology and Acorn platform, cooperatives are enabled to collect tailored information and connect the data to the right external platform through a CSV connection. Also, an API connection between the Beyco Farmer App and the Beyco Traceability Platform was developed to enable full traceability of coffee and carbon data up to plot level.

PHASE 2: DATA COLLECTION

The seven coffee cooperatives collected data at three levels—producer, farm, and coffee production—using the Beyco Farmer App. At the producer level they collected data like household and family information, as well as social and economic data including sources of income and production costs, at the farm level like farm location and size, crop types, production systems, and certifications, and at the plot level like plot polygons, size, age of the plantation, coffee variety, and post-harvest treatment methods.

PHASE 3: CALCULATING THE CARBON FOOTPRINT

A customized form was integrated into the Beyco Farmer App to collect key data for calculating the carbon footprint of coffee farms, based on the Cool Farm Tool (CFT) methodology. This collected information included data like farm size and tree density, yields per hectare, fertilizer use, waste and water management and pesticide application. The collected information was used to calculate greenhouse gas emissions (kg CO_2eq) per activity across the farm, providing a clear picture of each producer’s carbon footprint.

PHASE 4: MARKETING VIA BEYCO’S TRACEABILITY PLATFORM

The seven participating organizations were trained to use the Beyco Traceability Platform. Each created a supplier profile and uploaded key company information, including company details, documents like certifications and export licenses, supply chain links, and coffee offers with detailed info on volume, quality, pricing, and shipment terms. This enabled the cooperatives to actively promote their coffee from the current harvest to potential buyers.

KEY LEARNINGS & IMPACT

1. DATA OWNERSHIP IS KEY

The pilot showed that digital sovereignty begins with access and control: cooperatives received their own Beyco accounts and became active users of the platform. Having full control over producer data—from farm-level collection to traceability and carbon reporting—allowed them to create offers and connect with buyers independently and create value from data. From a buyer perspective, the intrinsic motivation for data accuracy ensures high quality data.

2. TRAINING ENSURES MOTIVATION & ACCURACY

A total of 28 staff members from seven cooperatives were trained on the Beyco tools and onboarded 350 coffee producers. This capacity-building effort proved essential to maintain data quality, encourage participation, and support value creation through data, even after the end of the project. Training enabled cooperatives to integrate data into internal decision-making, and to understand how to use it for market access, compliance, and income generation.

3. CARBON DATA WORKFLOWS MUST BE SIMPLIFIED

Using the Cool Farm Tool (CFT) as a valuable framework, Progreso identified key areas where simplifying workflows could significantly benefit field teams and farmers. By creating a streamlined, standardized data collection process and developing bulk upload mechanisms, they were able to enhance the technical capacity of cooperatives and make carbon data collection more accessible and efficient for everyone involved.

4. TRACEABILITY SUPPORTS SCOPE 3 GOALS

Gaining access to the Beyco Traceability Platform allowed cooperatives to manage producer data digitally. Once onboarded, they were able to create offers, register deliveries, and connect with supply chain actors in real time. This consistent, verifiable flow of data is essential for companies aiming to meet Scope 3 reporting requirements, deliver on transparency commitments and tracing their coffee back to the producers.

5. TECH-SAVVY YOUTH ARE CRITICAL ACTORS

Field teams found that younger or digitally fluent staff were instrumental in ensuring the success of the data collection process. Their familiarity with tablets, apps, and mobile workflows contributed to both data accuracy and operational efficiency. Investing in local digital talent within cooperatives can accelerate digital adoption and long-term data sovereignty.

6. COMMITMENT IS KEY FOR CORPORATE PARTNERS

The success of such initiatives relies on the active commitment of companies. To ensure a clear and shared value, it's crucial that companies don't just "buy off" their carbon emissions but invest in their value chain by supporting farmers in their transition. This involves not only setting clear Scope 3 goals but also allocating sufficient internal capacity—including time and effort—to match the commitment and investment made by the farmers and cooperatives on the ground.

CONCLUSION

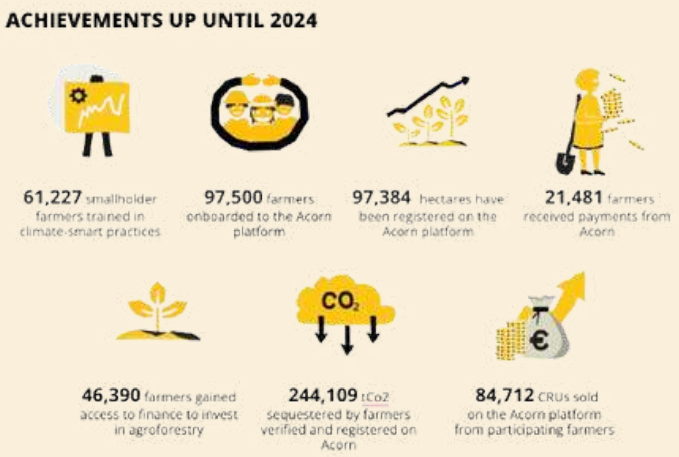
This pilot within the Climate Heroes Programme in Colombia, led by Solidaridad and Progreso Foundation, shows how data sovereignty, traceability, and carbon insetting can empower smallholder coffee cooperatives and transform agricultural value chains. By using the Beyco Farmer and Traceability Platforms, cooperatives were able to collect farm-level data, calculate carbon footprints, and create verified coffee offers—all while maintaining control over their own data.

Importantly, the pilot reveals that data collection alone is insufficient. To unlock real impact, farmers and cooperatives must be trained to integrate data into their management systems, building data literacy and creating tangible value. Our experience shows that when this is done effectively, data ownership at the farmer level leads to an intrinsic motivation for accurate and high-quality data. Strong data enables better decision-making, stronger market positioning, and better incomes.

For companies, verified, farmer-owned data is fundamental to credible insetting strategies. As reporting requirements grow companies need transparent, traceable data to substantiate climate claims. Traceable data from Beyco supports these goals by linking Carbon Removal Units (CRUs) to specific coffee lots, enabling companies to credibly account for reductions within their own supply chains rather than offsetting externally.

ABOUT THE CLIMATE HEROES PROGRAMME

The Climate Heroes programme, implemented by Solidaridad, aims to empower millions of small-scale farmers to remove greenhouse gasses from the atmosphere while substantially increasing their incomes. Solidaridad trains farmers to adopt climate-smart practices and to participate in carbon farming initiatives, such as agroforestry. Through the digital platform Acorn, farmers get paid for this by companies willing to offset their unavoidable emissions. This way combatting the climate crisis goes hand in hand with combatting poverty. The programme takes place across Nicaragua, Colombia, Uganda and Kenya, targeting 100,000 farmers.



FROM CLAIMS TO ACTION: COME PARTNER WITH US!

Ready to move from carbon claims to verifiable impact? Join us in scaling these solutions that benefit both farmers and the planet: Reach out to beyco@progreso.nl.

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