

Case Study: Tracking 6.6 tons of Junar through Blockchain

Key Word(s): Blockchain, Supply chain management, Transparency, Traceability



Image: Junars from Sindhuli with the QR coded label used for the pilot

OVERVIEW

Rumsan, a multi-business frontier technology company developed 'AgriClear' - a blockchain-based food supply chain tracking system. The AgriClear system tracks agricultural products from its production phase till it reaches the end consumers. We partnered with Green Growth (GG), an online business platform that provides business space for authentic and safe produce, for our first pilot of AgriClear. AgriClear and GG in collaboration with Chisapani Junar Producer Cooperative- Sindhuli, PM-AMP Junar Super Zone- Sindhuli, and Baato launched the Sweet Orange (Junar) Tracking Project.

OBJECTIVES

We believe transparency builds trust and AgriClear, a blockchain based supply chain tracking system is building trust for consumers with local agro products. Why do we do what we do?

- Create unique identity and brand value of Junar from Sindhuli.
- Assure quality and authenticity of Junar from Sindhuli.
- Bridge the information gap between farmers and consumers.
- Meet the demand of Junar from Sindhuli among urban consumers.
- Prioritize timely sales of the fruits in order to overcome post harvest storage loss.

Case Study: Tracking 6.6 tons of Junar through Blockchain

BACKGROUND

Junar (Sweet oranges, *Citrus sinensis*) is an important cash generating fruit crop in Sindhuli district of Nepal. Sweet oranges from Sindhuli have a good market potential because of their popularity and increased demand in the Nepalese market. However, there have been some claims from local farmers that vast quantities of the fruits are imported from the neighboring countries or other districts of the country and are falsely sold as Sweet oranges of Sindhuli. This deprives the genuine farmers of Sindhuli of their rightful benefits. Additionally, the prolonged storage period of Junar deteriorates the quality of the fruit that makes it less appealing for the consumers to buy and subsequently adds wastage contributing to an additional loss for the farmers.

Urban consumers' demand for safe and local products is highly increasing in Nepal but they only have to depend on random claims of traders for quality assurance. Farmers can opt for organic certification or GAP certification for their brand credibility but not all specifically smallholder farmers can understand the process or afford them. Lack of data for authenticity and quality assurance and farmers not getting a fair price because of not having a competitive advantage over cheaper imports are the major issues addressed by the pilot project.



"The use of the AgriClear System and QR code helped Junar farmers to develop their market in Kathmandu."

- Yogendra B. Thapa,
Cooperative Head

"Cooperatives blame MoALD for wastage of agro products"

<https://thehimalayantimes.com/business/cooperatives-blame-moald-for-wastage-of-agro-products>. Accessed 16 Mar. 2021.

"Opportunity and Challenge of Organic Certification ... - ResearchGate." 20 Nov. 2020,

https://www.researchgate.net/publication/237300106_Opportunity_and_Challenge_of_Organic_Certification_System_in_Nepal. Accessed 16 Mar. 2021.

Case Study: Tracking 6.6 tons of Junar through Blockchain

PROJECT ACTION

Analyze and Plan

AgriClear system tracks good agricultural habits using distributed ledger technology (DLT). In this pilot project, we worked with six farmers from Sindhuli, PMAMP Junar Superzone Sindhuli office and Green growth. We also hired a field staff to ensure accuracy of the data recorded by farmers.

Design and Development

A total of six farmers were trained and facilitated to record harvesting information in the system which included the plucking date of Junar. The fruits were then aggregated and sorted at the cooperative where the cooperative admin was trained to record processing information such as whether or not Junars were sorted including the date of sorting. Junar was then transported to the distributor (warehouse of Green Growth) where they recorded receipt information. Green Growth packaged the fruits with the QR code labels generated by the Agriclear System that had all the information and was then delivered to the consumers who ordered these tracked Junar from Sindhuli.

Deployment and Implementation

In the first pilot project of Agriclear, we tracked the information of Junar supply chain from its harvesting phase to its delivery to the consumers. We tracked 6600 kgs of Junar in total from 6 different farms at Sindhuli. Consumers could scan the QR code that came attached with the product and get access to the overall history of Junar after it was harvested. So, when consumers scanned the QR code, they could view information like plucked date, farmer involved in the production, distributor name, packaged date, food mile etc which had been recorded in the Agriclear system.

Monitoring and Evaluation

Through AgriClear system, we aimed to communicate the origin and authenticity of Junar from Sindhuli to its consumers.



"I am grateful to AgriClear and Green Growth team for providing us with an opportunity to experience agricultural technology that helped us learn more about the market economy."

- Kamala Thapa, Farmer

Case Study: Tracking 6.6 tons of Junar through Blockchain

THE SOLUTION

AgriClear uses data and facts from production of Junar to its supply and helps create trust among all the stakeholders in the supply chain. Farmers can get a fair price for their agricultural products while consumers get value for what they pay for and agro traders can build up a loyal consumer base with their brand value and credibility. With geographical information such as location and altitude Junar production, along with demographic information of Junar farmers, AgriClear will be able to help provide a data backed identity to Sweet orange as “Sindhuli ko Junar”. In addition, it creates accountability for all the stakeholders involved in the supply chain as now we can track back the fruit’s journey to its orchard which in turn encourages farmers to follow safe and good agricultural practices. AgriClear can also generate adequate data which can enable related stakeholders to make data-ir



This fruit is tracked using **AgriClear**,
a **blockchain** based supply chain system.
Scan for details or go to link: <https://agriclear.io/>

Supported By



Chisapani Junar Producer
Agri. Cooperative Sindhuli



Powered By



Image: QR code label for Junar Tracking System



“AgriClear helped us to track our farm details and sales which has helped us to be transparent and traceable.”

-Bhim Bd. Thapa, Farmer

RESOURCE

Watch the process of Junar tracking.

<https://www.youtube.com/watch?v=Ql8X6CSPlzE>

Case Study: Tracking 6.6 tons of Junar through Blockchain

RESULTS

The total area for Junar production in Sindhuli was found to be 300 ropani. The use of the AgriClear system to track Junar from Sindhuli helped Junar farmers to increase their sales up to 40% compared to last year. The quantity of Junar imported from Sindhuli to Kathmandu was 15 ton more than the last year. Green Growth alone sold 4.5 tons of tracked Junar which is about four-fold higher. The number of end-consumers who bought these tracked Junars increased by 10% from last year.

Features of AgriClear, transparency, and traceability helped farmers to further popularize “Sindhuli ko Junar” with at least 30 media mentions and many posts and shares on social networking sites. With the help of Green Growth and AgriClear, the farmers of Chisapani Junar producer Cooperative could directly connect to consumers. 1000+ scans of the QR code were recorded during the period of the pilot.

AgriClear made the supply chain of Junar traceable and transparent. It assured the quality and authenticity of Junar including all the information from the farm to the finger. The use of QR labels and Blockchain technology in the supply chain of Junar also helped in gaining massive support from end-consumers.



“Online marketing and the AgriClear System have helped us Junar farmers in our sales as well as tourism as people are now attracted towards our farm too.”

- Mithu K. Thapa, Farmer



Case Study: Tracking 6.6 tons of Junar through Blockchain

CHALLENGES

- Poor internet connection around farmer's location in Sindhuli.
- Many farmers didn't have access to smartphones.
- Literacy percentage was significantly less so training farmers to record the data was challenging and time consuming.
- Due to the covid-29 outbreak, AgriClear representative couldn't be present in the field and had to work remotely.
- Covid wave and nation wide lockdown added some challenges while marketing of the product.
- Limited interaction of AgriClear with farmers, government representatives, and distributors.

RESOURCE

Learn more about AgriClear and how it works.

<https://agriclear.io>

Way Forward - RECOMMENDATIONS

- The pilot helped us confirm the readiness and need of Nepalese market for transparency in the agro-supply chain, specifically in high value products like fruits, however the local market size of these products is still smaller compared to other countries.
- We plan to run an extended pilot in 2021 with Sweet Orange and track the overall information starting from the production phase like application of fertilizer, training pruning practices etc with AgriClear.
- With our learning from the first pilot, we will focus more on making the overall data capture process simpler for all the users, give special attention for consumer awareness on the importance of transparency and include a larger pool of farmers for tracking.