TNS Labs Concept Doc -
Application for Cashew Field Quality Data

Summary

Benin is expected to more than double cashew production over the next 5-7 years, yet measurement of cashew quality, a key determinant of price, is complex and inconsistent. To address the lack of consistency in measuring and recording cashew quality, a simple, standard mechanism is needed to capture and report quality data from farm-gate to buyers. The proposed solution is an android app to facilitate correct calculation of cashew quality and to include instructions on proper sampling and evaluation techniques. Quality results, including the calculations, can then be shared with the buyer via email from the App.

Implementation Focus

- Region - Benin / West Africa
- Program - Cashew
- Technology - Android application integrated with cloud database for storing quality and production data that is geo-tagged and time-stamped

Business Problem

There are currently 100,000 cashew farmers in Benin and approximately 1M cashew farmers in West Africa, producing 43% of global raw cashew nut (RCN) output. The government of Benin needs to significantly increase the number of trainers for its cashew program in order to meet its objective of increasing RCN production from 120,000 MT to 300,000 MT by 2026.

As the cashew supply increases, quality will increasingly determine the marketability and price of cashew at the farm and cooperative/local aggregator level. However, farmgate buyers have a poor understanding of the key quality metrics, lack tools to estimate them correctly, and in turn are therefore unable to demonstrate to farmers why they should be paid more or less for a particular stock, and why the farmer should invest in best practices like drying.

To address the lack of consistency in measuring and recording cashew quality, a simple, standard mechanism is needed to capture and report quality data from farm-gate to buyers.

Process and Technology Changes

The proposed solution is an android app to facilitate correct calculation of cashew quality and to include instructions on proper sampling and evaluation techniques. Quality results, including the calculations, can then be shared with the buyer via email from the App.

Time-stamped and geo-tagged photos will increase confidence and transparency between buyers and field techs. Users will be able to follow a step-by-step guide to make their testing easier and can share the results with farmers and cooperatives. Cooperatives themselves can use this tool to ensure they are managing quality well, and share their progress with financing providers and buyers.

Examples of the data captured in the app will include:

- Location
- Tech name
- Time-stamped, geo-tagged photos of the cashew being sold
- Estimated qty in MT, supported by the pictures (LxWxH of stacked RCN bags)

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- Quality data
    - Moisture level - measured using special device
    - Nut count - units per 1kg
    - KOR - kernel outturn ratio; amount of useful kernel that you can get from one sample
        - The more kernel you get from one nut, the better the quality
        - eg. 1kilo RCN > 1lb
        - Some is 100% OK, some is 50% OK
        - KOR requires a calculation that would be perfored by the app
    - Defective nut ratio

Proposed Implementation

Initial Pilot

Initial pilot could be designed and prototyped in Benin, using a small subset of TechnoServe business advisors working with a limited number of buyers and buyer reps. As the app is iteratively developed, we would roll it out to other buyers and buyer representatives.

Rollout

Following successful implementation for cashew field trainer support in Benin, we would rollout the solution to other cashew programs to other cashew producing countries in Africa.

As the app is more widely adopted,

- Meta-data from the app can be used to identify trouble spots – areas where quality is unusually low or where outliers indicate additional training needed to correctly assess quality, and to track the movement of cashew from farm to port, and to link end-buyer quality requirements with farmer practices that affect quality.
- Additional services could be added to the app, such as a marketplace for cashew sales or a platform for financing (ref coffee wet mills) to farmer cooperatives.

Potential Self-sustaining Business Model

Because of the value of the data that will be created from this app, a sustaining business model could be created by charging for access to the data, while providing use of the application for free.

Investment Required

A small design and development team in WA will be required, plus engineering management support from TechoServe Labs and other sources. Total investment will depend on the level of volunteer and partner engagement.