AGRICON PRODUCT REQUIREMENT DOCUMENT

PRODUCT OVERVIEW:

AgriCon is a mobile-first and USSD-accessible platform that connects small and medium-scale farmers to shared agricultural infrastructure such as dryers, cold rooms, and processing units. By leveraging **AI, IoT, and offline-first technology**, AgriCon enables farmers to reduce post-harvest losses, book services cooperatively, and access real-time information on facility availability and market pricing. The platform also provides logistics coordination, helping farmers move produce efficiently and profitably.

PROBLEM STATEMENT:

Nigerian farmers, especially rural smallholders, face severe post-harvest losses due to limited access to affordable processing infrastructure like dryers, cold rooms, and packaging facilities. Combined with poor connectivity and weak logistics, this leads to wasted crops, suppressed income, and deepening rural poverty despite growing demand for processed agricultural goods.

SOLUTION:

AgriCon is a mobile and USSD-based platform that connects farmers to shared infrastructure using IoT and AI-powered market insights, helping them reduce losses, boost productivity, and increase earnings.

It uses AI-driven market analytics and price forecasting , leveraging data from web sources to guide farmers on optimal processing times and market prices for value-added products.

VISION STATEMENT:

Empowering every farmer in Africa to preserve, process, and profit from their harvest, no matter where they live or what tools they have.

MISSION STATEMENT:

To unlock rural agricultural potential by providing smallholder farmers with affordable, real-time access to shared infrastructure and market intelligence using simple, accessible technology built for low-connectivity environments.

PRODUCT GOAL:

To reduce post-harvest losses and increase income for Nigerian farmers by democratizing access to agricultural processing infrastructure through a smart, inclusive, and scalable platform.

TARGET MARKET

Primary Users:

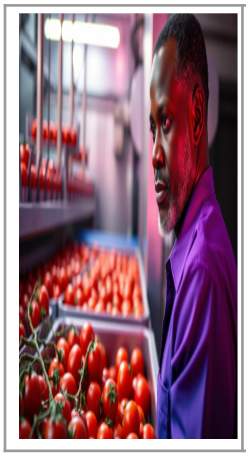
- Smallholder farmers (e.g., yam, cassava, and tomato growers) in rural and semi-urban Nigeria.

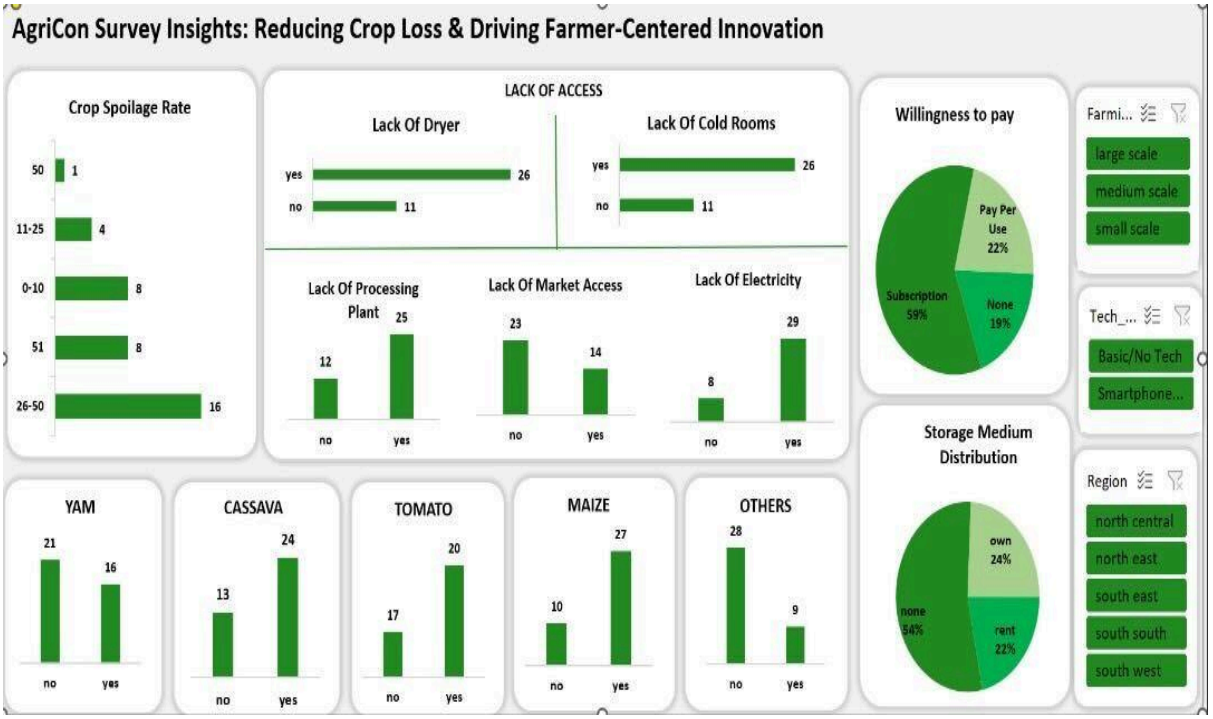
Secondary Users:

- Agribusinesses and logistics providers.
- Infrastructure owners (e.g., cold room operators, dryer providers).

AgriCon User Persona

Persona	Name	Role	Location	Pain points	Goals	Challenges
	Amina Yusuf	Smallholder Yam Farmer	Kano (North)	Faces up to 40% post-harvest losses due to lack of cold storage. Income is seasonal and unpredictable.	Access affordable drying/storage to reduce losses; sell surplus at competitive prices to stabilize and increase income.	Poor internet connectivity; limited tech literacy; needs simple, reliable solutions.
	Bako Adeyemi	Infrastructure Owner (Cold no Room)	Lagos (South)	Owns a solar-powered cold room facility with underutilizatio n issues due to inconsistent demand.	Maximize facility utilization; attract steady stream of farmer clients for consistent revenue.	High maintenance costs; difficulty tracking/forecasting demand.
	Ngozi Mbekwe	Cooperative Farmer Group Leader	Enugu	Leads a 20-member cooperative. Struggles with streamlining group bookings, leading to inefficiencies and missed opportunities.	Simplify group bookings; access real-time market prices to help members make informed decisions.	Fragmented communication; lack of trust in digital tools among members.

	Chidi Okafor	Tomato Processing Plant Operator	Not specified	Runs a commercial tomato processing plant. Faces supply chain disruptions and spoilage due to inconsistent raw material supply.	Secure consistent bulk tomato supply; reduce spoilage to maintain quality and profitability.	Unreliable power supply; inefficient supply chain coordination.



[Link To The User Research Survey]

MARKET RESEARCH

Overview of Nigerian Agriculture

Agriculture employs over 35% of Nigeria's workforce and benefits from rich agro-ecological zones, but productivity remains low due to poor infrastructure (including storage, processing, and irrigation), weak logistics and market access, and limited access to finance and digital tools.

Agritech Trends (2022–2025)

- **Digital Finance** (ThriveAgric, Farmcrowdy): Crowdfunded agri-projects.
- **Smart Equipment** (Hello Tractor): IoT for mechanization on-demand.
- **Market Platforms** (AFEX, Vendease): Direct market access for farmers.
- **Blockchain**: Food traceability and quality assurance.

- **Mobile Money Boom**: 60M+ users; digital agri-payments rising fast.
- **IoT Adoption**: Soil, water, cold chain sensors gaining traction.
- **Big Investments**: Releaf ($4.2M raised); Nigeria building SSA's largest food logistics hub.

Key Market Gaps

1. **Disconnected Smallholders**: No real-time info, pricing, or market access.
2. **Weak Processed Goods Pipeline**: Power and cold chain gaps limit scale.
3. **Storage Losses**: >50% of perishables spoil post-harvest.
4. **Finance Barriers**: 95% of farms lack land titles → no credit or insurance.

Click here to read more about the market research

COMPETITIVE ANALYSIS

Our analysis incorporates the key findings that the majority of the target market consists of small and medium-scale farmers, a significant portion of whom are concentrated in the South West region and currently lack access to necessary post-harvest services. Technology access is characterized by high smartphone penetration but also a preference for simpler USSD technology. Key crops of interest are Maize, Cassava, and Tomatoes, and critical infrastructure challenges include electricity, cold rooms, dryers, and processing facilities. Farmers prioritize real-time availability, group bookings, USSD access, and transport coordination in a potential platform.

Infrastructure Access

AgriCon: Plans to connect small and medium-scale farmers to shared cold rooms (and other infrastructure) via a mobile-first platform with robust USSD functionality. The cooperative booking model directly addresses the limited resources of these farmers, enabling access they might not afford individually. The focus on real-time availability aligns with a key desired feature.

Nutridren Cold Store: Likely caters to larger-scale storage needs due to the nature of walk-in cold rooms. This might present a barrier for smallholder farmers with smaller volumes and the need for more flexible, short-term storage options. The physical location-dependent access might also be less convenient for farmers, especially those in the South West region who constitute a significant portion of the target market but may not be located near Nutridren's facilities.

Ecotutu: Solar-powered modular cold rooms offer a potential advantage in areas with unreliable electricity, a significant infrastructure challenge identified in the survey. The modularity could allow for deployment closer to farming clusters, potentially improving accessibility for small and medium-scale farmers in the South West and other regions. However, the pricing model associated with the initial investment in solar technology needs to be carefully considered to ensure affordability for this segment.

ColdHubs: Their decentralized model of placing solar-powered cold rooms directly at farm clusters and markets strongly aligns with the needs of small and medium-scale farmers by reducing transportation burdens and providing localized access. This approach directly addresses the infrastructure challenges and lack of access to services highlighted in the survey. Their focus on solar power also tackles the electricity issue.

SWOT ANALYSIS

Feature	Nutridren Cold Store	Ecotutu	ColdHubs
Strengths	Established presence, likely reliable for larger-scale storage.	Solar-powered (addresses electricity issues), modular design allows for potential decentralized deployment.	Decentralized model at farm clusters/markets (high accessibility for target farmers), solar-powered, strong focus on reducing post-harvest losses for smallholders, aligns with the need for localized services identified in the lack of access insight.
Weaknesses	Potentially less accessible and affordable for small and medium-scale farmers due to location dependency and rental models geared towards larger volumes. Doesn't directly address the preference for mobile and USSD access for information and booking.	Initial solar technology costs might impact affordability for resource-constrained farmers. Decentralized deployment might not be universally available across the South West or other key regions. The lack of a platform for real-time availability and group booking might be a disadvantage based on farmer preferences.	Primarily focused on cold storage, not offering the broader range of infrastructure (drying, processing) that AgriCon aims to integrate. While localized, their reach might still be limited to specific farm clusters. The survey highlights the need for transport coordination, which isn't a core offering.

Opportunities	Could explore partnerships with cooperatives or develop shared access models specifically for smallholders. Integrating a basic mobile/USSD interface for inquiries and bookings could improve accessibility.	Could partner with agricultural platforms (like AgriCon) to offer their cold storage solutions as part of a broader service. Developing more flexible pricing models for smaller volumes and shorter durations could attract more small and medium-scale farmers.	Could expand service offerings to include basic aggregation or transport coordination from the Hubs to markets, addressing another key farmer need. Partnerships with financial institutions could facilitate access for farmers to utilize their services.
Threats	AgriCon's direct focus on shared access, affordability through cooperative booking, and mobile/USSD accessibility directly addresses the identified needs and preferences of the target farmer segment. AgriCon's broader infrastructure scope and integrated market analytics could be more appealing.	AgriCon's integrated platform offering a wider range of infrastructure and services, accessible via mobile and USSD, might be a more comprehensive and attractive solution for small and medium-scale farmers, especially in the concentrated South West region. Affordability through AgriCon's cooperative model could also be a key differentiator.	AgriCon's platform integrating cold storage with other crucial infrastructure and addressing transport coordination could provide a more holistic solution, potentially reducing the reliance solely on localized cold storage. The AI-driven market analytics also offer a unique value proposition beyond basic storage.

Pricing Models

AgriCon: The cooperative booking system directly addresses the limited resources of small and medium-scale farmers, enabling access to cold storage at a potentially lower individual cost. This aligns with the need for pricing models tailored to their financial constraints.

Nutridren Cold Store: Their likely rental model might be less suitable for the fluctuating needs and smaller volumes of smallholder farmers. Upfront costs or long-term commitments might be a barrier given their limited capital.

Ecotutu: While the solar aspect could lead to lower operational costs, the rental fees need to be structured to be affordable for small and medium-scale farmers, potentially through flexible, short-term options.

ColdHubs: The pay-as-you-store model at farm clusters and markets seems well-suited to the cash flow and storage needs of smallholder farmers, offering flexibility for varying harvest sizes and durations.

Gaps in Pricing Models (Considering Farmer Insights):

- **Lack of Flexible, Short-Term Options:** Traditional rental models might not cater to the intermittent storage needs of smallholder farmers.

- **High Upfront Costs:** Any model requiring significant upfront payment or long-term commitment could exclude a large portion of the target market.

- **Lack of Cooperative or Shared Cost Mechanisms:** Models that don't facilitate cost-sharing might be unaffordable for individual small-scale farmers.

AgriCon's Competitive Advantage

Based on the analysis, AgriCon possesses several key competitive advantages over existing and potential competitors:

1. **Directly Addresses Small and Medium-Scale Farmer Needs:** AgriCon's core design principles—shared access, cooperative booking, and mobile/USSD technology—are explicitly tailored to the resource constraints, technology preferences, and accessibility challenges faced by the majority of Nigerian farmers, as highlighted by the survey data.

2. **Leverages Preferred Technology:** The dual approach of a mobile app and a robust USSD interface caters to the varying levels of technology adoption and digital literacy within the target market. This inclusive approach provides a significant advantage over competitors who might rely solely on physical access or smartphone-only applications.

3. **Comprehensive Infrastructure Solution:** By aiming to integrate cold rooms with other essential post-harvest infrastructure like dryers and processing facilities, AgriCon offers a more holistic solution to the significant issue of post-harvest losses. This broader scope addresses a wider range of farmer needs compared to competitors focused on a single type of infrastructure.

4. **Incorporates Desired Features:** The planned inclusion of real-time availability and group bookings directly aligns with the features most valued by farmers in the survey. Furthermore, AgriCon's potential to integrate transport coordination and a service marketplace directly responds to the identified needs for logistics support and trusted service providers.

5. **Potential for Enhanced Value through AI:** The integration of AI-driven market analytics and price forecasting offers a unique value proposition beyond basic infrastructure access. This feature can empower farmers with data-driven insights to

optimize their post-harvest decisions, potentially increasing their profitability.

6. **Scalability through a Platform Model:** AgriCon's platform-based approach allows for the potential to onboard a wide network of infrastructure providers and service providers, creating a scalable ecosystem that can adapt to the evolving needs of farmers across different regions.

MVP FEATURES FOR AGRICON

User Management

- **User Registration:** For farmers and infrastructure owners.
- **Login:** Secure access for registered users.
- **Sign-up:** Streamlined process for new users.
- **Set/Reset Password:** Standard security features.

Account Management:

- **User Profile Setup:** Basic information (name, phone number, location/farm address).
- **Infrastructure Provider Profile (for owners):** Details about their available dryers, cold rooms, or processing plants (type, capacity, location, operating hours).

Infrastructure Discovery & Booking

- **Infrastructure Search/Filtering:** Farmers can search for available dryers, cold rooms, or processing plants by type, location, and possibly availability.
- **Infrastructure Information:** Details about each facility (capacity, pricing per usage, contact information).
- **Availability Display (Basic):** A way for infrastructure owners to update their facility's availability, and for farmers to view it (e.g., "available," "booked," "maintenance").
- **Booking Creation:** Farmers can request a specific slot and duration for a chosen infrastructure.

Booking Management:

- **View My Bookings:** Farmers can see their upcoming and past bookings.
- **Booking Confirmation/Notification:** Alerts for both farmers and infrastructure owners about successful bookings.
- **Cooperative Booking (Optional but highly valuable):** A simple mechanism for multiple farmers to indicate interest in sharing a booking slot for a resource to optimize costs.

Communication & Transactions

- **Basic In-App/USSD Messaging (or contact info sharing):** A way for farmers and infrastructure owners to communicate regarding bookings.
- **Payment Integration (Basic):** A secure method for farmers to pay for their bookings (e.g., mobile money, bank transfer details).

Accessibility (Critical for MVP)

- **USSD Interface:** For core functionalities like searching, viewing availability, and initiating bookings. This is non-negotiable for rural inclusivity.
- **Mobile Application (Android):** For users with smartphones to access the platform.

MOSCOW METHOD FOR MVP PRIORITISATION

Priority	Description	Features
Must Have	Essentials for platform functionality	• User Registration & Login (Farmer & Infrastructure Owner) • USSD Interface for critical functionalities • Infrastructure Search & Availability Display • Profile Setup • Booking System • Basic Messaging / Contact Info Sharing • Payment Integration • Android App
Should Have	Features adding significant value	• Cooperative Booking Functionality • Advanced AI Market Analytics • Booking Notifications • AI-Powered Crop Disease Detection • Solar-Powered IoT Integration
Could Have	Desirable features	• Loyalty Rewards • In-App Credit System • Export Market Linkages
Won't Have	Features out of scope	• Drone-Based Logistics Coordination • Blockchain-Based Contracts

EPICS, USER STORIES & ACCEPTANCE CRITERIA

Epics	Features	User Stories	Acceptance Criteria
Account Registration	User Registration	As a new farmer or infrastructure owner, I want to sign up using my phone number and password so that I can access the platform.	Users must be able to register using a phone number and password. System should validate input and confirm successful registration.
	Login	As a registered user, I want to log in using my phone number and password so that I can access my dashboard.	Login form must validate user credentials and allow access if correct.
	Forgot Password	As a user, I want to reset my password if I forget it so that I can regain access to my account.	Users can request a password reset link via phone/email. OTP must be sent and validated before password reset.
	Logout	As a user, I want to log out securely so that my ko information remains protected.	Logout button logs the user out and redirects to login or homepage.

Account Management	Profile Setup (Farmer)	As a farmer, I want to create and manage my profile including name, phone number, and farm location so that I can use the booking features.	Farmers can input and save name, phone, and location. Changes persist across sessions.
	Profile Setup (Infra Owner)	As an infrastructure owner, I want to register my facility with details like type, capacity, and hours so farmers can discover it.	Owners can add/edit infrastructure type, capacity, location, and operating hours.
Infrastructure Discovery	Search & Filter	As a farmer, I want to search and filter infrastructure by type, location, and availability so that I can find a suitable option.	System allows search by infrastructure type, location, and status. Results are displayed in a list view with filter options.
	View Infrastructur e Info	As a farmer, I want to see full details about infrastructure so I can make informed booking decisions.	Infrastructure profile displays name, type, pricing, capacity, operating hours, and contact info.
	Availability Display	As an owner, I want to update my facility's availability status so that farmers know when it's in use or available.	Owner can set status to "available", "booked", or "maintenance". Status is shown to farmers.
Booking System	Create Booking	As a farmer, I want to request a booking slot with an infrastructure provider so I can use the facility at a specific time.	Booking form accepts infrastructure ID, date, time slot. Submitting sends a request to the provider and shows confirmation to the farmer.
	View Bookings	As a farmer, I want to view all my upcoming and past bookings so I can manage them.	Farmer dashboard shows a list of past and upcoming bookings with date, time, and status.
	Booking Notification	As a user, I want to receive confirmation when my booking is accepted or updated so that I am informed.	Notifications are sent via SMS/email/in-app when booking status changes.
	Cooperative Booking (Optional)	As a group of farmers, we want to co-book a slot to share usage and costs of infrastructure.	System allows multiple users to express interest in a single slot and calculates shared cost (future enhancement).
Communicatio n & Payment	Basic Messaging / Contact Info Sharing	As a farmer, I want to communicate with the infrastructure owner about a booking so that I can clarify or adjust my request.	System supports in-app chat or shows contact info of infrastructure owners to farmer post-booking.
	Payment Integration	As a farmer, I want to securely pay for bookings using mobile money or bank details so I can confirm my booking.	Payment system integrates secure methods and confirms successful transactions.

			Booking status changes to “confirmed” post-payment.
Accessibility	USSD Interface	As a rural farmer without a smartphone, I want to access key features via USSD so that I can search and book infrastructure.	USSD flow allows basic search, view details, and initiate booking. Works on any mobile phone.
	Android App	As a smartphone user, I want to use a mobile app to access all platform features conveniently.	App provides access to full features: registration, profile setup, search, booking, chat, and payments.

REVENUE MODEL – AGRICON

AgriCon will generate revenue through a mix of booking fees, premium subscription , cooperative plans, and strategic partnerships. This model ensures affordability for farmers while supporting platform sustainability and growth.

Transaction-Based Fees (2% to 5%) (Active at launch)

Each time a farmer books access to a shared facility (e.g., dryer or cold room), AgriCon charges a small percentage of the total fee

- Fee range: 2%–5% of booking cost
- Infrastructure owners set base prices (e.g., #2500 per Kg of produce processed)
- Agricon takes a percentage, automatically deducted from the payment

Example calculation:(**₦2,500 per kg):**
At 2% fee = ₦50 per kg goes to Agricon
At 3% = ₦75 per kg goest to Agricon
At 5% = ₦125 per kg goes to Agricon

Example Earnings:

Processed Volume	Total Value (#2,500/kg)	2% Fee	3% Fee	5% Fee
100kg	#250,000	# 5,000	#7,500	#12,500
1,000kg	#2,500,000	#50,000	#75,000	#125,500

Why it works:
The transaction fee model ensure Agricon earns whenever value is delivered — farmers gain access, and owners get paid.it’s scalable with platform growth

Free Platform Access (at launch)

To encourage mass adoption and build trust, Agricon will be completely free for users during the initial rollout

- No subscription plans
- No booking limits
- Free access to both mobile app and USSD interface

Why it works:

This decision reduces entry barriers for smallholder farmers and promotes inclusive growth. It also allows time to gather usage data and understand what features users find most valuable before introducing paid services

Future Premium Tier (later after launch)

Once Agricon has a strong, engaged user base, premium services can be introduced for users with higher needs.

Potential Premium Features:

- Priority booking access
- Early alerts for facility availability
- AI-based market forecasts
- Dedicated support

Pricing will be flexible(#1,000–5,000/month), but only introduced after building strong farmer trust.

Cooperative Plans (planned for later)

Farmer groups (e.g., co-ops or clusters) can subscribe to customized plans with special benefits to enjoy tailored benefits

Suggested plans:

5,000/month (Basic): shared access + cooperative booking + 5 member accounts

15,000/month (Plus): Everything above + Dedicated support + 10 accounts

25,000/month (Pro): All features + predictive AI pricing + Bulk booking discounts + 20 accounts

Why it works:

Smallholder farmers often operate in groups. This model encourages collaboration bookings while giving AgriCon stable, recurring income.

Strategic Partnerships

AgriCon will collaborate with telecoms, logistics firms, and government agencies to expand services and earn partner revenue.

Example: USSD access through all network providers

Many rural farmers use basic phones. USSD (e.g., *123#) and this will help them access AgriCon without the internet. Agricon will partner with multiple telecom providers (e.g., MTN, Airtel,Glo, 9mobile) to:

- Hosts the USSD code on their platform (e.g., *123# for MtN, *456# for Airtel etc) .
- Telecoms may charge a subsidized USSD session cost to AgriCon (or offer it free as part of partnerships). Agricon will explore co-branded promotions or shared transaction models with Telecoms.
- In the future, Telecoms can pay AgriCon a fixed monthly fee (e.g., ₦100,000/month) to co-brand or promote digital agriculture outreach through AgriCon.

Why it matters:

Farmers in rural regions may use different SIM cards based on availability or cost, Limiting access to a single network would exclude potential users .

Example: Kobo360 (Logistics)

- Farmers book product transport
- Kobo360 fulfills the order
- AgriCon gets 5% of transport cost as commission

e.g., ₦10,000 delivery × 200 farmers = ₦2,000,000 → ₦100,000 to AgriCon

Data & Advisory Sales (Optional Later Stage)

AgriCon can safely (and anonymously) package agricultural data insights (e.g., demand trends) and offer to:

- Agro-processors
- Food export agencies
- Policy makers

This can be a B2B revenue stream after data scale is achieved.

TECHNICAL CONSIDERATIONS

- **USSD Gateway Integration** (MTN or Airtel partnership)
- **Mobile Payment Support**: Paga, Opay, Flutterwave
- **IoT Sensors**: For availability & condition tracking

- **AI Integration**: Price forecasting, demand prediction using public data and web scrapers

- **Offline-first Android App**: Sync when internet is available

SUCCESS METRICS

Our success will be quantitatively measured against key performance indicators (KPIs) that directly align with our product vision of reducing post-harvest losses and increasing farmer income. These metrics will guide our development and operational strategies, ensuring we deliver tangible value to our users.

Metric	Baseline	Target (Year 1)	Target (Year 3)
Post-harvest loss reduction	**40% (tomatoes/yams)**	**≤20%**	**≤10%**
Farmer income increase	**Ñ50,000/month (avg.)**	**Ñ75,000/month**	**Ñ100,000/month**
Platform users	**0**	**1000 farmers + 100 infrastructure owners**	**10,000 farmers + 1000 infrastructure owners**
Infrastructure utilization rate	**N/A**	**70%**	**90%**
Market linkage success rate	**N/A**	**60% of processed goods sold via platform**	**85%**
USSD interface adoption	**N/A**	**40% of users**	**60%**
Customer Satisfaction (CSAT)	**N/A**	**4.0/5.0**	**4.5/5.0**
Retention Rate (monthly active users)	**200**	**600**	**4.5/5.0**

AGRICON PROJECT ROADMAP

PHASE	OBJECTIVE	DELIVERABLES	TIMELINE
Ideation and Planning	Define Product Concept and validate viability Develop Product Strategy and Set Project Scope	Problem Statement, Market/User Research, Competitive Analysis, Features Prioritization, KPIs Roadmap, Team Set-up, Technology/Tool Stack decisions, Schedule, Budget	1 Week
Design	Create Prototypes	UI Page(lLogo, Splash screen, Dashboards, Secondary Pages)	2 Weeks
Development	Build Functional Product	App with all pages (Authentication (Registration, Login, Logout), Profile,	6 weeks

		Infrastructure listing and booking, In-App Messaging, Payment)	
Testing	Ensure Quality Product Performance	Detect Bugs or Breaks	2 Weeks
Marketing	Develop Go-To-Market Strategy	GTM Documentation	1 Week
Launch	Introduce Product to Market and Implement GTM	Launch	1 Week