

# REQUEST FOR QUOTE (RFQ): Smart Agricultural Ecosystem Platform

**RFQ Number:** ISC01REQ002145

**Issue Date:** 25 September 2025

**Closing Date:** 07 October 2025, 12:00pm

## 1. Project Overview:

The Agricultural Research Council (ARC) invites proposals from experienced software development firms for the design, development, and deployment of a cross-platform mobile and web application ecosystem for smallholder farmers in South Africa.

This project aims to create an integrated platform that combines agricultural knowledge, community support, data-driven decision-making, and market access. The successful bidder will be responsible for the technical implementation based on the detailed specifications provided herein, ensuring high performance on low-end devices, and delivering a robust, scalable, and secure product.

## 2. Scope of Work & Detailed Requirements:

The scope includes, but is not limited to, the development of the following core modules and functionalities based on the provided wireframes and content:

### 2.1. Core Technical Infrastructure:

- **User Authentication & Management:** System with role-based access control (Farmers, Buyers, Admins). Must include:
  - Login/Sign-up screens with mobile number verification via SMS OTP.
  - User profile management.
  - **Farm Location Pinning:** Mandatory during registration via interactive map or GPS. Must include a proximity check to prevent duplicate farm registrations within a 50-meter radius.
- **Cross-Platform Development:** The application must be developed for **iOS, Android, and Web** using a suitable framework (e.g., React Native, Flutter).
- **Multi-Language Support:** Full application support for **English, Sesotho, and isiZulu**.
- **Offline-First Capability:** Core informational features (Crop info, Farming Tips, Weed Management) must be fully accessible without an internet connection.
- **SMS API Integration:** For user verification (OTP) and sending critical alerts.
- **Market Data API Integration:** For displaying live and historical pricing data.

### 2.2. Database & Backend:

- **Geospatial Database:** Must utilize **PostgreSQL with PostGIS extension**.
- **Zoning Logic:** Implementation must be based on provided South African administrative boundary shapefiles (Wards for local farmer communication, Municipalities for the marketplace).
- **Data Anonymization:** Non-negotiable requirement for analytics features. Individual farmer data must never be exposed in aggregated reports.

- **Hosting:** The proposed solution must be hosted on a scalable cloud infrastructure (e.g., AWS, Azure, GCP). The proposal must include hosting architecture.

### 2.3. Core Functional Modules (Based on Supplied Designs):

- **Information Repository:** Modules for managing and displaying content for:
  - **Crops:** Detailed pages for each crop (e.g., Tomato) including subsections for Growth Stages, Environmental Conditions, Common Weeds, and Common Diseases. Each disease/weed must have a dedicated screen with image gallery, description, causes, and management strategies.
  - **Farming Tips:** Sections for "Techniques for Improving Crop Yield" (Soil Health, Water Management, Pest Control) and "Sustainable Farming Practices" (Crop Rotation, Agroforestry, etc.).
  - **Weed Management:** Sections on "Types of Weeds" and "Weed Management Techniques".
- **Disease Detection:** A camera-based interface for scanning crops.
- **Weather Forecast:** Location-based weather information display.

### 2.4. Advanced Community & Economic Modules:

- **Farm-to-Farm Communication & Resource Share:**
  - **Functionality:** Direct messaging, group forums, and a platform for listing resources (seeds, tools, machinery, services) for rent/sale within the user's local Ward-based zone.
  - **Data Visibility:** Farmers within the same zone see each other's profiles and listings.
- **Crop Planner & Decision Support:**
  - **Functionality:** A system for farmers to register seasonal planting intentions (crop, area in hectares, expected dates).
  - **Dashboard:** An **aggregated and anonymized** view for farmers showing total area planted per crop within their wider Municipality zone.
  - **Historical Analytics:** A graphical report (double-bar chart) showing trends of area planted vs. average market price for the last 5 years for a selected crop and zone.
- **Digital Marketplace:**
  - **Functionality:** A platform for creating produce listings and for buyers to discover available produce within the user's Municipality zone.
  - **Data Visibility:** Buyers see only farmer business profiles and produce listings.

### 3. Project Management & Deliverables:

- **Methodology:** The project must be managed using an Agile (Scrum) methodology with bi-weekly sprints and demo sessions.

- **Timeline:** The project must be completed and fully launched within **six (6) months** from the date of contract signing.
- **Key Deliverables:**
  - Working software delivered at the end of each sprint.
  - Full source code and documentation upon completion.
  - A complete Quality Assurance and Testing report.
  - User Training sessions for ARC administrators.
  - Deployment to production app stores (Google Play, Apple App Store).

#### 4. Required Experience:

Bidders must demonstrate verifiable experience by submitting for at least two (2) relevant past projects:

- Detailed case studies highlighting experience with:
  - Geospatial applications and PostGIS.
  - Offline-first mobile apps.
  - Complex backend systems with multiple user roles.
- Verifiable client references on the client's letterhead (name, position, email, and phone number and a brief description of the provided services).

#### 5. Submission Requirements:

Proposals must include:

1. **Company Profile:** Including proof of registration (CIPC), B-BBEE status, and relevant industry certifications.
2. **Technical Proposal:** Detailed outline of proposed technology stack, architecture diagrams, development methodology, and a project plan with milestones.
3. **Team Composition:** CVs of key team members (Project Manager, Technical Lead, Mobile Developers, DevOps Engineer).
4. **Financial Proposal:** A detailed cost breakdown, including development, testing, deployment, project management, third-party service costs, and 12 months of post-launch maintenance and support.
5. **References:** As specified in Section 4.

#### 6. Compliance & Regulations:

The successful bidder will be responsible for ensuring the solution is developed in full compliance with the **Protection of Personal Information Act (POPIA)**. The proposal must detail the bidder's strategy for POPIA compliance.

#### 7. Technical Evaluation Criteria:

Submissions will be evaluated and scored based on the following criteria and sub-criteria:

### 7.1. Adherence to the RFQ Requirements (Weight: 20%)

- **Technical Compliance (10%):** The extent to which the proposal addresses all mandatory technical requirements as specified in Sections 2.1, 2.2, and 2.3 (e.g., PostGIS, offline-first, SMS OTP, multi-language support, proximity check).
- **Functional Compliance (5%):** The completeness of the response to the functional modules described in Sections 2.3 and 2.4 (e.g., Information Repository, Disease Detection, Community modules, Crop Planner, Marketplace).
- **Regulatory Compliance (5%):** The clarity and robustness of the proposed strategy for ensuring full compliance with the Protection of Personal Information Act (POPIA), including data anonymization as per Section 2.2.

### 7.2. Demonstrated Relevant Experience & Past Performance (Weight: 30%)

- **Project Relevance (15%):** Quality and direct relevance of the submitted case studies, specifically demonstrating proven experience with:
  - Geospatial applications and PostGIS integration.
  - Developing and deploying offline-first mobile applications.
  - Building complex backend systems with multiple user roles and access controls.
- **Client References (10%):** Strength and verifiability of provided client references, including responsiveness and feedback on past performance regarding quality, timeliness, and communication.
- **Company Profile & Certifications (5%):** Proof of company registration (CIPC), B-BBEE status level, and any other relevant industry certifications.

### 7.3. Technical Soundness & Team Expertise (Weight: 30%)

- **Proposed Architecture & Tech Stack (10%):** Appropriateness, scalability, security, and cost-effectiveness of the proposed technology stack and cloud hosting architecture (e.g., AWS, Azure, GCP).
- **Development & Management Methodology (10%):** Clarity and maturity of the proposed Agile (Scrum) project management plan, including sprint cycles, demo sessions, and risk mitigation strategies.
- **Team Composition & Expertise (10%):** The experience, qualifications, and relevant certifications of the proposed key team members (Project Manager, Technical Lead, Mobile Developers, DevOps Engineer) as evidenced by their submitted CVs.

### 7.4. Competitiveness & Clarity of the Financial Proposal (Weight: 20%)

- **Cost Breakdown & Comprehensiveness (10%):** The level of detail and clarity in the cost breakdown, ensuring it includes all aspects: development, testing, deployment, project management, third-party service costs (APIs, hosting), and 12 months of post-launch maintenance and support.
- **Value for Money & Competitiveness (10%):** The overall cost-effectiveness and competitiveness of the total proposed price in relation to the scope, functionality, and quality of the solution offered.

## **8. Contact Information:**

All communications and queries regarding this RFQ must be directed in writing to:

### **Primary Contact:**

Prof Khaled Abutaleb - Project Lead (ARC - ISCW)

**Email:** [AbutalebK@arc.agric.za](mailto:AbutalebK@arc.agric.za)

**No verbal queries will be entertained.**

### **Submission Deadline:**

Proposals must be submitted electronically to [mtungwaf@arc.agric.za](mailto:mtungwaf@arc.agric.za) by 07 October 2025, 12:00pm