

**MODERNIZING
AGRICULTURE**

DIGITAL TECHNOLOGY

FOR IMPROVED
LIVELIHOODS IN
AFRICA

Agriculture, it is said, is the wisest pursuit of human being. In the current scenario, it is one of the single largest private sector occupation. Any change in the agriculture sector has a strong multiplier effect on the entire economy. Hence, when every single aspect that touches human lives is getting digitised, why should agriculture - the most important occupation known to man - remain unacquainted with the overhaul that digital technology is bringing to the world?

EXECUTIVE SUMMARY



Founded in the year 2000, KS Infosystems has established itself as a name that is now synonymous with being the ultimate end-to-end IT solution provider. Over the past decade, with a list of decent and impressive clienteles and a widespread global presence, we have literally left our 'digital footprints' in the IT sector. KS Infosystems has been assessed at leading global quality benchmarks and standards including ISO 9001:2015.

According to the African Development Bank, the African continent imports \$35 billion of food annually and this number is expected to rise to about \$110 billion by 2025 if the current tendency continues. Despite being such a significant aspect of an economy, a farmer is unable to harness the financial benefits to the full potential. The inputs may be available, yet the yield does not reach the anticipated mark.

Where is the loophole in the entire process and what are the gaps that need to be filled?

The prime reason behind this imbalance between high crop yield and low productivity returns is the absence of a platform from where farmers can access all the information and financial assistance they need.

“Therefore, in order to make available relevant information and services to the farming community and establishing the necessary link between the farmers and the private sector, KS Infosystems introduces **‘Smart Agropedia’** – an answer to all the farmers’ queries.”

SMART AGROPEDIA

a package of digital solutions for agriculture

Primarily, the process is initiated with the registration of farmers and the land they own. This information is geographically mapped and updated using the Geographic Information System (GIS).

In the second stage, a sample of the soil is taken to identify the health of the soil. After the soil analysis takes place in the laboratory, a soil health report is generated. This report helps the farmers make accurate decisions regarding the type of crop that can yield maximum output on that soil or the quantity and quality of inputs required in case the farmer wants to grow a certain crop (say banana plantation) on the same land area. The third stage involves the amount of loan that can be provided to the farmers, depending upon the data of the land that indicates whether or not the farmer meets the eligibility criteria. This prevents frauds and the right amount of financial assistance reaches to the farmers in actual need of monetary help.

Thus, from the verification and validation of documents submitted by the farmers to keeping track of the transaction details of the loans given to them, the 'Smart Agropedia' portal attempts to make a paperless automation system for collecting statistics, maintaining records and digitising agriculture.

Challenges in the current scenario

- No database of the farmers of a particular area
- No record of the crops grown in a certain region
- Lack of information on agricultural inputs
- Indiscriminate use of chemicals
- Degradation of soil health
- Low yield and losses
- Difficulty for farmers in correlating production techniques and crop yields with land variability.
- Limited ability to develop effective agricultural strategies
- Finding suitable markets for the sale of produce
- Lack of awareness about latest agricultural practices

OBJECTIVES

- Access to latest agricultural know-how: Serves as the 'Wikipedia of Agriculture' where farmers can get information about the latest technological advancements in agriculture.
- Digital land survey for precise output: Provides accurate scale of land in digital format for planning, designing and managing upcoming outputs.
- Preparation for unexpected weather: Designed to send SMS alarms about upcoming weather patterns, such as unexpected rainfall.
- Analysing the health of soil: Generating soil health report after analysing soil health, providing information about the quantity and quality of agriculture inputs.
- Buyer Bidding: Farmers can broadcast about their upcoming produce and find prospective buyers through buyer bidding.

Advantages

- Provides Smart Agropedia cards to farmers for buying inputs, availing subsidy and other financial benefits.
- Collects database of farmers
- Maintains record of the agricultural land available
- Provides A-Z of agriculture-related information to the farmer
- Comprehends area wise availability of soil and type of crop
- Effective application of fertilizer inputs at farmers end
- Individual grower and his individual plot will get specific crop wise recommendations
- Reduces indiscriminate use of fertilizer input
- Avoids the nutritional unbalancing in plant crop
- Enhances efficacy of agricultural inputs
- Reduces the cost of production
- Develops area and variety wise crop production management practices
- Suggests and implements soil development programs and measures
- Enhances crop production up to the best possible potential

COMPONENTS OF SMART AGROPEDIA

- 1 Soil Fertility Mapping**

The Geographic Information System-based soil fertility mapping tests the soil samples from various regions of the country and recommends the precise amount of nutrients required by the soil.
- 2 Integrated Crop Support (IT) System**

The Integrated Crop Support System (ICSS) is an application based on soil nutritional availability and varietal nutritional requirement under specific agro-type. This avoids indiscriminate and generalized nutritional recommendations.
- 3 Resources Development**

In the agricultural equation, compatibility between resources and the crops being grown is essential for fruitful outputs. This adoption with changing climatic conditions is made possible through digital resource development.
- 4 Green House Technology**

A boon for growing off-season fruits and vegetables, higher yields can be realized with intensive production per unit area using this technology that our software offers.
- 5 Plantation Establishment**

No miracle but a well-researched analysis done by experts can help identify the crops that can grow well on a certain site and the species which are well adapted to all but the most extreme sites. This is possible under Plantation Establishment.
- 6 Specialized R&D Programs**

Every area has specialised characteristics. Our software enables local research through specific continuous programs and the results obtained from them enables the farmers in making better decisions.

7 Green Field Turnkey Projects
Under the Green Field Turnkey Project, we provide end-to-end solutions from start till the end so that the farmer can sell the final product to the buyer.

8 Improved Seeds and Nurseries
The seed-production technology, together with an improved seed-distribution system, can give an impetus to agriculture in recent years.

9 Varietal Development Program
The varietal development program is a comprehensive package consisting of agricultural research, irrigation, supply of inputs, (seeds, fertilizers and credit), intensified agricultural extension services, training and supervision.

10 Field Demonstrations and Trials
In-field demonstrations help farmers determine how new hybrids, products, and cropping practices compare to standard practices on their farms.

11 Crop Production Feasibility Audit
Basically implied in areas where farming has not started i.e. on the virgin soil, the audit tells us whether a certain area is suitable for the economical production of the crop.

12 Custom Hiring Agriculture Services
We encourage custom hiring at affordable rates as it is the practical solution that would improve productivity and reduce drudgery of farm labour.

13 Farm Layout, Planning and Budgeting
The process of planning, property design and management based on natural resources and economic factors.

14 Skill Development and Training Program
Includes Training (Class room and Field), demonstrations, Subject Understanding sessions, Monitoring and Appraisal and Result Orientation and Motivation program.

15 Digital Land Survey and Agri-Development System
Digital Land Survey would give a birds-eye view of the site, giving land owners and farmers a set of accurate scale in digital format.

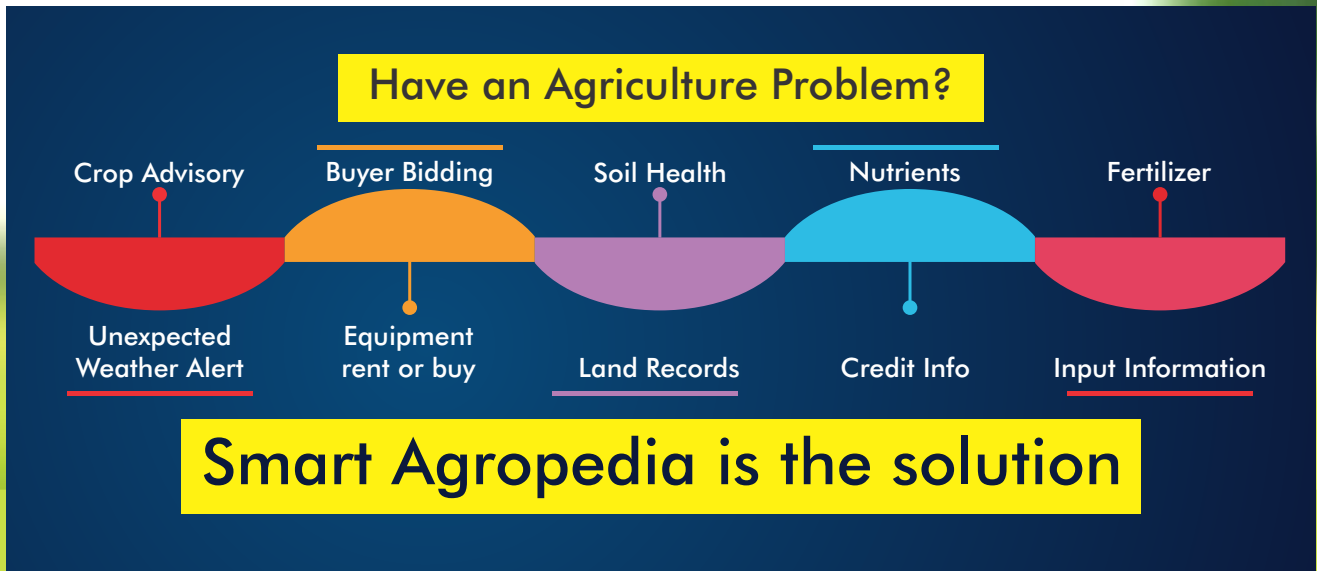
16 Manufacturing of Soil Health Bio-Organic Conditioners
We facilitate the development of bio-organic conditioners, which can be added to any soil type to increase available nutrients and micronutrients for the plants living in it.

17 Crop Production Technology, Modification and Development
Change is the only constant, therefore we continuously modify the existing technology to adapt to the ever-widening challenges especially the climate-change consequences faced by agriculture.

18 The Smart Agropedia Card
Registered farmers will be provided with Smart Agropedia Cards, which can be used for purchasing inputs, custom hiring, for availing subsidy and receiving direct payments from the buyers.

Goals

Making optimized use of Information and Communications Technology (ICT) to make Smart Agro the ultimate solution provider for any and all agriculture-related matters.



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IT SOLUTIONS

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