Advantages And Challeging in E Agriculture

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ABSTRACT

E-Agriculture focus on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (IT) in the rural domain, with a primary focus on agriculture. E-Agriculture is a relatively new term and we fully expect its scope to change and evolve as our understanding of the area grows. Indian Agriculture contributes to 18.6 per cent of India's GDP, and approximately 59 per cent Indians derive their livelihood from the agricultural sector. Private sector initiatives like contract farming have commercialized the Indian agricultural sector. To enable Community members to exchange opinions, experiences, good practices and resources related to e-Agriculture, and to ensure that the knowledge created is effectively shared and used worldwide. But There is some advantages and drawback which reside in every technology.This paper gives some glims What the technologies give and take in area of agriculture.

Key word: E-Agriculture, Contract Farming, GDP, communication technologies.

INTRODUCTION

E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (IT) in the rural domain, with a primary focus on agriculture. E-Agriculture is a relatively new term and we fully expect its scope to change and evolve as our understanding of the area grows. Indian Agriculture contributes to 18.6 per cent of India's GDP, and approximately 59 per cent Indians derive their livelihood from the agricultural sector. Private sector initiatives like contract farming have commercialized the Indian agricultural sector.

The main phases of the agriculture industry include crop cultivation, water management, fertilizer application pest management, harvesting, transfer of foods, safety, quality management and marketing management, Any system applied for getting information and knowledge for making decisions in any industry should deliver accurate, complete, concise information in time or on time. The information provided by the system must be in user-friendly form, easy to access, cost-effective and well protected from unauthorized accesses.

To enable Community members to exchange opinions, experiences, good practices and resources related to e-Agriculture, and to ensure that the knowledge created is effectively shared and used worldwide. Here following are some tecnologies that assist in E-Agriculture.

Office Automation Tools

Office automation in E agriculture involves Computer application, networks, telephone, printer ,scanner etc. There are many government, private and non-government organizations involved in agriculture sector and rural development. They all have to work together to give better service to farming community. Therefore, application of office automation is one of the solutions to enhance the efficiency and inter-connectivity of the employees work in all above mentioned organizations. Many computer applications such as MS OFFICE, Internet, providing unlimited potential to organizations and individuals to fulfill their day to day data processing requirements to give an efficient service to their customers.

on other hand some challenges like computer operation is not well known to farmers in india. If Farmer want to know which crop require which fertilizer in how much proposion? How much pesticide quantity? The new less experience farmer will ask to another, but due to lack of knowledge and they can not take help of internet.. Also cost of these instrument affect.

Wireless Technologies

Very general application close circuit Television Camera(CCTV), Monitor for
Intruders

Strategically placed farm security cameras will capture images of anyone entering the property. This coverage helps to ensure that only authorized workers gain access to the farm and its facilities.

Protect water supplies

A well-protected water supply is critical to agricultural operations. Farm security cameras can play an important role in protecting this highly-sensitive area.

Prevent break-ins

Implementing farm security cameras around your property can deter break ins. For those intruders who look past the cameras, the surveillance footage can capture them in the act.

Deter theft

Farm security cameras in areas such as holding pens, calving pens, tool shops, and gates will help to prevent thieves from stealing animals and equipment.

Monitor daily operations

Security cameras can also ensure that daily operations such as milking and feeding run smoothly.

Employee monitoring

Video surveillance can be used to monitor employee behavior so that critical farm operations are properly carried out.

Remote playback and monitoring

With an IP-based surveillance system, farm owners can monitor their property remotely. Footage can be stored digitally and easily searched in cases requiring visual evidence.

Major Challenges are
Vandalism and tampering

If a farm security camera is vandalized or tampered with, the signal could be lost. Consider vandal-proof housing for cameras located in high-risk areas.

Weather

Weather-proof cameras might be required for certain locations. Farm surveillance can pose challenges for cameras not equipped to handle low temperatures and changing weather conditions.

Global positioning System

The development and implementation of precision agriculture or site-specific farming has been made possible by combining the Global Positioning System (GPS) and geographic information systems (GIS). These technologies enable the coupling of real-time data collection with accurate position information, leading to the

efficient manipulation and analysis of large amounts of geospatial data. GPS-based applications in precision farming are being used for farm planning, field mapping, soil sampling, tractor guidance, crop scouting, variable rate applications, and yield mapping. GPS allows farmers to work during low visibility field conditions such as rain, dust, fog, and darkness.

In the past, it was difficult for farmers to correlate production techniques and crop yields with land variability. This limited their ability to develop the most effective soil/plant treatment strategies that could have enhanced their production. Today, more precise application of pesticides, herbicides, and fertilizers, and better control of the dispersion of those chemicals are possible through precision agriculture, thus reducing expenses, producing a higher yield, and creating a more environmentally friendly farm.

GPS equipment manufacturers have developed several tools to help farmers and agribusinesses become more productive and efficient in their precision farming activities. Today, many farmers use GPS-derived products to enhance operations in their farming businesses. Location information is collected by GPS receivers for mapping field boundaries, roads, irrigation systems, and problem areas in crops such as weeds or disease. The accuracy of GPS allows farmers

to create farm maps with precise acreage for field areas, road locations and distances between points of interest. GPS allows farmers to accurately navigate to specific locations in the field, year after year, to collect soil samples or monitor crop conditions.

Major Challenges are
Battery life of GPS devices

Having a short battery life may limit the time you can spend in the field. It may also be a safety issue if you get lost. It's great to have a GPS device but if flat it's not useful – although the last location can still be monitored.Keep in mind this isn't an issue for products that are used in vehicles etc that have alternative battery or power sources.

Inaccuracy

While GPS works around the globe – and often to meter accuracy – there are certain locations where it doesn't work well. For example a canyon in the middle of a forest; or if you are surrounded by tall buildings (often referred to as an urban canyon). At these locations the signal may bounce and your exact location may be difficult to ascertain.

Cost

While not really a disadvantage, as the cost of many GPS devices has reduced significantly and more importantly they can save you or your business money, high quality GPS devices still
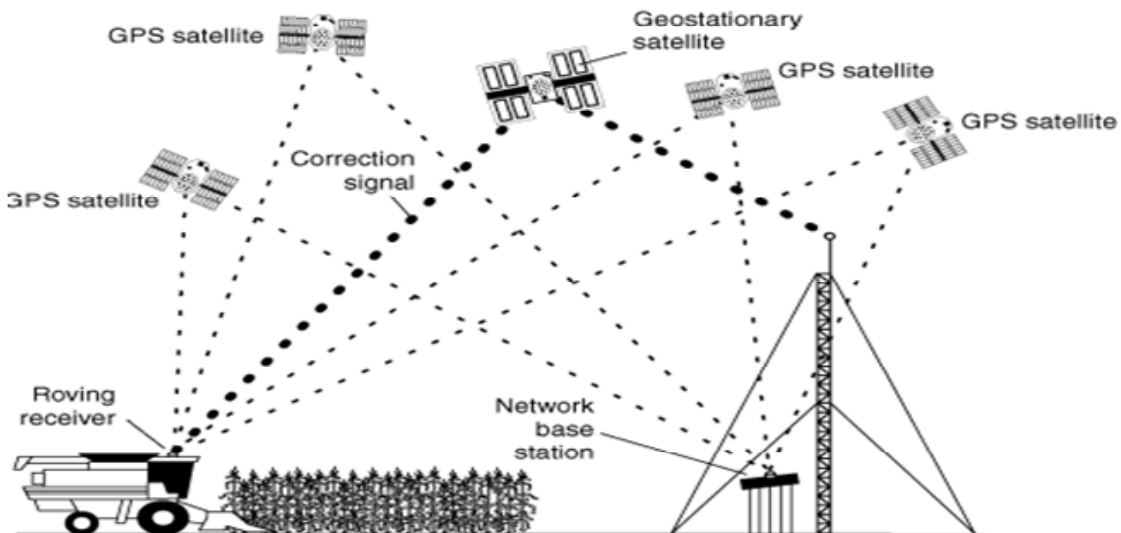

Fig. 1: Layout Idea about GPS

cost good money.   This start up costs may be a negative to many companies looking to invest in the technology.A GPS device is only as good as the mapping it uses. Most high quality devices – such as the ones we sell – use state of the art, accurate and high quality mapping. Unfortunately there are also several inferior, or shall we say cheaper, products which use low grade mapping. This has the potential to create inaccuracies when using the devices.

Automated System

Automatic milking systems are computer controlled stand alone systems that milk the dairy cattle without human labor. The complete automation of the milking process is controlled by an agricultural robot, a complex herd management software, and specialized computers. Automatic milking eliminates the farmer from the actual milking process, allowing for more time for supervision of the farm and the herd. Farmers can also improve herd management by using the data gathered by the computer. By analyzing the effect of various animal feeds on milk yield, farmers may adjust accordingly to obtain optimal milk yields. Since the data is

available down to individual level, each cow may be tracked and examined, and the farmer may be alerted when there are unusual changes that could mean sickness or injuries

Major Challenges are
Expense

The initial investment to integrated automated robotics into your business is significant, especially when business owners are limiting their purchases to new robotic equipment. The cost of robotic automation should be calculated in light of a business' greater financial budget. Regular maintenance needs can have a financial toll as well.

Expertise

Employees will require training program and interact with the new robotic equipment. This normally takes time and financial output.

Mobile Application
Here is some application glims
Optimizer 2.0 (update)

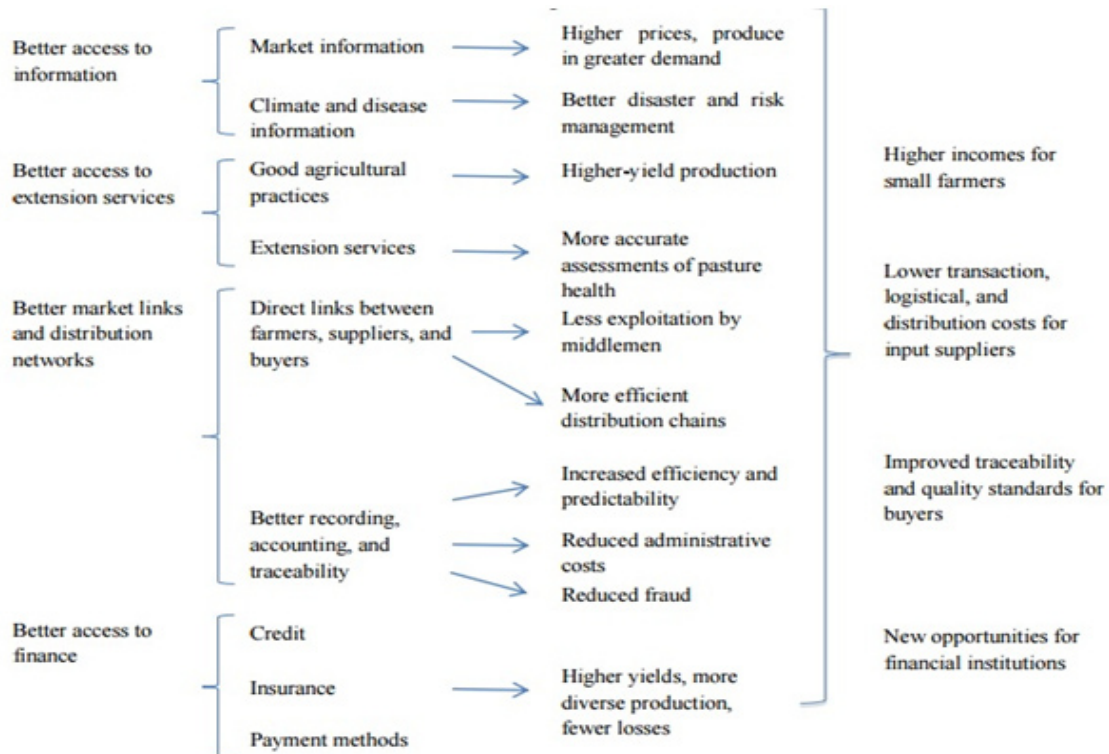The new function from Advanced Ag

Fig. 2: Idea of mobile app benifits

Solutions LLC models anticipated irrigation to reduce data entry for farmers and their crop advisors. It is part of the company's Optimizer 2.0 app, which also recently unveiled the ability to download variable rate files to control seed and nitrogen rates within the field in its Solver feature. The app utilizes weather forecasts and soil moisture levels along with crop needs and common practices of area farmers to estimate when the farmer may have turned on or off his irrigation pivot. The software then allows the user to easily edit irrigated rates and timing in cases where estimates of irrigation might be off.

CropTrak Soil App

Replacing its PrecisionEarth mobile app, Cogent3D has introduced the new iCropTrak Soil sampling app. iCropTrak Soil can go from login to your field sample in three clicks; add new growers, farms, field boundaries and zones from the iPad while in the field; and export soil sampling results while in the field using one button via e-mail to the lab and customer using synchronization with the cloud, other iCT users and export to iCloud. *(iPad)*

Agrivi

Based on best-practice production processes for more than 60 crops, Agrivi app guides farmers to improve their production and increase productivity. Its features include project-oriented farm management with a simple and fast way of planning, monitoring and tracking all farm activities and inputs usage, advance sales and expense tracking ensures taking control over farm finances, inventory management with low inventory alarms removes delays in production caused by lack of inputs and weather monitoring with detailed 7-day weather forecast and 3-year weather history for each field and smart disease risk detection alarms.

ractorPal:

This app keeps inventory and maintenance records for all your personal agriculture machines and attachments, including cars and trucks of all brands. TractorPal enables you to log all of your large and small machinery and automobiles including tractors, pickups, lawn mowers, cars, combines, sprayers, loaders, skid-loaders, backhoes, attachments, and more. You can also record each item's maintenance (e.g., changing oil, filters, tires, and irregular repairs), and will remind you when service is required.

Sirrus (update)

Sirrus is the precision agriculture app from SST Software that allows you to digitize field boundaries, soil sample, scout your crops, check weather conditions and graph rainfall estimates per field. Features include: drive field boundaries using GPS or draw them using high-resolution background imagery; digitize center-pivots with ease; soil sample using a grid, zones, or previous soil sampling points; view weather forecasts, current conditions and historical rainfall graphs; record scouting data such as pest pressure, stand counts, and much more; generate and share PDF scouting reports; share data with other agX Platform users via Data Bullet; and store and share data securely on the agX Platform. Sirrus requires an agX Account, which can be created for free in the app.

Other Challenging in E-Agriculture

The occupational structure of India is dominated by the "agricultural sector" and the "manufacturing sector" and the "service sector" is lagging far behind in this context. This shows that India is predominantly an agricultural economy and hence it requires strongest protection and development of its "agricultural resources". India is facing certain "Agricultural Challenges" that must be resolved as soon as possible. The major challenges to "Agriculture Sector in India" are: (a) Insufficient agricultural infrastructure and support facilities, (b) Insufficient institutional capacity to deliver farmers specific services, (c) Lack of awareness regarding suitable agricultural methods among the farmers, (d) Agricultural content development and its upgradations, (e) Ownership issues of the public and government generated data, (g) Inadequate use of Public-Private Partnerships in India, (h) Lack of "Common Platforms" for the farmers in India, (i) Absence of an "Agricultural Think-Tank" in India, (j) Insufficient use of ICT for agricultural purposes, etc. The Government of India must come up with "Suitable Policies" and "Incentives" for the farmers so that they may be motivated and encouraged to give their best. This must be supported by the use of ICT that can do wonders for the agriculture sector

of India. ICT can be used to improve the lives of the rural communities by leveraging of agriculture outputs through technological interventions. Some of the benefits of ICT for the improvement and strengthening of agriculture sector in India are: (a) Timely information on weather forecasts and calamities, (b) Better and spontaneous agricultural practices, (c) Better marketing exposure and pricing, (d) Reduction of agricultural risks and enhanced incomes, (e) Better awareness and information, (f) Improved networking and communication, (g) Facility of online trading and e-commerce, 3 (h) Better representation at various forums, authorities and platform, etc. There is a "Digital Divide" that is hindering the capacity and productivity of rural agricultural activities carried out by the marginalised farmers in India. The situation of marginalised farmers of rural India can improve if we pay attention towards the following capacity development initiatives: (a) Conducive Legal Framework, (b) Simple and Farmer Friendly Governmental Regulatory Measures, (c) Governance and Institutional Reforms, (d) Transparency in various dealing, (e) Fixing of Accountability of Persons/ Institutions dealing with Marginalised Farmers, (f) Representation of Marginalised Farmers in various matters affecting them, (h) Policy and Strategy Reforms in India, (i) Providing of Technical Assistance to Rural Credit Cooperative Banks (RCCBs), (j) Use of ICT for Banking and Financing Purposes, (k) Improved Managerial and Operational Capacities, (l) Self-Regulation and Self-Management of Indigenous Issues, (m) Affordable Financial Support, (n) Banking Solutions for Poor Rural Farmers through Franchisee Agreements

with micro-credit institutions must be made, etc. India, like others, is facing a rising demand for foodgrains that may not be fully met by the supply side. The situation is becoming more alarming due to the alternative uses of food crops for bio-fuels. The rising oil prices led to exploring alternatives like bio-fuels that are being seen in many quarters as attractive substitutes for imported hydrocarbon fuels. India needs to shift at a higher pedestal of Green Revolution. We need new technologies, new organisational structures, new institutional responses, "collective expertise" and an "ideal public-private partnership" base in India. We need creative and imaginative solutions that increase agricultural productivity, increase farm incomes, increase food production etc. Institution building, capacity building, empowering farmers through investment in their capabilities, etc are the kind of initiatives we need in India. We have to reduce the pressure of population dependent on agriculture and minimise the concept of "Disguised Unemployment". A "Labour- 4 Intensive Industrialisation" has the potential to provide new avenues of employment to rural population in India. India must promote agro-industries that may offer rural population new avenues of employment.

CONCLUSION

Every system rides drawback with it. but It seen that technology gives much better advantages in 90% cases. but we can reduce gap of these drawback by implementing better platform for farmers and teach them for solution for this drawback.

REFERENCES

1. www.fao.org
2. www.eagriculture.org
3. www.videosurviellance.com/farm.asp
4. www.croplife.com
5. www. Wikipedia.org
6. Google.com