



DISSEMINATION OF FARM INFORMATION THROUGH AGRI PORTALS

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ABSTRACT

The world is in the midst of a knowledge revolution, complemented by opening up entirely new vistas in communication technologies. Recent developments in the field of Information and Communication Technologies are indeed revolutionary in nature. Dynamics of socio-economic development and effective transfer of technology requires a wide array of human skills. A web portal presents information from diverse sources in a unified way. Apart from the search engine standard, web portals offer other services such as e-mail, news, stock prices, and other features. The term 'portal' is used to describe a website that acts as an entry point or gateway to an array of services or resources. Obviously all sites can do this to some degree, but typically a portal will have a wide range of resources, usually including a search facility, directory of other sites, news, e-mail etc. Agri portals helps to provide up-to-date news and information services, such as market prices, weather reports, creation and maintenance of statistical databases on critical agricultural and rural development parameters, hosting web sites by major institutions participating in agricultural extension, putting latest packages of practices (with more situation specific packages), for various agro-ecological regions. This can help the extension workers to access latest information on Integrated Pest Management (IPM), Integrated Nutrient Management (INM) and other such practices for all the crops, by providing internet access at block level agriculture and other developmental departments. Information and Communication Technologies when used adequately can speed up the process of transfer of technology. The utilization of mass media, internet and kiosks can bring in considerable changes in the lives of farmers as it transfers the current and precise technologies. This calls for improved e- agriculture extension service so as to reach the last mile and to achieve agriculture development in our country.

KEY WORDS: Agriculture, Agri portals, IPM, INM

INTRODUCTION

The extension personnel of the Department of Agriculture disseminated technological messages to the farmers manually. This approach has not been able to reach a majority of farmers, spread across the whole country. This gap remains a challenge for the extension systems even today. It is more so in country like India, where the number of farmers is very large and the geography is more varied. To reach millions of farmers, spread over a vast and varied geography is an uphill task. The diversity of agro-ecological situations, adds to this challenge further. The information and communication support during last half century has mainly been conventional. It has primarily been public sector service to the farming community. Today it is possible to find a solution to this situation by using the potential of information and communication technologies to meet the location specific information needs of the farmers. The information and communication networks are expanding very fast. It can also support bottom-up articulation of development needs and perceptions, and thus help in reducing the isolation of rural communities. It can facilitate dialogue among communities and with government planners, development

agencies, researchers, and technical experts; encourage community participation in decision making; coordinating local, regional and national development efforts for increased effectiveness; and help agricultural researchers, technicians, farmers and others in sharing information. Internet gives access to a vast global information resource.

Concept of Agri portals

Agri portals are a web portal presents information from diverse sources in a unified way. Apart from the search engine standard, web portals offer other services such as e-mail, news, stock prices, and other features. Further, the term 'portal' is used to describe a website that acts as an entry point or gateway to an array of services or resources. Obviously all sites can do this to some degree, but typically a portal will have a wide range of resources, usually including a search facility, directory of other sites, news, e-mail etc.

History of Portals

In the late 1990s the web portal was a hot commodity. After the proliferation of web browsers in the late-1990s many companies tried to build or acquire a portal to have a piece of the Internet market. The web portal gained special attention because it was, for many users, the starting point

of their web browser. Netscape became a part of America Online, the Walt Disney Company launched Go.com, IBM and others launched Prodigy, and Excite and @Home became a part of AT&T during the late 1990s. Lycos was said to be a good target for other media companies such, as CBS. The portal craze, with *old media* companies racing to outbid each other for Internet properties, died down with the dot-com bust in 2000 and 2001. Disney pulled the plug on Go.com, Excite went bankrupt, and its remains were sold to iWon.com. Some portal sites such as Yahoo! and those others first listed in this article remain active.

Broad classification of Portals

A. Horizontal portal -Horizontal portals cover many areas, and it is used as a platform to several companies in the same economic sector or to the same type of manufacturers or distributors.

B.Vertical portal- vertical portals, which are focused on one functional area. Ex- Tata Consultancy Service Portal.

Types of Portals

- 1. Personal portals**-A personal portal is a site on the World Wide Web that typically provides personalized capabilities to its visitors, providing a pathway to other content. It is designed to use distributed applications, different numbers and types of middleware and hardware to provide services from a number of different sources. Personal portals can be related to any specific topic such as providing friend information on a social network or providing links to outside content that may help others beyond your reach of services.
- 2. News portals**- in a shorter span of time than their print media counter parts. The traditional media rooms all around the world are fast adapting to the new age technologies. This marks the beginning of news portals by media houses across the globe. This new media channels give them the opportunity to reach the viewers
- 3. Government portals**- At the end of the dot-com boom in the 1990s, many governments had already committed to creating portal sites for their citizens. These included primary portals to the Governments as well as portals developed for specific audiences. Examples of Government web portals include; Ex-australia.gov.au for Australia, for India india.gov.in.
- 4. Corporate portals**-Many companies began to offer tools to help webmasters manage their data, applications and information more easily, and through personalized views. Portal solutions can also include workflow management, collaboration between work groups, and policy-managed content publication. Most can allow internal and external access to specific corporate information using secure authentication or single sign-on.
- 5. Stock portals**-Also known as stock-share portals, stock market portals or stock exchange portals are Web-based applications that facilitates the process of informing the share-holders with substantial online data such as the latest price, ask/bids, the latest News, reports and announcements. Some stock

portals use online gateways through a central depository system (CDS) for the visitors to buy or sell their shares or manage their portfolio.

- 6. Search portals**-Search portals aggregate results from several search engines into one page.
- 7. Tender's portals**-Tender's portals stands for a gateway to search/modify/submit/archive data on tenders and professional processing of continuous online tenders. With a tender portal the complete tendering process—submitting of proposals, assessment, administration—are done on the web.

Using online tendering, bidders can do any of the following:

- Receive notification of the tenders.
- Receive tender documents online.
- Fill out the forms online.
- Submit proposals and documents.
- Submit bids online.

Indian Agricultural web Portals

1. www.indiaagrstat.com - It is a comprehensive source for Indian agriculture statistics which is regularly updated. It provides authentic statistical information on sectors like agricultural education, agricultural export, agriculture census, agriculture prices, agricultural insurance, animal husbandry, agricultural marketing, horticulture production, agricultural wages and all other relevant agricultural statistics of India. It also provides the agriculture related news.
2. www.isapindia.org - The site is all about the Indian society of agribusiness professional (ISAP) which works for helping the farmers' community and address the rural- urban income divide. It is a network of agriculture and allied sector professionals in India and developing countries.
3. **Error! Hyperlink reference not valid.** It is a site of Indian agriculture resource center. It provides news, market update, technology, directory of companies and agricultural services.
4. www.agriwatch.com - This website gives detail information on agricultural marketing such as commodity exchange packages, Individual exchange, external exchange quotes, services on portal and agri watch services.
5. www.carrittmoran.com- This site provides, information regarding tea and coffee- statistics (on production and sale), catalogues (of area- wise sale of different varieties of tea and coffee in India), market reports and TASI.
6. www.fciweb.nic.in - This is the site by Food Corporation of India. It works for effective price support, food security, price stabilization and distribute food grains through public distribution system for the benefit of both farmers and consumers.
7. www.fredisurti.com - Fredisurti is a flower company specializing in flower seeds. This site offers garden consultancy and distributor for all kinds of seeds.
8. www.indiagriline.com- This website attempts to provide a platform for rural farming community and an attempt to catalyse e-commerce in rural

- agricultural and non-farm products and provide economic well being to rural areas.
9. www.indiancommodities.com - Information on cotton, rice, wheat, oilseeds, pulses, spices, coffee, and tea. This site requires registration, login and payment.
 10. www.kisan.net- A web directory of links for farmers and growers, including jobs, bulletin boards, news. To view this site one should be an authorized user.
 11. www.krg-rainwater.com- offers consultancy, planning, advice, and implementation of rainwater harvesting schemes.
 12. www.mahindrakisanmitra.com- The site provides brief information on Indian crops, major mandies, current price and weather forecasts for crops, cold storage and warehouses, agricultural loan schemes, and insurance scheme of farmer. It also gives the global agricultural news.
 13. www.krishiworld.com- It's India's first multilingual agricultural portal providing information on soil, soil water conservation, plant protection, diseases, soil fertility and fertilizer use, farm management, crops-commercial, plantation, field, cropping patterns, geographical utilization- water resources and land utilization.
 14. www.agroindia.org- This Indian agriculture website gives production guidelines and post harvest management on field crops, fruits, vegetables, flowers, aromatic plants, medicinal plants. Technology options on food technology, manures/fertilizers, agri - engineering, dairy technology, fisheries /pisciculture, poultry management.
 15. www.indg.gov.in- aims to disseminate useful information about improved technology to the farming community and service providers in the rural areas. INDG will create a platform for different levels in the rural agricultural landscape - farmers, cooperatives and professional bodies, farm machinery vendors, fertilizer and chemical companies, insurance regulators and agronomists, consultants, and farm advisors. The site also gives detail information on crop production technology, animal husbandry, fisheries, farm based enterprises on (sericulture, mushroom production, kitchen garden, vermi composting, agri-business, rural technologies) and best practices on "new method of growing rice", and precision farming.
 16. <http://www.agriculture-industry-india.com>- The websites describes the latest in the agricultural scenario and Indian agro industry, agricultural reserves, EXIM policies, trade leads, business directories, catalogs and related international events, Indian Agriculture Industry Portal is the right business to business (b2b) platform. Exporters & importers directory, agro business catalogs, Indian agricultural products, agricultural commodities, agriculture programmes & schemes.
 17. <http://www.isapindia.org> - Indian society of agribusiness professionals (ISAP) is a non-government, non-profit organization. It is a network of agriculture and allied sector professionals in India and developing countries. Its vision is to instill economic security and stability among farming community particularly small and marginal farmers through holistic development of agriculture and rural sector.
 18. <http://agricoop.nic.in>- This website on agriculture will lay stress on the agricultural sector, employment, opportunities, industrial sector and infrastructure. The site also displays the plant protection information network, rashtriya krishi vikas yojana, and national food security mission.
 19. <http://www.apeda.com>- agricultural and processed food products export development authority (APEDA) is mandated with the responsibility of export promotion and development of the scheduled products like: floriculture, fruits and vegetables, processed foods, organic foods, animal products and cereals. In addition to this, APEDA is also responsible to monitor export of some non - scheduled items such as basmati rice, wheat, and coarse grains and also import of sugar.
 20. <http://fert.nic.in>- The website Department of fertilizers, Govt. of India, gives information on different aspects of fertilizer.
 21. <http://mofpi.nic.in>/ - Ministry of food processing industries, is the main central agency of the Government responsible for developing a strong and vibrant food processing sector; with a view to create increased job opportunities in rural areas, enable the farmers to reap benefit from modern technology, create surplus for exports and stimulating demand for processed food.
 22. <http://agmarknet.nic.in>- This is an agricultural market site. This website has portals on Directorate of Marketing and Inspection (DMI) which undertakes standardization, grading and quality control of agricultural and allied produce, market research and surveys, market development, promotion of cold storages, AGMARK statistics, etc., marketing boards, price trend and price behavior.
 23. <http://www.nationalfertilizers.com>- National fertilizer ltd. is the second largest producer of nitrogenous fertilizers in the country. They produce urea and fertilizers which are beneficial for all types of crops.
 24. <http://www.fertindia.com>/ - This website gives in detail about fertilizer statistics in India, fertilizer prices and fertilizer marketing in India.
 25. <http://www.naip.icar.org.in/about%20naip.htm>/ - National Agricultural Innovation Project aims to facilitate an accelerated and sustainable transformation of the Indian agriculture so that it can support poverty alleviation and income generation through collaborative development and application of agricultural innovations by the public organizations in partnership with farmers' groups, the private sector and other stakeholders.
 26. <http://dacnet.nic.in>- This is an e-governance Project of Department of Agriculture and Cooperation, being executed by National Informatics Centre to facilitate agriculture-on-line.
 27. <http://www.icrisat.org>- International Crops Research Institute for the Semi- Arid Tropics is a

- non-political research organization that serves the poorest of the poor in the semi-arid areas of the developing world. ICRISAT deals with not only crops in the semi-arid tropics. It also helps empower the poor of the dry tropics - the men, women and children.
28. http://www.gisdevelopment.net/application/agriculture/overview/me05_107b.htm- This website gives a total overview on crop production, crop pattern, crop yield, irrigation, soil management, precision farming, relevant products and relevant links. The website also gives the overview of precision farming in Indian agricultural scenario.
 29. <http://www.ikisan.com/>- Ikisan is a comprehensive agri portal addressing the information, knowledge and business requirements of various players in the agri arena viz., farmers trade channel partners and agri input / output companies. Leveraging information technology and extensive field presence, Ikisan is positioned as an information / knowledge exchange.
 30. <http://www.uttamkrishi.com/>- Its main aim is to make the farmers aware of the new and developed techniques used for farming. It includes from selection of crops, farming, cropping system, irrigation, seeds and other important information.
 31. <http://agricoop.nic.in/agstat.htm> - This site provides updates on the status of agriculture. It displays report on food grains production, weather conditions, temperature, reservoir position, crop situation, pest situation and diseases, agricultural prices and marketing, research and technology development, international agricultural trade and miscellaneous developments.
 32. <http://www.icar.org.in/>- Indian Council for Agricultural Research (ICAR) is an autonomous apex national organization registered as a society which plans, conducts and promotes research, education, training and transfer of technology for advancement of agriculture and allied sciences.
 33. <http://punjabgovt.nic.in/government/govt751.htm>- Punjab Agricultural Department the major objective of the Department of Agriculture are imparting training to the farmers about latest technology developed by research institutes for the production of different crops, monitoring the supply and quality of agricultural inputs like seeds, fertilizers, pesticides, irrigation water and machinery and equipments etc.
 34. <http://www.upagriculture.org/>- This agricultural site shows new schemes related to farmers, facilities given to them, latest techniques, new agri policies, quality control, useful machines, insects/diseases of crop and many useful information's related to agriculture.
 35. <http://www.indianaglink.com/>- Intertribal Agriculture Council (IAC). This website promotes the conservation, development and use of our agricultural resources of our people.
 36. <http://www.nafed-india.com/>- National Agricultural Co-operative Marketing Federation of India (NAFED) is a national level farmers' co-operative marketing organization, provides remunerative prices to the farmers for their produce, stabilizes prices of essential commodities and ensures timely payment, promotes co-operative marketing of agricultural produce, bridges the gap between the consumer and the producer.
 37. <http://agriculturalmarketing.delhigovt.nic.in/>- Directorate of Agricultural Marketing functions to provide marketing facilities to agricultural producers so that they can get fair prices for their produces.
 38. <http://dare.nic.in/>- The Department of Agriculture Research and Education (DARE) coordinates and promotes agricultural research & education in the country.
 39. <http://www.iiss.nic.in/>- Indian Institute of Social Sciences, Bhopal provides information on scientific basis for enhancing and sustaining productivity of social resources with minimal environmental degradation. It also provides information on the latest software developed for soil testing methods.
 40. <http://www.krishi.net/GovtLinks.asp#IO>- This website has a collection of various sites related to agriculture and have links to Govt. institution, agricultural universities, state links, and international organizations.
 41. <http://agri.mah.nic.in/>- Department of agriculture, Govt. of Maharashtra provides information on seed, fertilizer, insecticide, marketing / export and statistical data of different agricultural products.
 42. <http://www.indg.in/agriculture/>- aims to disseminate useful information about improved technology to the farming community and service providers in the rural areas. It aims to create a platform for different levels in the rural agricultural landscape - farmers, cooperatives and professional bodies, farm machinery vendors, fertilizer and chemical companies, insurance regulators and agronomists, consultants, and farm advisors.
 43. **Error! Hyperlink reference not valid.** Maharashtra hybrid seeds co. ltd. Mahyco is a pioneer and leader in the Indian seed industry. It's the first to produce and market hybrids of cotton, sorghum, sunflower and wheat. It's the first company to commercially grow and market transgenic bollgard cotton. It produces the seeds of the following crops, cotton, field crops, oil seeds and vegetable crops.
 44. <http://www.ranadey.com/>- Institute of micronutrient technology helps in meeting agricultural and technical needs through research and analyzes nutrient requirements of crops, developing products based on the nutrient requirements of crops and providing the agricultural community with knowledge of balanced plant nutrient (BPN) and micronutrients.
 45. **Error! Hyperlink reference not valid.** this website gives detail information on organic farming.
 46. <http://www.irri.org/>- International Rice Research Institute (IRRI) is a research and training centre established to improve the health of rice farmers.
 47. [Agrisurf.com](http://agrisurf.com) - This is an extensive agricultural information portal operating globally.
 48. <http://agriculture.exportersindia.com/>- Exportersindia maintains a large database of exporters of agricultural

- products which includes fertilizers, pesticides, animal extracts, agricultural product stocks, vegetable oil, irrigation equipment, fruits & juices etc.
49. <http://www.search4i.com/Business-Economy/Companies> - web directory of website listings organized in relevant categories.
 50. <http://www.indiancommodity.com/agresearch/AgriEducation.htm> - This website has many links related to agriculture like agriculture seeds, agriculture farm & dairy, agriculture weather links, agriculture business etc.
 51. <http://punjabgovt.nic.in/agriculture/AGRICULT1.HTM> - This website gives agricultural scenarios and new initiatives in agriculture.
 52. http://afarm.org/about_afarm.html - AFARM- action for agricultural renewal in Maharashtra is for providing drinking water and agricultural extension services to villages in drought affected Maharashtra.
 53. <http://www.kerenvis.nic.in/> - The focus of ENVIS is providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc all over the country. These Centres have been set up in the areas of pollution control, toxic chemicals, central and offshore ecology, environmentally sound and appropriate technology, bio-degradation of wastes and environment management, etc.
 54. www.kissankerala.net/ - this website is a complete agri - info system for Kerala. Information on farming practices, fertilizers & pesticides, planting material are available.
 55. <http://www.abtecbiofert.com/> - agro bio-tech research centre ltd, the manufactures and distributors of bio-fertilizers, bio pesticides and organic manures, suitable for sustainable and organic agriculture. It produces different bio fertilizers viz. rhizobium, azospirillum, azotobacter, posphobacteria etc.
 56. www.indiancommodity.com/ - This is India's biggest commodity portal. The commodities are rice, basmati, barley, wheat, and oil seed.
 57. <http://agri.ap.nic.in/wto.html> - Andhra Pradesh agricultural websites gives detail information on pests and diseases, soil conservation, agriculture extension, farm mechanization etc.
 58. <http://agriculture.exportersindia.com/agriculture-equipment/> - this website is a supplier and exporter of all types of agricultural equipments.
 59. <http://tradejunction.apeda.com/> - Indian Agri Trade Portal is an online initiative by APEDA, a platform for market intelligence for Indian exporters and entrepreneurs on global markets as well as bringing the Indian Exporters & the global buyers together to share buy/sell leads.

Uses of Agri Portals

1. Providing interaction among research scientists, extension workers, farmers and rural people through e-mail.
2. Providing up-to-date news and information services, such as market prices and weather conditions.

3. A question and answer service where experts respond to queries on specialized subjects.
4. Creation and maintenance of statistical databases on critical agricultural and rural development parameters that can be queried on demand.
5. Providing the details of poverty alleviation schemes on the internet.
6. Hosting web sites by major institutions participating in agricultural extension, putting latest packages of practices (with more situation specific packages), for various agro-eco regions. This can help the extension workers to access latest information on IPM (integrated pest management), INM (integrated nutrient management) and other such practices for high value commercial crops.
7. Launching online rural development and extension journals, newsletters etc. (with or without print version).
8. Providing internet access at district and block level agriculture and rural development offices. This service may also be open for rural communities on fixed days. This connectivity can also be used to download online publications on useful topics from anywhere in the world.
9. Opening of cyber cafes to enable educated rural people and extension workers at village to have direct access to World Wide Web for having market information etc.
10. Providing maps that display different features, such as population density, crops planted etc
11. Providing video clips to demonstrate complex procedures; and audio files for re-broadcast on local radio stations
12. Providing mechanism of user / beneficiary feedback for public sector sometimes.

Important Cyber Extension Approaches in India

A) DACNET – An e-Governance Project

This is an e-governance Project of Department of Agriculture and Cooperation, being executed by National Informatics Centre to facilitate Agriculture-on-line. NIC's focus is on increasing value in the Department of Agriculture and Cooperation (DAC) and enhancing its relationships with its minimum agenda of e-governance: Integration of Government Functions (G2G), Integrating Agri-Business Partners (B2B), Connecting Farmers (C2C), Empowering Employees, Enhancing Government productivity and value and financial services. The goal of NIC is to deliver coherent and integrated solutions (best practices, experiences and global solutions) that enable the Department to succeed, and establish online Agricultural Information to farmers using ICT. In order to bring e-governance and to establish an Intranet for all the offices of DAC, NIC will facilitate the Directorates and it's field units to be connected and have access to information like:

- ☐ Messaging and Workflow Solutions
- ☐ Portal Services
- ☐ Decision Support System

DACNET is conceived and designed to address the following issues:

- Quantitative enhancements in the work culture by introducing better transparency and work flow application
- Streamlining the existing methods and practices, both administrative and technical aspects
- Easy access to the publishable information with minimum administrative intervention, with proper query and request features.
- Faster and reliable information dissemination and exchange across the Ministry and their Directorates and Field Units
- Greater integration and use of the data from variety of data sources
- Optimal utilization of available resources including office stationary and thereby helping to inch towards the paper-less office
- Intranet to Internet capability to provide telecommuting features and thus providing geography-independent working
- Better communication among the officers of the organization using E-Mail/Messaging to enhance better coordination, knowledge sharing and research.

DACNET Project: An Impact Study- by Sethi, 2003

1. 98.1 per cent of respondents feel that use of IT Tools has enhanced the Work Culture in the Directorates/ Field Units.
2. 89.6 per cent of the respondents feel that they are able to disseminate information about its activities in a better way through Web Portals, email/Messaging, Publications in the Electronic Form etc.
3. 64.6 per cent agree that the access to information has improved. 62.8% agree that the communication has become faster and 56.7% say that the overall working has improved.

B) Warana wired villages project

Warana nagar, a cluster of 70 villages in Maharashtra is an eye of the “wired villages” project. During 1960 “Warana nagar co-operative society” was established to bring all the farmers together, to share information, increase productivity, and profits. The society has a chairman and a board of members and is free from political influence and society members are free to elect the board members. There are about eight sub co-operative bodies, working under this main society viz.; Warana dairy development society, Warana co-operative bank, Warana foods, Warana womens co-operative society etc. The “wired village” project was initiated in 1996, but the actual implementation began in 1998. The project has been jointly implemented by GOI through National Informatics Centre (NIC), government of Maharashtra and Warana co-operative society with the share of financial support being in the ratio of 50:40:10. The project area is a cluster of 70 villages consisting of 46 villages from Kolhapur and 24 villages from Sangli districts of Maharashtra. This project has been initiated to serve the information needs on different crop cultivation practices of major crops, sugarcane cultivation practices, pest and disease control, marketing information, dairy and sugarcane processing

information etc. to the farmers, right up to their village level.

Network connectivity

Central hub

The central hub, which is the main server station of “wired villages”, is situated in Tahasaheb Kore institute of engineering technology at Warana nagar. This is equipped with servers based on Pentium II with 64 MB RAM, 4.1 GB hard disk and 32x CD-ROM drive. It has internet connection, enabling the main computer to download information from NIC and others. Presently 10 users can access information at a time.

Computer Booths

The computer booths are serving as information centers for the farmers in their villages. The computer booth is operated by the computer operator and he is the main linkage between the farmers and information gateway center. Every village is also linked with the Directorate of Marketing in Pune, which facilitates farmers in getting information on rates of vegetables, fruits and other crops.

Information technology center

Six information technology centers have been established to give training to staff, students and farmers of the village. These centers also function as computer booths and are maintained by a booth operator.

Feed back

An interaction with a few farmers indicated that farmers like the concept. They believe that the information from wired computers is a major source of getting information on crop technology. The ranking given by the farmers for source of information on crop technology, ranks wired computers as the best source followed by field officers and staff, radio and TV, print media and company sales persons.

Survey on the Impact of Warana Wired Village Project -by Venkatamallu.

1. The total number of respondents is 150 in which 112 men (74.6% of the sample size) and 38 women (25.4%) falling in various age groups.
2. Over 95% of the respondents agreed that electronic services are very useful in improving their living standards.
3. Most of the respondents are with agriculture as profession and agriculture allied sector laborers.
4. Most of the people said they used to spend more than Rs. 50 for availing services before but now the cost has come down to Rs. 15.
5. Almost 90% of the people told that they used to spend 1–3 days for availing services before but under e-Governance system they are availing the same within an hour.
6. Almost 93% of respondents agreed that there is a remarkable increase in agriculture production.
7. Nearly 80% of the respondents said they are highly satisfied while more than 17% said they are satisfied.

C) India Agriline

Recognizing the significance of information and communication technology (ICT) as a powerful tool for bridging the infrastructure gaps in rural India, EID Parry regarded the Internet as the next logical medium for

delivering its farm extension services. Indiagriline is an effort to provide an end-to-end solution addressing the needs of the farming community in South India. EID Parry launched this project in early 2001 by setting up Internet kiosks in 16 villages around its sugar factory in Nellikuppam. These kiosks were called Parry's Corners, named after a famous landmark in Chennai and were intended to be business hubs of their respective villages—a one-stop shop that acted as a storefront for buying farm inputs, a market for selling goods, and an Internet café for communication and information services.

Indiagriline: The Vision

The strategic goal of the Murugappa Group was to ultimately develop the following capabilities:

- **Distribution infrastructure:** This infrastructure would be capable of supporting bidirectional distribution of products and services into and out of rural India. Therefore, developing a low-cost channel for rural distribution was a key goal.
- **Trading infrastructure:** This would serve as the foundation to a platform for trading agricultural commodities and rural industry manufactured goods.

Towards achieving these ends, EID Parry forged and facilitated partnerships among a wide range of organizations, including Tamil Nadu Agriculture University (TNAU) and its research stations, Tamil Nadu University for Veterinary and Animal Sciences (TANUVAS), National Horticulture Board, AMM Foundation, and Murugappa Chettiar Research Center, to create the agriportal Indiagriline.

www.indiagriline.com was developed by using in-house expertise. It fashioned a franchise-based business model to meet the demand for information and connectivity. These kiosks are owned and operated by franchisees trained to operate the system. Although EID Parry covers the cost of establishing the infrastructure for voice and data connectivity, the franchisee also contributes his portion and attends to the operational expenditure of the kiosk. This cooperative relationship builds a win-win situation for both parties involved.

Each Kiosk has a cordect wall set, a PC, printer, telephone, furniture and a power source with a back up. The franchisees can leverage the EID Parry brand name to attract customers to their location for selling products or services. They also benefit from a wealth of knowledge transferred to them by EID Parry on how to successfully manage and operate the Parry's Corners. EID Parry also offers assistance in financing the franchisees through arrangements with third-party lending institutions such as Indian Bank.

D) Drishtee.com

Drishtee is a private initiative, known as Drishtee.com Ltd. It partners various local and state governments in its working model. Investors and donors include The Boston Consulting Group and Microsoft. It is among the pioneers in providing rural services with its presence in almost 5 states of the country with 310 operational kiosks targeting a total population of about 300,000. Drishtee is a software platform for enabling governance, commerce, education, health and other information services. It facilitates

communication and information interchange within a localized intranet between villages and a district centre. Drishtee services are delivered via Information Kiosks that are owned by local villagers. Each kiosk, located at a prominent central location in its district, caters to the needs of the surrounding villages. Typically, the kiosks are financed through a Government-sponsored loan scheme. User fees are charged at the kiosks for the services provided. Kiosk owners are trained to operate the Drishtee system and services. Drishtee has moved with the times and has morphed into a multiple rural services provider. 132 kiosks had already been deployed in such states as Haryana, Punjab, Uttar Pradesh, Bihar, Rajasthan, and Orissa. Improved access to market information, such as crop prices, has increased the bargaining power of farmers versus buyers. Rural kiosks encourage citizens to complain about poor public services, increasing the accountability of government departments. In its first phase, Drishtee was mainly working on connectivity and e-governance and reached coverage of 310 kiosks.

E) Agriwatch.com

Agriwatch.com is the largest Agribusiness Portal in India. Paid Membership of this portal enables individuals to access a large amount of agribusiness related information covering more than 15 subsectors within the Agricultural and Food Industry, such as **Rice, Wheat, Maize, Oil Complex, Pulses, Spices, Sugar, Cotton, Fruits & Vegetables, Herbs & Medicinal Plants, Dairy, Poultry** etc.

The typical information for a commodity on the Portal is as follows:

1. News and Analysis,
2. Market prices from Domestic and International Markets,
3. Buy & Sell Trade Leads,
4. Links to real time news services,
5. Live quotes from international commodity exchanges,
6. Ports and Logistics,
7. Weather,
8. AgriBuyers Directory,
9. Agri Yellow Pages,
10. Online Store Fronts,
11. Government Policies/Rules/Regulations,
12. Links to a large number of Agri related sites,
13. And many other sections.

The organization has around 25,000 paid subscribers spread throughout nation benefited with facilities of market rates through the web, magazines, newspapers and SMS services.

F) e-Chaupal

e-Chaupal is a nation-wide infokiosk-based e-procurement network set up by ITC Limited, one of India's largest companies, for collecting high demanding farm produce like soya, coffee and prawns, directly from the end producers. The agri-market in India is characterized by small land holdings, weak market infrastructure and market transactions involving numerous intermediaries. Farmers often end up selling their products at exploitative

rates to the intermediaries. Since June 2000, e-Chaupal infokiosks automatise the farm merchandising process by enabling farmers to sell their produce at ITC collection shops at competitive market rates. *e-Chaupal*, now India's largest infokiosk initiative, covers 31,000 villages through 5200 kiosks across six states (Madhya Pradesh, Karnataka, Andhra Pradesh, Uttar Pradesh, Maharashtra and Rajasthan). Madhya Pradesh alone hosts 1045 e-chaupals, spread over 6,000 villages, covering 600,000 farmers. The reach of e-chaupal, however, varies. The e-chaupal in Khasrod in Madhya Pradesh, for example, serves about 500-700 farmers in ten villages whereas the e-Chaupal in Dahod serves about 5,000 farmers in ten villages. On an average, an e-chaupal serves about 600 farmers in the soy cropping area, fewer in wheat, coffee, and shrimp producing areas. Besides Madhya Pradesh, echaupal has been rolled out in Uttar Pradesh, Andhra Pradesh, and Karnataka. While creating the infokiosk based agricultural trading solution, e-Chaupal stressed on two aspects: i) The delivery of real-time information independent of the transaction. In the mandi system, delivery, pricing, and sales happen simultaneously, thus binding the farmer to an agent. e-Chaupal was seen as a medium of delivering critical market information independent of the *mandi*, thus allowing the farmer an empowered choice of where and when to sell his crop. ii) Facilitate collaboration between the many parties required to fulfill the spectrum of farmer needs. As a communication mechanism, this goal is related to the commitment to address the whole system, not just a part of the system

Operation of e-Chaupal

Local farmers, selected and trained by ITC, operate the kiosks. Called *Sanchalaks*, the infokiosk operators play a very critical role in the system as they act as intermediaries between ITC and the farmers. ITC decided to recruit farmers as *sanchalaks* because Indian farmers who have been betrayed by institutions and individuals for generations, can be most trustworthy in the rural society and they can provide space for housing the infokiosk infrastructure. The entrepreneur farmers are also required to make some investments towards the operational costs (between Rs. 3000 to 8000 per year) for electricity and phone line charges for dial up connectivity. ITC experimented with increasing the throughput of dial-up connectivity to the infokiosks. Though it has been able to give an average of 40 kbps of bandwidth, infokiosks are faced with slow and disruptive connectivity due to a poor telecom infrastructure at the village level. It should be noted that ITC has been straightforward in installing expensive IT infrastructure even in the remotest places. It is a manifestation of the integrity of rural value systems that not a single case of theft, misappropriation, or misuse has been reported among the 2000 e-chaupals. Online information is made available through the kiosks in local languages free of cost. Like Bhoomi, e-chaupal is an innovative IT-based solution to age old problems faced by the Indian farmers. Through making a rather simple portal based information dissemination channel accessible through the infokiosks, e-chaupal has been able to provide farmers better prices for their products. The engagement of local farming communities in e-chaupal businesses, especially the involvement of entrepreneurial farmers as

sanchalaks, demonstrates the community participation component of this project.

G) Case study on TNAU AGRITECH PORTAL

Objectives

- ✓ To set up e-connectivity in all the 60 centers of TNAU (KVKs + ATIC, Research Centres and Colleges) with all the blocks and districts of Tamil Nadu.
- ✓ To provide need based information to the farming community through TNAU portal with various ICT modes. To create interface mechanism between Agriculture Department, KVKs, Research Stations, NGOs and Farmers Associations.
- ✓ To provide need based and timely farm advisory service through various ICT Tools and Techniques

Important features of the portal

- Latest technology in Agricultural and all allied enterprises
- Daily market information (DMI)
- Content of the portal is open source material.
- The contents are updated daily.
- The content has been designed with more of visuals and lesser text.
- About 60% of the information given in the website is common to all states.
- The website is using more than 22 extension tools
- It has a collection of over 400 success stories published in it.
- It hosts any useful agricultural information from world.
- Podcasting of farmer's diary column of Hindu news paper in English and Tamil.
- List of farmers associations and commodity groups
- Information on farmers market
- Content of community radio station programmes

Components of Portal Project

- Agritech portal is basically an outreach portal aimed at the extension officials and farmers
- E-connectivity is provided to link all 60 centers of TNAU through a third-party network service provider (Wireline solution http://www.wls.net.in/business_partners.htm#)
- Internet Protocol (IP) based Video conferencing.

ICT-Initiatives of UAS, Bangalore

- **Internet connectivity:** UAS Bangalore pioneering in connecting all its research, extension and teaching unit through internet and intranet connectivity by establishing Agricultural research information system (ARIS) during the year 1998. Through this possibility among the various units in outstations and centres to exchange their scientific information.
- **University website and developing content for Portals:** UAS website A separate interactive website was launched during 2007 and it is being regularly updated all the recent information along with photographs, illustrations, data base etc

- **Video conferencing through VRCs/VKCs:**UAS Bangalore is the primary institute in connecting all its KVKs/ TOT centres through two interactive videoconferencing in collaboration with ISRO from June 2008. Through this network regular videoconferencing programs are being broadcasted from the expert centres located at university headquarters. Krishi Vigyan Kendra - Expert Center Raitha Samparka Kendra - VKCs
- **Mobile message service** UAS Bangalore, Dharwad and IKSL entered an tripartite MOA on April 2009. UAS – IKSL (IFFCO – Kisan Sanchar Limited).
 - Maintaining & up-dating message bank
 - Mobile message services & help line services
 - Provide both voice and text messages
 - Help line services linking Kisan Call Center
 - Advantages of UAS – IKS
 - Exploiting the mobile service for agriculture and rural services
 - On the spot advise to the queries
 - Use of cooperatives at grassroots level
- **Information Touch screen Kiosks**
 - User friendly device
 - Access to all type of information
 - Availability of Computerized data of information
 - Easy to install at remote places
 - Self directing and explanatory
 - Availability of round the clock service
 - Pictorial presentation of information
- **Community radio service**
Ministry of information and broadcasting, GOI, gave concern to establish two community radio stations at KVK Hassan and Shimoga during the year 2009-2010 and official procedures to issue LOI is under progress.
 - Credible source of communication
 - Unrivalled access
 - Low production and transmission cost
 - Bring small communities together
 - Focus on common man's day today concern
 - Address local problems and issues
 - Emphasis on local and regional languages
 - Emphasis on interactive programmes

Developing multimedia DVDs on important crops/enterprises

In 2009-10 under RKVY to develop multi media DVDs to identify important crops/enterprise. Considering information seeking behaviour of the farming community, ICT has to be explored in place of traditional communication method. Multimedia DVD (Digital Video Disc) enables Convergence of technologies, Miniaturization, Increase of storage capacity. It is a tool for disseminating farm information in line with the interest and needs of the farmers and Serves as reference material for future use of the farmer.

CONCLUSION

The utilization of mass media, internet and kiosks can bring in considerable changes in the lives of farmers as it

transfers the current and precise technologies. Information and Communication Technologies when used adequately can speed up the process of transfer of technology. There is a "Digital Divide" that is hindering the capacity and productivity of rural agricultural activities carried out by the marginal farmers in India. This calls for improved e-agriculture extension service so as to reach the last mile and to achieve agriculture development in our country.

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