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Potential of M-Commerce of Agricultural Inputs in Kolar, Karnataka, India

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Abstract

There exists a huge dependency on ICT in the agricultural input scenario. Getting quality inputs at the best price is the biggest challenge that today's farmers face. Growing smartphone penetration in the rural regions of India is encouraging the growth of m-commerce models to focus on agribusiness. Such a scenario can revolutionize the Indian agriculture. Almost all the farmers now own a mobile phone out of which 40% are smart phones with internet connections. This highly potential reach, if properly guided can bring about modernization in the buying of agri inputs by the farmers. 30% of the farmers in Karnataka have adapted to online shopping for their pre-planned purchases. Tech-savvy farmers research online and then make decisions. Younger and educated farmers in the state tend to use internet for making farm related decisions. Agriculture is a region specific activity and hence the potential for agri input related m-commerce has to be region specific. Understanding where such m-commerce platforms will add value to the distribution channels for agri input is a main challenge. Another challenge is the provision of logistics without increasing the farmer price and cash on delivery payments in rural areas.

Keywords: Agri input, ICT, m – Commerce, Smartphone, Online shopping.

Introduction

The change in the socio-economic conditions of the countrymen is due to the rapid growth in information and communication technology (ICT) and internet services which has led to a revolution in information and knowledge sharing. Agriculture has been contributing towards the GDP of the country's economy, but this number can be increased by intensive achievement driving growth and welfare to the farmers by serving them better.

Farmers are being provided with knowledge based information through various toll free numbers, internet sites, mobile apps, and other means. Farmers' Portal (www.farmer.gov.in), m-Kisan Portal (www.mkisan.gov.in) and Kisan Call Centers (KCC) are some platforms currently active in India. Specific and seasonal advisories are being provided upon registration on mobiles through SMS in the farmer's local languages. The information includes market prices, seasonal pests and their control measures, weather reports etc.

Kolar is a popular vegetable growing area in Karnataka. The main crops here include fruits like mango and papaya; vegetables like tomato, cole crops, carrots, potato, beetroot and onion; flower crops like rose and jasmine. Cultivation of these crops involves usage of seeds, plant protection chemicals, nutrients, plant growth regulators and anti-transparent. The purchase of such inputs involves the farmers identifying the problem in the field, taking the plant sample with the visible symptom to the nearest dealer shop (present in the town) and consulting the dealer for the solution of the problem. The dealer recommends the chemical which is available in his shop and most of the products have higher margins.

Objectives of the Study: The present study focuses on the understanding the potential of m-commerce of Agri inputs in India, farmer's buying behaviour and the current market scenario. The main function of this study was to study the feasibility of establishing a mobile based agri input marketing platform for the farming community in the rural parts of the country.

The research study aims at evaluating the role of agribusiness firms, retailers and others in the sales of inputs like seeds, fertilizers, nutrients, plant protection chemicals etc., the objective of which is in fact finding and interpretation and thereby identifying the loopholes needing rectification followed by suggesting measures aimed at further promotion and accelerating the pace of development of Indian agriculture and the farmers.

The study is based on the following main objectives: i. To study mobile users population (simple handset, smart phones and smart phones with internet access), ii. To study the adaption of various online shopping platforms by the farmers, iii. To study the need of a mobile based agri input platform, iv. To study the advantages of m-commerce of agricultural inputs, v. To study the existing e-commerce platforms for agri inputs.

Scope and Limitations of the Study: The study covers all the major dimensions of the m-commerce concept in agricultural inputs. The study examines the related aspects of the farmers in the Kolar region of Karnataka. The analysis also covers other important elements of pricing, availability, transport, information and intermediaries. Further, the study finds the following shortcomings while conducting the research: i. The respondents themselves being in the middle of confusion of work-life balance issues and they were probably not objective when they studied and answered the questionnaire. This is particularly possible in view of their time limitations. ii. Due to the unique blend of culture and etiquette the study may be applicable only to the prevailing social setup of the areas. iii. The whole sample population may not represent in the study. iv. The primary data which was resorted to be relied upon had its deficiencies in view of the fact that in personal interviews and contacts, there is a possibility of concealing some information. v. Based on the past performance, it is difficult to make future predictions and sometime the same may happen to be untrue. vi. The period used for the collection of data also stands as a limitation for the study.

Materials and Methods

The study has been conducted in the Kolar region of Karnataka, covering the major fruits and vegetables cultivators. The subjects were selected from the region using the random sampling technique. Structured interview with the aid of predetermined set of questions in the form of questionnaires were used to collect the pertinent information. The interview schedule was supported by focus group discussion among the selected farmer groups that participated in the programmes using the sampling technique.

The areas classified by the pockets, where fruits and vegetables were cultivated in the Kolar area, were selected randomly for the purpose of this study, to identify the farmers, traders and consultants as respondents. 200 was the total sample size. The stratified random sampling scheme was used for selection of sampling units. The primary and secondary sources are used for collecting statistical data for the study. The methodology used in this study is presented under the following headings.

Farmers Type: The farmers were randomly selected. The average land holding of the farmers is 3 acres. The major crops cultivated here are vegetables like tomato, carrot, onion, cabbage, cauliflower and fruits like mango, melons and papaya. The population consists of a majority of the medium farmers whose land holding is in the range of a half to two acres of land.

Areas Covered: Kolar, Chinthamani, Srinivasapura, Bagepally, Mulbagal, Betamangala, Hosakote.

Primary Data: The primary data was collected using structured questionnaire besides the secondary data. The sample consists of 40 traders and 160 farmers.

Secondary Data: Various publications of economic survey books, journals and periodicals are used to collect the secondary data. The data collected have been analyzed by using to suitable statistical tools for specific interpretation. The data was also collected from the published documents.

Table-1
Farmers in Survey

Status	Population-Sample	Land holding (Acres)
Small Farmer	10 %	0.0-0.5
Medium Farmer	85 %	0.5-2.0
Large Farmer	5 %	0.2-10.0

Source: Survey of Farmers

Sampling Procedure: For the investigation the multi-stage purposive sampling procedure was adopted. Traders of that region were listed. A list of farmers was collected from each trader and then investigated. Keeping in view the objectives, an interview schedule was prepared and that schedule was pre-tested to locate any ambiguity in the questions. The required information was obtained by using the pre-tested schedule by personal interview method.

Review of Literature: ICT and its application in agriculture is not a new concept. It has been observed through various studies that most farmers had access to a variety of traditional information sources like TV, radio, newspapers, other farmers, agricultural extension services from the government, input dealers, traders, seed companies and relatives, which they regularly accessed for gaining information of agriculture[1-3]. Since past several decades these traditional ICT's have been an important tool to disseminate to the farmers the scientific and technical agricultural knowledge and further leading to improved adoption and use of technologies. In 1970's and the 1980's they have also played an important role during the green revolution[4]. Radio broadcasts were initiated in late 1950's and early 1960's[5-6]. On the national channel of India, Krishi Darshan was started as the programme for framers in 1960's and was first television based. In 1990's various new television and radio based agriculture programs were launched and farmers' were also using television and radio, but still the empirical impact of these services on farm household income was not known[7]. The one way mode of transmitting information was the common feature of the traditional ICT's[8]. Traditional ICT's started giving information in localized language, although slowly and gradually but as the transmission was for a large mass of farmers who were spread over various districts and villages, the content was not specific and did not fulfil the specific needs and was quiet generic for major new innovations and technologies. A step forward, evolution of community radio was a good step for each village or villages dedicated radio services and transmissions were initiated. The introduction of

tele-centers in India through government initiated programs was a good step (Table-2), but due to issues and problems of landline phones with poor penetration and not regular access to the expert which caused these tele-centers to perform not to the expected level of these initiatives[9]. The improvement in communication was possible with later developments in live or phone in programs[10].

Results and Discussion

Kolar, in Karnataka, is a vegetable growing belt with major crops like tomato, cabbage, cauliflower, carrot, onion, potato and beetroot. Farmers here have small landholdings but great market connectivity. There exists interest and acceptance among farmers for mobile based agri input marketing and sales services. Farmers who belong to the age between 25 to 45 years comprise of the largest user group of technology consisting of mobile based apps and internet for decision making of field activities. In terms of educational background, farmers with a minimum exposure of seven to ten years of basic schooling (80%) are the ones to use technological tools. Out of a sample size of 160 farmers, 69 farmers possessed smart phones with a minimum of 400 MB of internet data.

The study shows that out of 160 farmers in the sample 38 farmers were regularly using existing online shopping apps for their pre-planned purchases. The products included watches, clothing and apparels, kitchen ware, electronic gadgets etc. Due to lack of delivery options to the interior villages, the farmers purchase the products and get them delivered to their relatives' house in Bangalore (which is 44 km from Kolar). The relatives mainly consist of their children who are studying or working in the city, brothers or friends.

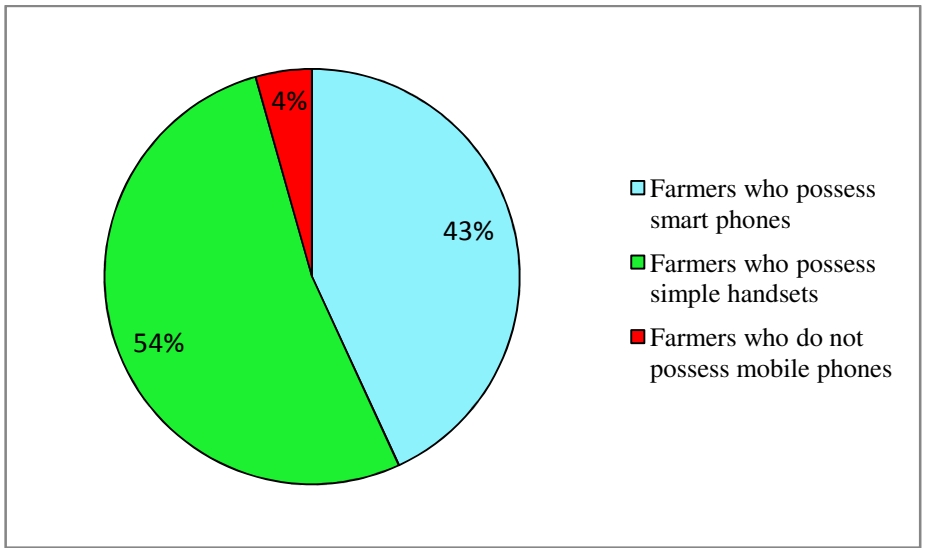


Figure-1
Status of possessing a mobile phone by the sample

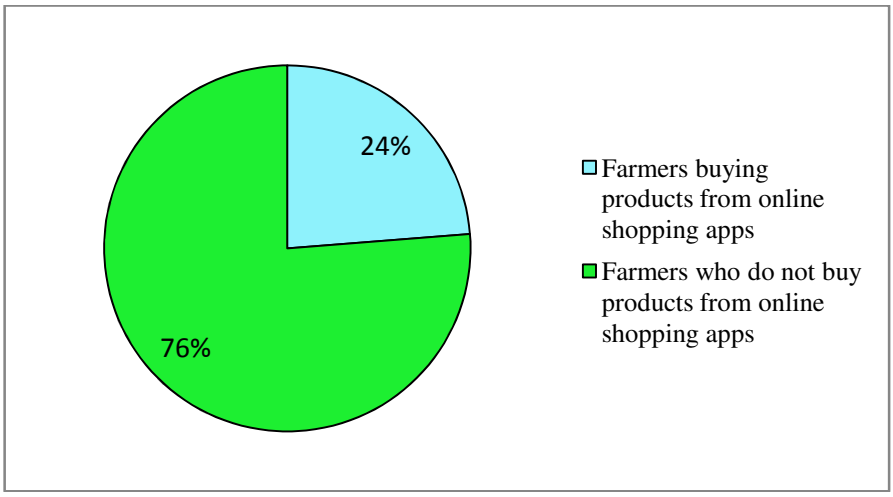


Figure-2
Status of farmers buying products online through mobile apps

The farmers buy agri inputs from dealers' counter present in the town for the production of the crops. The following are the features of the traditional purchases: i. The farmer pays in cash after buying the agri input from the dealers, ii. The farmers are exploited with high prices per product. iii. Not all the products available in the market are of standard quality. iv. No offers, combos and seasonal discounts are given by the dealers.

The scope to enhance the usage of mobile sof commerce is huge as the current usage forms a good platform. With regard to the purchase of agri inputs in a traditional way, 68% of the the farmers who were interviewed expressed overall satisfaction from the purchase. The advantages that these farmers explained were in line with the information about the crop and the pests that the dealers shared in addition to the purchase. 60.52% of the farmers who are already using online shopping apps expressed deep interest in purchasing agri inputs online through mobiles apps. The rest of the farmers explained the following causes for opposing m-commerce apps: i. Lack of internet connectivity, ii. Lack of smart phones, iii. m-commerce will not add value with information like the dealers share. iv. Good relationship with the dealers. v. Lack of technology adaptation.

The farmers willing to buy the inputs through m-commerce expressed interest in the platform because the need for such a platform gave the following advantages: i. Better quality of products, ii. More information of new technologies, iii. Wider range of products, iv. Availability of offers and combos, v. Price fairness, vi. Convenience, vii. Timely availability of key products (demand and supply match), viii. Ruling out substandard, locally manufactured products, duplication, black marketing and adulteration.

Review of existing e-commerce models of agri input: There are many start-ups which tried to capture the concept of e-commerce in agri inputs. Some of them are: i. Agri App, ii. Agro Star, iii. Krushi Bazaar, iv. Big Haat.com.

These apps were a good effort to link the farming community with direct purchasing systems of agri inputs. Mahyco, a renowned seed company of India, also entered the e-commerce of seeds. HDFC bank linked financing with purchase of inputs. The above mentioned apps do not have all the products required for cultivating the crops. One of the apps has not mentioned any prices on the site and the farmer needs to receive a call to place an order. Farmers complain that they never received a call back to place the order. The following are the snapshots of the above apps: Agri App has a very good display of products and product information is also presented. New molecules and products are missing in this app. Agro Star has a good display for illiterate farmers too. New products are not updated in this app and the app is available in Gujarat, Maharashtra and Rajasthan only. Krushi Bazaar and Big Haat.com have been outdated because of lack of basic products.

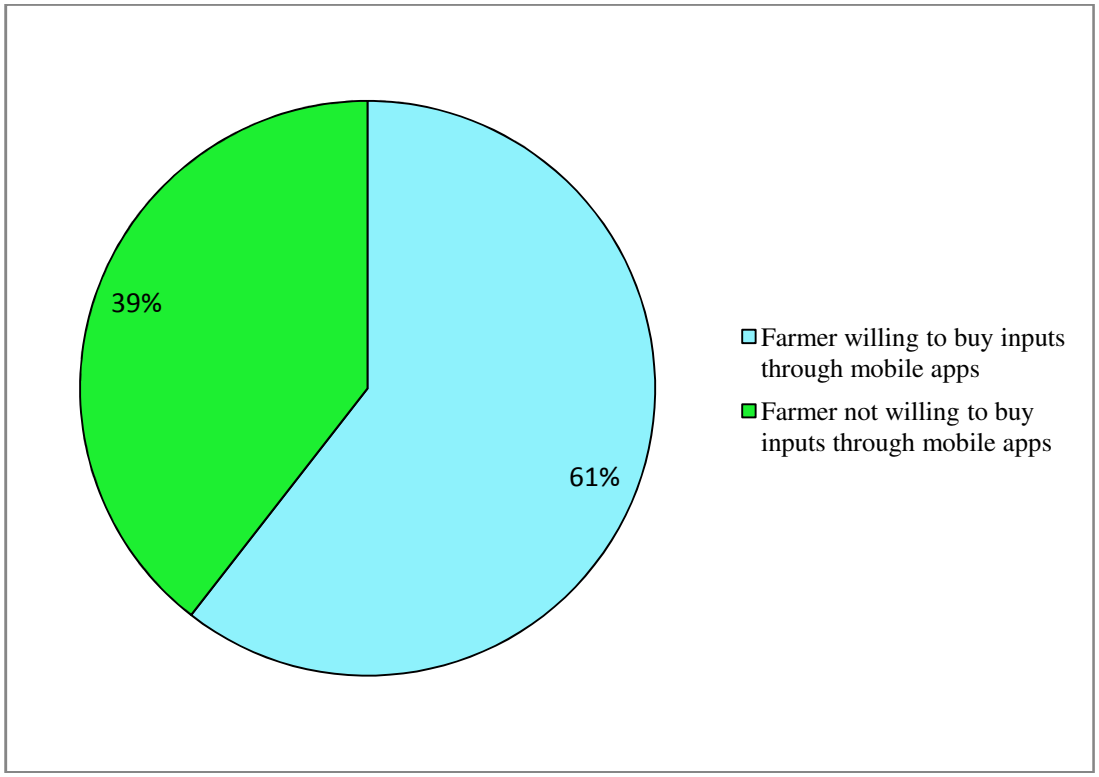
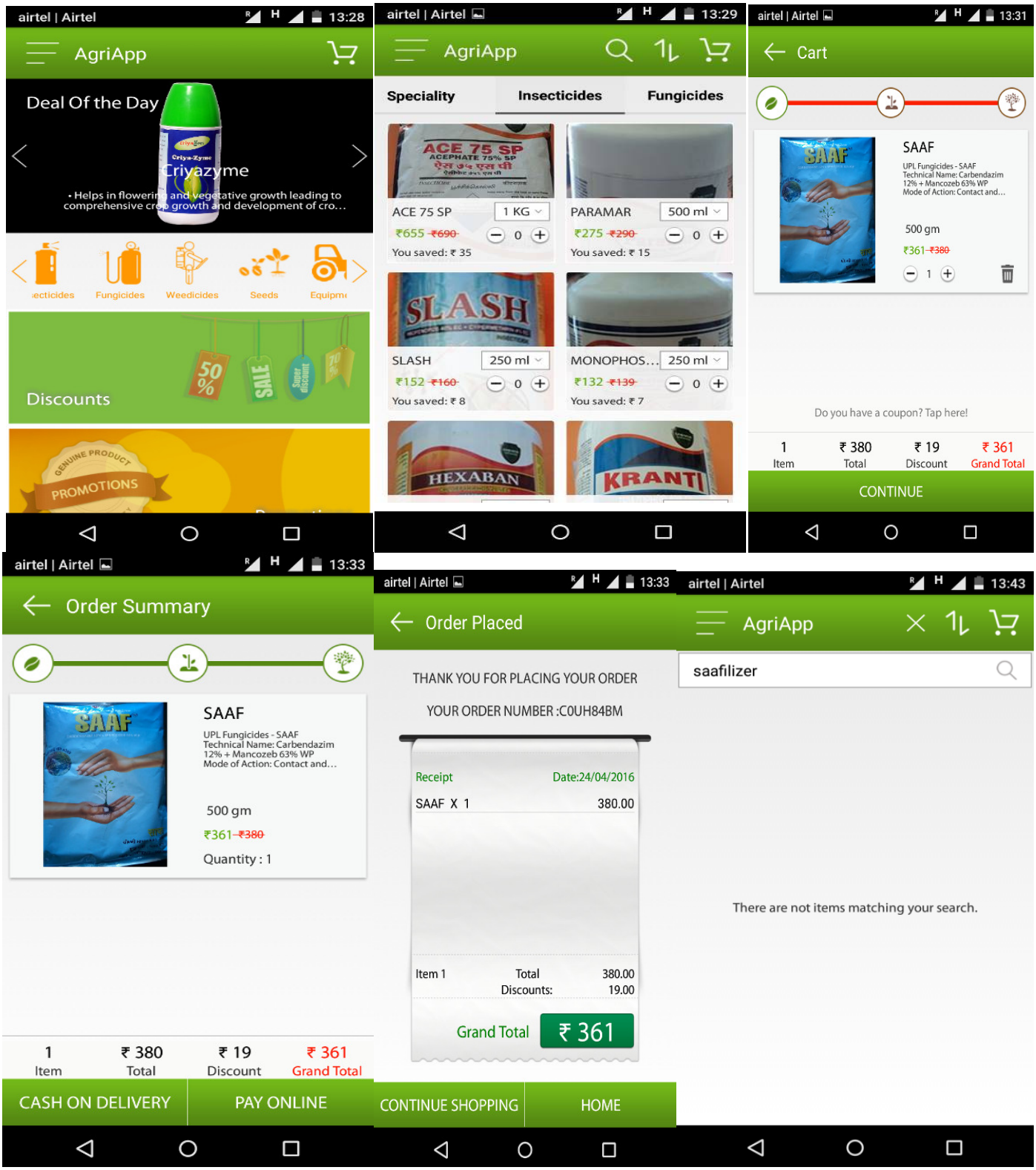
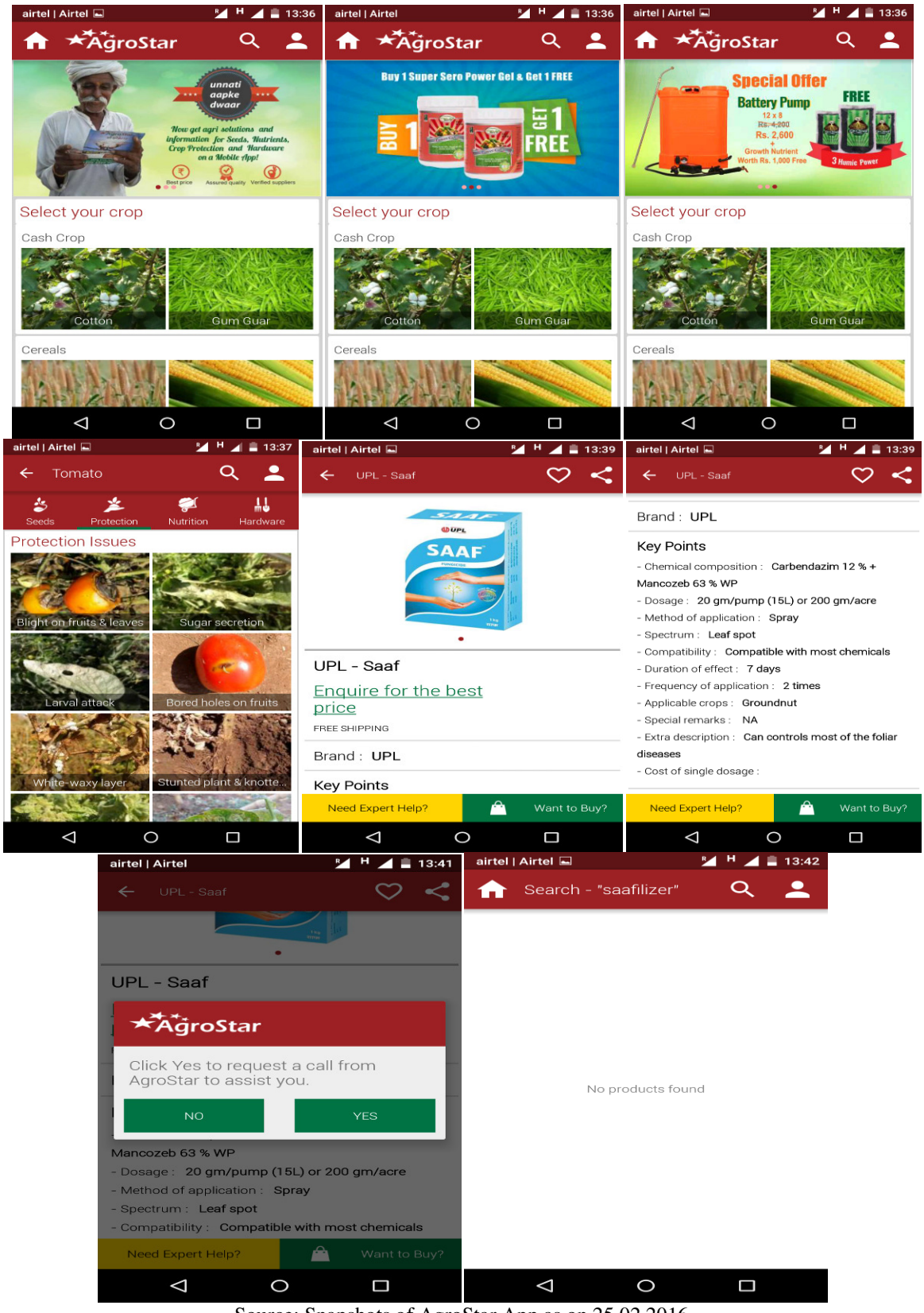


Figure-3
Online shopping app users who are willing to buy agri input using mobile apps



Source: Snapshots of Agri App as on 25.02.2016

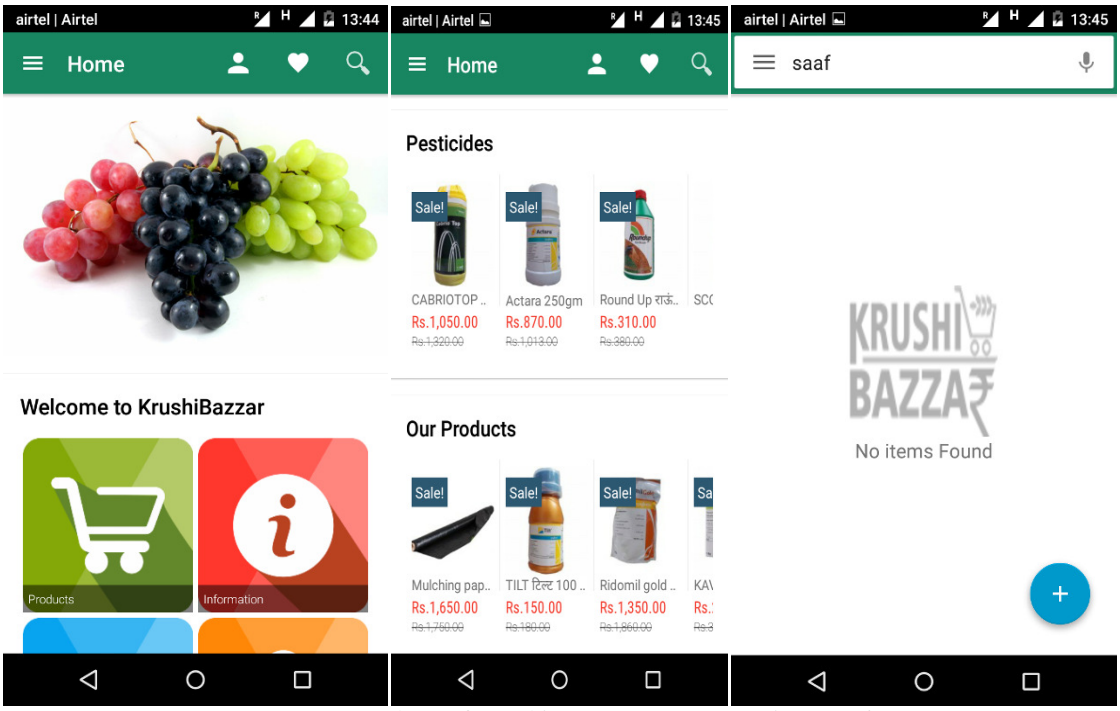
Figure-4
Agri input mobile apps – Agri App



Source: Snapshots of AgroStar App as on 25.02.2016

Figure-5

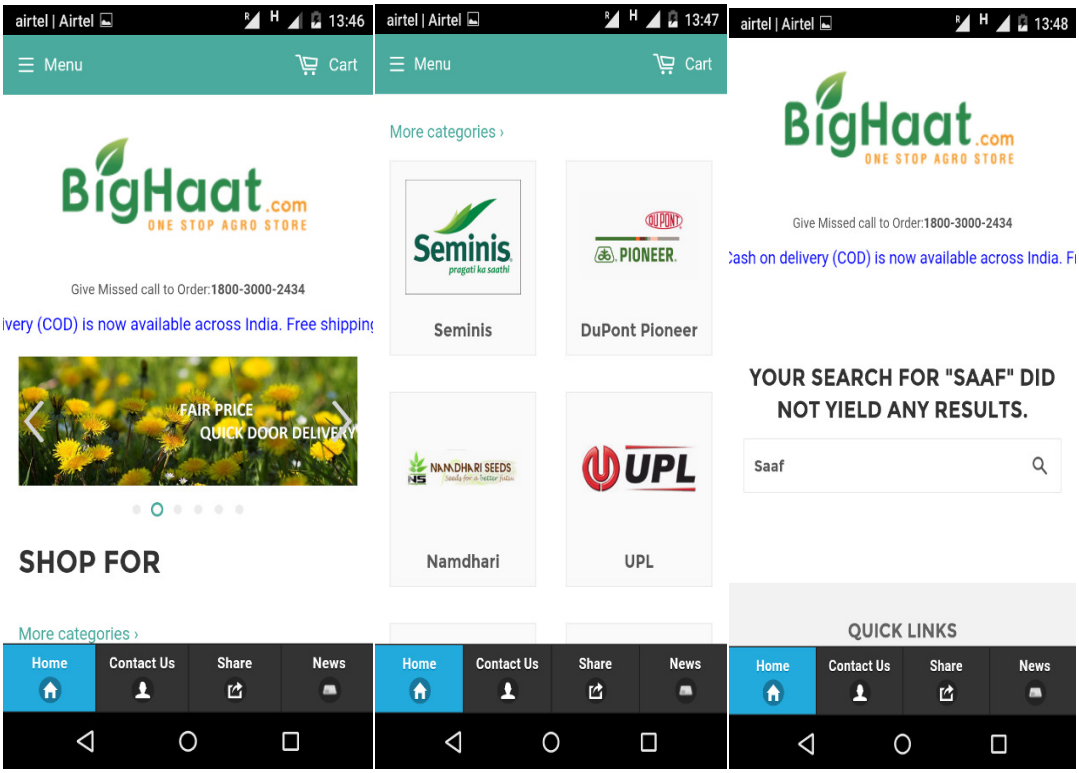
Agri input mobile apps – AgroStar App



Source: Snapshots of Krushi Bazzar App as on 25.02.2016

Figure-6

Agri input mobile apps – Krushi BazzarApp



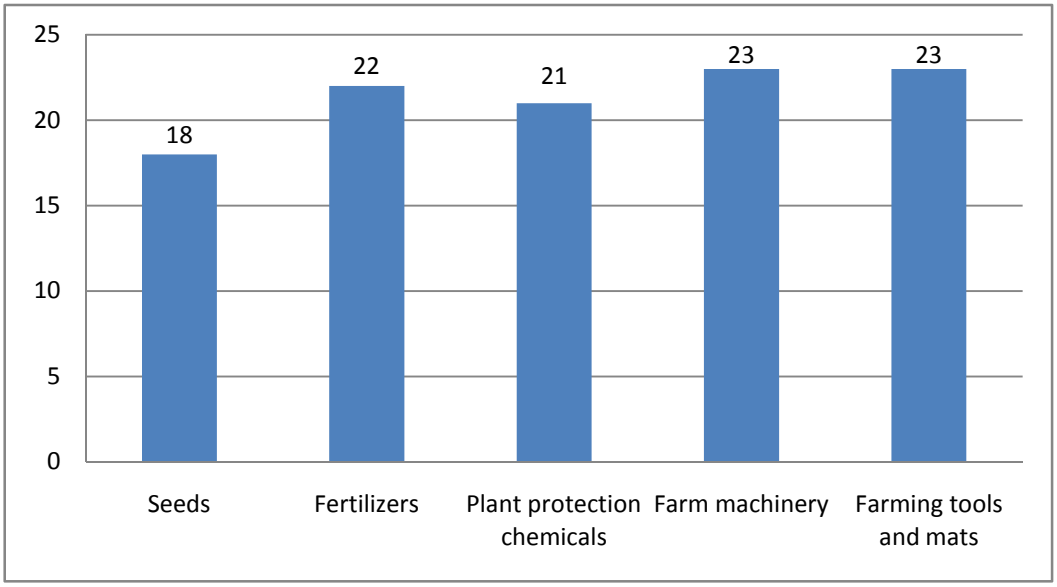
Source: Snapshots of BigHaat.com as on 25.02.2016

Figure-7

Agri input – BigHaat.com

Need for M-Commerce of Agri Input Marketing in Kolar: The sample had 23 farmers who were willing to purchase agri inputs through mobile apps. Majority of the farmers were willing to purchase farming tools, mats and machineries through this platform to ease the delivery of the product. The below chart shows the preference of types of inputs that the farmers in Kolar are willing to purchase through the mobile apps.

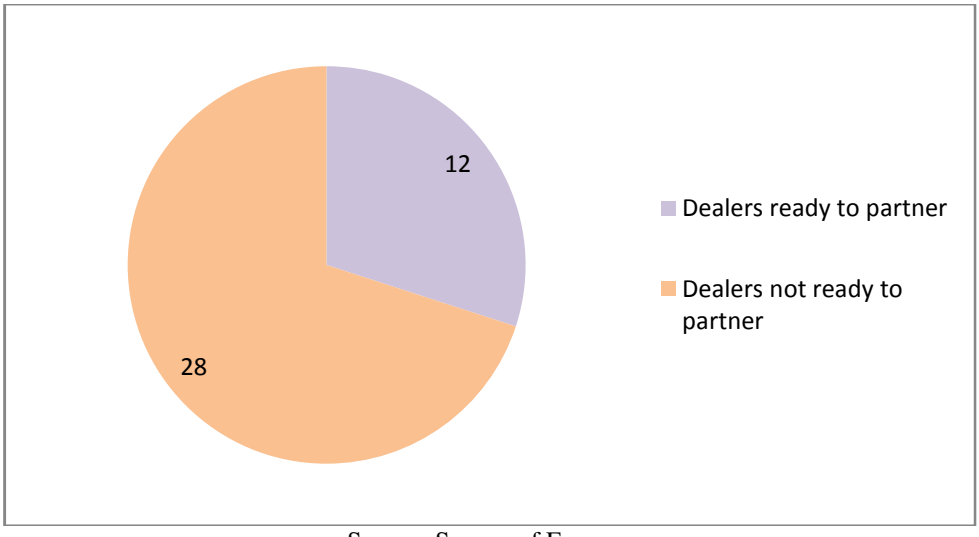
The m-commerce platform for agri input is most successful if partnered with the dealers of the local area. The farmers can place the order or the problem can be stated to the call center through their mobile handset. Farmers who wish to use the app can place the order online using the app and then the nearest registered dealer is informed about the order. The call center confirms the order through a call. The registered dealer supplies the order to the farmer using the logistics partner locally and the payment is made on delivery. The problems of the farmers can be identified by the experts from the company as well as the local dealers. Out of 40 dealers who were surveyed, 12 were willing to be a part of such a partnership model with their own provision of logistics. Dealers with more than 10 crores of annual turnovers were the ones who were ready to partner with m-commerce platforms.



Source: Survey of Farmers

Figure-8

Type of agri input products that the farmers are willing to buy through mobile apps



Source: Survey of Farmers

Figure-9

Status of dealers ready to partner with the m-commerce company

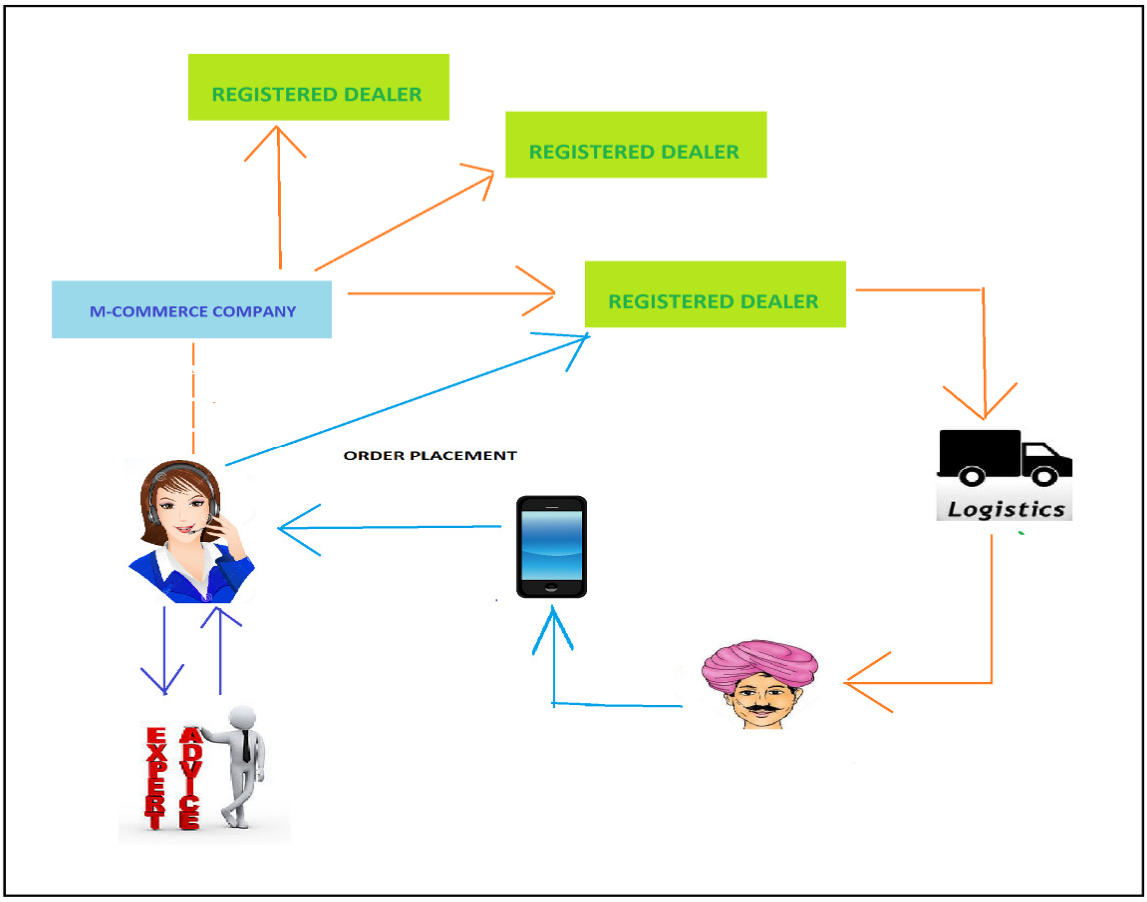


Figure-10
Proposed m-commerce platform for agri input marketing
Source: Research on existing m-commerce platforms

The following features need to be implemented and provided in the proposed m-commerce platform: i. The products offered along with technical information, ii. The pricing information about the products offered, iii. Background information about the product's company and product label, iv. A dealer directory, v. Allowance for online ordering, but use of traditional means of payment, vi. Include communities/chat rooms/expert talk online with image sharing, vii. Areas with content customized to different audiences or individuals must be included, viii. Password protected areas which are only accessible to registered clients/customers/dealers.

Use of such a platform of m-commerce for agri inputs can boost the sale of agricultural products. It also decreases the gap between the farmer and the customer while strengthening the supply chain in agriculture. Track of products and stock can be maintained, better inventory management, loss in profits can be minimized and supply-demand can be monitored fairly. Thus, agricultural input sector will become more professional and systematic.

Conclusion

The research led to the conclusion that a sustainable m-commerce platform for the sale of agri inputs is driven by local partnership, media mix, innovation, simplicity, timeliness, quality and credibility. ICT in agriculture has just been developing quickly in the Kolar area. Agricultural m-commerce can gain speed by creating more awareness and educating the farmers. The challenge of logistics can be solved by partnering with the major dealer who is locally available. The construction of m-commerce platform for agriculture is the only way to open the market.

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