Commentary Article

doi:10.19071/jpc.2015.v43.i3.2862
Journal of Plantation Crops, 2015, 43(3): 250-253

Use of Farmers' Portal for dissemination of oil palm agro-management technology in India

K.L. Mary Rani*, M.V. Prasad, S. Arulraj and B. Mounica

ICAR-Indian Institute of Oil Palm Research, Pedavegi-534450, West Godavari District, Andhra Pradesh, India

(Manuscript Received:01-06-2015, Revised:26-09-2015, Accepted:12-10-2015)

Abstract

In India, mobile phones are widely used for effective communication of various agro-management information to farmers. Oil palm is cultivated in India since two decades under irrigated conditions. The crop being new, farming technology has to be disseminated to field extension staff, growers and developers to take quick and apt decisions. Farmers' Portal launched by Government of India (GOI) for farming community is also being used to disseminate the oil palm farming technology to its stakeholders through short message services (SMS). Contents prepared on various aspects on oil palm cultivation were published as text SMS (568) to the unique mobile numbers (19,301) of stakeholders of oil palm in India. Messages were published in four languages *viz*., Hindi, English, Telugu and Kannada to reach the stakeholders in vernacular languages. Stakeholders contact the Institute, seeking more information on various farming practices of oil palm *viz*., planting, protection, general information, fertilizer application, irrigation, harvesting *etc*. Consultation was provided to 304 farmers who sought information on fertilizer management (34.2%) followed by crop protection aspects (28.3%) and general information (24.0%) on oil palm cultivation. Feedback received from farmers showed that the SMS contents were useful in the following order: irrigation (15%), fertilizer application (14%), disease management (8%), weed control (4%) and all messages were useful (59%). Majority of the farmers (68%) perceived the messages were relevant to their crop growth/stages and 33 per cent farmers were adopting the practices sent through SMS.

Keywords: Farmer Portal, ICT, mobile services, oil palm, text SMS

Usage of mobile phones in the country has increased during the last decade for various reasons. According to Telecom Regulatory Authority of India (TRAI), by the end of January 2015, the overall tele-density of wireless phone connections in India was 76 per cent, of which, urban tele-density was 143 per cent and rural tele-density was 46 per cent (TRAI press release). In the field of agriculture, mobile phones are being widely used to send/receive information on market prices, weather details *etc.,* (Dhaliwal *et al.,* 2010). As coverage of mobile network is expanding to rural network in an exponential way, the messages reach remote areas also immediately during any time of the day.

Oil palm, the highest oil yielding (4 to 6 t ha^{-1}) crop, has established as an irrigated crop in India and is commercially cultivated in 2.7 lakh hectares (Rethinam *et al.,* 2012). Observing the advantages of mobile applications, ICAR-Indian Institute of Oil Palm Research (ICAR-IIOPR) had started Oil Palm Kisan Mobile Message Services (OPKiMMS) during February 2012 to disseminate oil palm agro-management technology in a timely manner to all the oil palm stakeholders (Mary Rani *et al*, 2011; 2014). To support and augment the existing information delivery channels provided by the Department of Agriculture, "Farmers' Portal" was launched by Government of India to make the information available to farming community through use of information and communication technologies (ICT) (Kameswari *et al.,* 2011). The portal is envisaged to meet information needs of farmers relating to Agriculture, Horticulture, Animal Husbandry and Fisheries sectors and

**Corresponding Author: klmaryrani@gmail.com*

information can be delivered through mobile messages in various languages free of cost. Hence, this portal was used by ICAR-IIOPR to disseminate oil palm technology and obtain feedback, thereby facilitating the oil palm growers, field extension staff of state department of agriculture/horticulture and extension staff of oil palm processors to take quick and apt decisions in oil palm cultivation.

Integration of farming technology and mobile phone service

In order to disseminate oil palm farming technology using short message service (SMS) to mobiles, the SMS content was prepared based on the needs of oil palm growers. Content was prepared based on the queries received by ICAR-IIOPR from the farmers in the form of telephone calls, emails, letters, queries raised in group meetings, trainings, seminars, interface meets *etc.* The developed SMS content was categorized as information requirement to grow oil palm, planting, irrigation, fertilizers, inter-cultural operations, intercropping, pest management, disease management, harvesting *etc.* Content was initially prepared in English and translated into Telugu, Kannada and Hindi to reach the farmers in respective vernacular languages for better communication.

Mobile numbers of stakeholders *viz*., oil palm growers, field extension staff of state department of agriculture/horticulture and extension staff of oil palm processors were collected during 2012-13. The data is collected every year and is being updated. Received mobile data were preprocessed to have a uniform format and updated into a database that was developed using SQL Server and ASP.Net. The data was then retrieved as Microsoft Excel file in the format as required by Farmers' Portal having the details of name of the person, mobile number, block code, district code and state code. Permission was obtained to send/use Farmers' Portal as registered user from Farmers' Portal, GOI.

To publish the message, Farmers' Portal was logged in and the mode of sending text SMS was selected as Excel Sheet data and mobile numbers available as an Excel file were uploaded. The total number of mobile numbers in the file was displayed once the data was uploaded. The language of the SMS, the type of message *viz.*, information, services and scientific advisory; topic of the message was selected from the options available. The message content was placed by selecting the respective language text box. Once the message content and mobile numbers were uploaded, the message was published by clicking the send button. The count of total numbers of SMS sent and total number of farmers benefited is incremented as soon as the message is published. The SMS Delivery Report option displays the number of mobile numbers to which the messages are delivered/undelivered/ failed/pending. Mobile services through Farmers' Portal were used during 2014-15. Farmers consulted ICAR-IIOPR over phone for clarifications on oil palm cultivation practices. Phone calls were replied by scientists. Thus replied queries were categorized into general information on oil palm cultivation, fertilizer, pest/disease/disorder, irrigation, intercrops, tools/equipments and analysis of soil/water/leaf. Frequency and percentages were calculated for subject matter categories of consultation, usefulness of published message subject, published message relevancy to crop growth/stage and adoption of practices sent through SMS.

Information dissemination through Farmers' Portal

As on March 2015, a total of 19,301 unique mobile numbers of oil palm stakeholders of twelve states were available in ICAR-IIOPR database to which the text SMS is being published regularly (Table 1). These 19,301 unique numbers pertain to more than fifty thousand farm families in the

Table 1. State-wise unique numbers to which text messages were published

State	Unique mobile nos.
Andhra Pradesh & Telangana	15,103
Karnataka	2,084
Goa	132
Mizoram	170
Meghalaya	5
Arunachal Pradesh	11
Nagaland	14
Gujarat	150
Maharashtra	126
Chhattisgarh	194
Odisha	1,312
Total	**19,301**

Table 2. Language and state wise SMS published (2014 – 2015)

Language	State	No. of messages	Mobile number count
Telugu	Andhra Pradesh & Telangana	59	7,93,552
Kannada	Karnataka	54	1,12,468
English	Goa	61	8,092
	Mizoram	61	9,370
	Meghalaya	59	295
	Arunachal Pradesh	59	649
	Nagaland	59	826
Hindi	Gujarat	39	5,505
	Maharashtra	39	4,914
	Chhattisgarh	39	5,360
	Odisha	39	2,148
Total	12 States	568	9,43,179

country cultivating oil palm. The delivery percentage of the published text SMS to these unique mobile numbers is approximately 75 per cent.

From April, 2014 to March 2015, 568 text SMS were published in four languages to 9.4 lakh numbers covering 12 states through Farmers' Portal of DAC, GOI (Table 2). Out of the 568 messages published, a total of 299 messages were published in English to farmers of 5 states *viz.,* Goa (61), Mizoram (61), Meghalaya (59), Arunachal Pradesh (59) and Nagaland (59); 156 messages were published in Hindi to each of the 4 states, *viz.,* Gujarat (39), Maharashtra (39), Chhattisgarh (39) and Odisha (39); 59 messages were published in Telugu to farmers of Andhra Pradesh and Telangana and 54 messages were published in Kannada to farmers of Karnataka. Customized content was prepared and published in different vernacular languages to different states at regular interval. Need based customized contents were also prepared and published based on farmers' calls. Situations like pest/disease attack in specified location, cyclone affected areas were given special attention and messages were published.

The 568 text messages were published once in a week on various topics such as general information on oil palm cultivation, planting, irrigation, fertilizer, intercrops, ablation, weed management, control of pests/diseases/disorders (Table 3).

The SMS published contained the contact details of ICAR-IIOPR for further queries and clarifications. This helped the farmers to contact the Institute for clarifying their doubts and to acquire further information. It also helped in collecting the feedback from the farmers on the service provided. Feedback received from growers on various aspects of oil palm cultivation through phone in survey. There were 304 exclusive phone calls attended from the growers during the period April, 2014 to March, 2015 on various aspects on oil palm cultivation. Consultation was mainly sought by farmers on fertilizer management (34.2%) followed by crop protection aspects (28.3%) and general information (24.0%) pertaining to oil palm cultivation *viz.,* feasibility of the crop, soil pH and EC and irrigation requirements for juvenile and adult plantations, subsidies, seed availability *etc.* (Table 4).

Table 3. Information disseminated every week through text SMS on different aspects of oil palm

Topic	No. of SMS published
General information on oil palm cultivation	59
Planting	55
Irrigation	60
Fertilizer	128
Intercrops	69
Ablation	47
Weed management	55
Pest control	35
Disease control	25
Disorder control	35
Total	**568**

Table 4. Consultation Inventory from April, 2014 to March, 2015

Subject	Frequency
Fertilizer	104
Pest/disease/disorder	86
General information on oil palm cultivation	73
Irrigation	23
Intercrops	6
Tools/equipment	6
Analysis of soil/water/leaf	5
Literature	1
Total	**304**

From the feedback, the usefulness of subjects as perceived by the farmers are as follows *viz.,* irrigation (15%), fertilizer application (14%), disease management (8%) and weed control (4%) (Table 5). However, 59 per cent of the farmers expressed that all the messages that are being sent were useful.

Table 5. Farmers preference for usefulness of message subject (n=51)

Subject	Percentage
Irrigation	15
Fertilizer application	14
Disease management	8
Weed control	4
All messages being sent are useful	59
Total	100

Table 6. Farmers' perception on SMS relevance to crop growth/stage (n=51)

Category	Percentage
Yes	68
No	8
No response	24
Total	100

Majority of farmers (68%) have indicated that the messages were relevant to their crop growth stage (Table 6) and 33% of the farmers responded that they were adopting the practices disseminated through SMS (Table 7)

Table 7. Farmers' adoption of package of practices sent through SMS (n=51)

Category	Percentage
Yes	33
No	14
No response	53
Total	100

Conclusion

Farmers' Portal was used as ICT tool to disseminate oil palm technology through text SMS. Farmers perceived that the messages sent were useful in their oil palm cultivation. Messages sent through Farmers' Portal were relevant to their crop stage/growth and were being adopted by them. This intervention of Farmers' Portal is helping farmers and all the related organizations to work for oil palm development more effectively and efficiently in a coherent manner.

References

Dhaliwal, R.K. and Joshi, V. 2010. Mobile phones: Boon to rural social system. *Literacy Information and Computer Education Journal* **1**(4): 261-265.

Kameswari, V.L.V., Kishore, D. and Gupta, V. 2011. ICTs for Agricultural Extension: A study in the Indian Himalayan region. *The Electronic Journal on Information Systems in Developing Countries* **48**(3): 1-12.

Mary Rani, K.L., Prasad, M.V., Krishna Hemanth, G., Srinu, G., Arora, B. and Arulraj, S. 2011. Dissemination of oil palm technology through information and communication technology. *International Journal of Oil Palm Research.* **8**(1&2): 31-33.

Mary Rani, K.L., Prasad, M.V., Arulraj, S. and Krishna Hemanth, G. 2014. Software design and application for oil palm kisan mobile message services in India. *Journal of Plantation Crops* **42**(2): 272-275.

Press Release No. 18/2015. Telecom Regulatory Authority of India. 12th March, 2015.

Rethinam, P., Arulraj, S. and Narsimharao, B. 2012. *Oil Palm Area Assessment Report-DOPR* . Directorate of Oil Palm Research, Pedavegi, Andhra Pradesh. p 61.