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RESEARCH NOTE

Impact analysis of meghdoot App through farmers feedback in weather forecasting and dissemination of agromet advisory services information on real time basis

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Abstract: Agriculture is the mainstay of the country. Nearly 67 percent of the agrarians rely solely on rained agriculture, i.e they exclusively depend on rains to carry out their various agricultural activities. Crop losses were quite pronounced during kharif season in most of the years, due to dry spell or wet spell. In order to minimise the losses due to natural vagaries, in crop and livestock enterprises, India Meteorological Department in association with Indian Council of Agricultural Research and Indian Institute of Tropical Meteorology, Pune have launched Meghdoot app during August 2019, to study the impact of weather forecasting and dissemination of agro advisory services to farmers on real time basis. Survey was conducted on Meghdoot app, an android based mobile application, during kharif 2020 under Gramin Krishi Mausam sewa project currently operational at agro meteorological field unit, Bidar. To collect the information, a semi structured interview schedule was prepared & the responses about the meghdoot app services based on socio personal profile of the farmers was collected. A three point continum scale was designed to know the level of usefulness of the technology and regularity of the information respectively. Based on the socio economic profile, majority of the young adults, in the age group of less than 30 years, rated the meghdoot app information as highly useful(33.3%) with an education level of 10 to 12th class (10%)and also the land acquisition in the medium range between 2 to 10 hectares (5.3%) and finally in the agro enterprises sector as 53.3 percent. Similarly, in the case of deployment of Meghdoot information in various agricultural activities, twenty two percent of the respondents rated the app information as highly useful during sowing & transplanting activities followed by harvesting and threshing (20%) and the least(2%) response was observed in fertiliser application.

Key words: Agriculture, Meghdoot app, Weather forecasting

Agriculture is the mainstay of the country. Nearly sixty seven percent of the farmers rely solely on rainfed agriculture, i.e they exclusively depend on rains to carry out their various agricultural activities. Since the timely onset of monsoon occurs in India but the rainfall distribution is not uniform in all states. In Karnataka during kharif 2020, the crop loss assessment was done in an area of 10.7 lakh ha (Anonymous, 2020). The Bidar district, which thrives under North Eastern Transistional Zone, receives an average rainfall of 845 mm. Crop losses were quite prominently noticed during kharif season in most of the years, which might be due to dry spell or wet spell. The fluctuation in the climate is most commonly observed in this zone.

Crop loss assessment survey was conducted by the revenue department during kharif -2020. The total crop loss assessment was done in Karnataka during post monsoon season and the loss in Bidar alone was depicted in an area of 2.5 lakh ha cropped area wrecked due to heavy rains. In order to minimise the losses due to natural vagaries particularly due to rains, thunderstorms dry spell etc, which are known to bring about major havoc in various agricultural, horticultural crops crop and other livestock based enterprises.

India Meteorological Department in association with Indian Council of Agricultural Research and Indian Institute of Tropical Meteorology, Pune launched Meghdoot app during Aug 2,2019, an android based mobile application which renders the weather based information related to weather forecasting and also the dissemination of agromet advisory services to farmers on real time basis in regional languages. (Anonymous 2019). This app mainly displays the past 10 days weather information and forecasting for next 5 days. The day to day weather parameters also displayed on the dashboard such as rainfall, temperature (Max/Min), humidity(Morning/Afternoon), cloud cover, wind speed and wind direction respectively. Apart from this, the app disseminates weather based agromet advisory services to all stakeholders (Farmers, FPOs, NGOs, Department officials etc) on every Tuesday and Friday respectively. The objective of the study involves the impact analysis of Meghdoot app in weather forecasting and dissemination of agro advisory services to farmers on real time basis in north eastern transistional zone of Bidar district.

Materials and method

Survey was conducted on Meghdoot app,an android based application, during kharif 2020 under gramin krishi mausam sewa project currently operational at agrometeorological field unit, Bidar. To collect the information a semi structured interview schedule was prepared and their responses about the Meghdoot app services based on socio-personel profile of the farmers was recorded. A three continum scale was designed to know the level of usefulness of the technology as highly useful,partly useful and not useful and based on the regularity of information dissemination as regular,somewhat regular and irregular respectively.

It was hypothesized that the education level,age and land holding had maximum impact on the usefulness of technology specially the Meghdoot app. The survey was conducted along with the officials of Karnataka state Department of Agriculture during farmer awareness program, rapid roving survey,field visits, kisan melas and raita kendras in various villages. Totally 150 respondents(peasants) were interviewed, interview schedule format was developed by India Meteorological Department, New Delhi. The objective of the present study, to know the impact of Meghdoot app in weather forecasting and agromet advisory services on real time basis.

Results and discussion

Socio-economic profile

I. **Age**

Data from table 1 clearly revealed that among the total farmers (33.3 per cent) farmers found meghdoot app information to be regular as revealed by young age group(<30 years) ,followed by 13.3 per cent as somewhat regular while 6.6 per cent were found the availability of the information irregular.

Similarly 6.6 per cent of the respondents in the age group of 30-45 years, observed that the availability of the app information to be regular and somewhat regular and remaining, 3.3 per cent found it as irregular. Lastly respondents 13.3 per cent lying in the age group more than 45 years, found it regular followed by 10 percent as somewhat regular while the least 6. 6 per cent found irregular.

II. **Education**

Ten percent of the respondents below 10th class perceived the information as regular while 6.6 and 3.3 per cent as somewhat regular and irregular respectively.

Fifty per cent of the respondents bearing education level between 10 to 12th class comprehended the information as regular followed by 13.3 per cent as somewhat regular and 2 per cent as irregular.

Respondents(12%) in the graduation and above perceived the Meghdoot app information as regular followed by 1.3 per cent as somewhat regular while the least 2 per cent responded as irregular.

III. **Land holding**:

Those respondents possessing small and marginal land (<2 ha) rated the information as regular (5.3 %) followed by 3.3 per cent as somewhat regular while the least (1.3%) percieved as irregular.

Those respondents with a land holding of 2 to 10 hectares perceived the information as regular (53.3%) followed by 13.3 per cent as somewhat regular while the rest (3.3%) observed it as irregular.

Similarly those farmers with land holding of more than ten hectares apprehended the Meghdoot information as regular (13.3%) followed by somewhat regular(4%) while 2.6 per cent reported as irregular.

IV. **Agro-Enterprises**

Among the three enterprises,in the agriculture sector 53.3 per cent of the peasants perceived the app information as regular an 13.3 per cent as somewhat regular while the least irregular (6.6%) found it as irregular.

Similarly in the horticulture sector, majority 13.3 per cent of the peasants observed the app information as regular with about 5.3 per cent perceiving it as somewhat regular while the least 1.3 per cent perceived as somewhat regular and only about 1.3 per cent of the respondent perceived it as irregular.

About four percent of the farmers (4%) from livestock sector, rated the information as regular while 1.3 per cent each as somewhat regular and irregular.

From table 2 it was clearly evident that maximum number of respondents (22%) comprehended the Meghdoot information as highly useful during sowing and at transplanting activities. Eight percent have rated partly useful and the rest (3.3%) as not useful.

With respect to the information concerned with irrigation, 6.6 per cent of the peasants rated the app information as highly useful followed by 3.3 pe rcent who felt it as partly useful and none of the respondents reported the app to be not useful.

With respect to fertilizer application, only two percent of respondents rated the information as highly useful followed by 6.6 per cent as partly and the least 1.3 per cent as not useful.

Among the total respondents, with respect to chemical application, 2.6 per cent were rated as highly useful and partly useful and the least 1.3 per cent reported as not useful.

Table 1. Comprehension about Meghdoot app based on socio – personnel profile of respondents (n=150)

Socio- personel profile	Comprehension (number of respondents)		
	Regular	Somewhat regular	Irregular
Age			
Young (<30 years)	50(33.3)	20(13.3)	10(6.6)
Middle(30-45 years)	10(6.6)	10(6.6)	5(3.3)
Old (>45 years)	20(13.3)	15(10)	10(6.6)
Education			
Low(<10th class)	15(10)	10(6.6)	5(3.3)
Medium (10-12th class)	75(50)	20(13.3)	3(2)
High(graduation & above)	18(12)	2(1.3)	2(1.3)
Land Holding			
Small & Marginal(<2 Ha)	8(5.3)	5(3.3)	2(1.3)
Medium(2-10 Ha)	80(53.3)	20(13.3)	5(3.3)
Large(>10Ha)	20(13.3)	6(4)	4(2.6)
Enterprise			
Agriculture	80(53.3)	20(13.3)	10(6.6)
Horticulture	20(13.3)	8(5.3)	2(1.3)
Live stock	6(4)	2(1.3)	2(1.3)

Figures in parenthesis are per cent values

Table 2. Perception of the respondents about Meghdoot app in farm management practices n=150

Farm activity	Number of respondents (farmers)		
	Highly useful	Partly useful	Not useful
Sowing/ transplanting	33(22)	12(8)	5(3.3)
Irrigation application	10(6.6)	5(3.3)	0(0.0)
Fertiliser application	3(2)	10(6.6)	2(1.3)
Chemical application	4(2.6)	4(2.6)	2(1.3)
Harvesting/ threshing	30(20)	10(6.6)	5(3.3)
Post harvest operations	6(4)	3(2)	1(0.6)

Figures in parenthesis are percent values

As for as the harvesting cum threshing activity is concerned, majority (20%) of the respondents opined the meghdoot information as highly useful followed by partly useful (6.6%) while the least (3.3%) as not useful.

Similarly in the post operations too, maximum (4%) of the peasants considered the app information as highly useful with two percent of the respondent perceived it as partly useful and the least 0.6 percent as not useful.

Conclusion

It was observed that the Meghdoot app technology which not only serves as social media platform but it plays a very pivotal role in weather forecasting and dissemination of agro advisory bulletin to farmers on realtime basis. The scope of this app is immense in agriculture and allied sectors such as horticulture, forestry, sericulture and livestock etc. In order to get acquaintance with the app, farmers must be empowered about its technical features and usefulness in various agricultural activities by conducting more number of farmers awareness programmes during the cropping season (monsoon period) through field days, field diagnostic visits, rapid roving survey, on-campus & off-campus training programmes which could certainly help farmers gain technological knowledge and as a result they would minimise the crop and livestock losses due to natural vagaries. Timely dissemination of the information related to agro advisory bulletins on every Tuesday and Friday would certainly help farmers in arranging their logistic needs in advance. Technology gives enough time for farmers to think & act accordingly to manage their farms more efficiently.

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