

**RESEARCH ARTICLE :**

# An effective transfer of agricultural mechanization technologies for farmers through multi-media tool

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**SUMMARY :** Social Media has been impacting on various sectors including the agriculture sector. Platform like WhatsApp tool is majorly encouraging interaction among users like lead farmers and educated farmers and in sharing of information among the farming community based on all size group of agrarians. Earlier days, farmers used to exchange agricultural information and tips on farming when they got together at a meeting place in the villages or depended on newspapers, farm related magazines, television and radio for news. Average number of messages seen by WhatsApp group members at “Krushi Mitra” group within one week, the messages related to general agriculture-85 (89.47 %), farm mechanization-86 (90.52 %), social-84 (88.42 %), personal -74 (77.89 %), humanity concern-85 (89.47 %), general awareness -74 (77.89 %) and general discussion messages has been depends based on topic raised and intensity of topic. In the group total 81 questions has been asked by farmers at one season at various vegetable crops related farm equipments at various unit operations and all questions has been answered by experts through WhatsApp tool. Number of farmers doesn’t know the equipments before posting equipments in WhatsApp group is (Land preparation-60 %, sowing and planting-55.55 %, irrigation and fertigation-50 %, weeding-64.44 %, sparaying-61.11 %, harvesting-52.22 %, threshing-62.22 % and cleaning and grading-47.77 %). This study is conducted with a specific objective to suggest farmers to improve farm productivity and popularize the farm mechanization technologies among the various sizes of farmers at different crops at Chickaballapura, Kolar and Bengaluru Rural district through multi-media tool WhatsApp.

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## **BACKGROUND AND OBJECTIVES**

Present scenario of world social media has been impacting on various sectors including the agriculture sector. Multi-media tools in transfer of agricultural technologies plays very important role in present era of farming at different stages of crops including

all unit operations. Multi-media platforms like WhatsApp, Twitter, Facebook and messenger are encouraging interaction among users of tools and in sharing of information at various platforms. Earlier days, farmers used to exchange agricultural information and tips on farming when they got together at meeting places in the village level or depended on

newspapers, farm magazines, television and radio for news. Present days, farmers are using WhatsApp, Facebook, Twitter, messenger and other tools to access agricultural news and also spread the news to needy farmers. Farmers have been sharing different pictures of their crops and crop conditions at farms on multi-media tools, selling products on various multi-media groups and connecting with experts on WhatsApp, Facebook, and Twitter etc. All this is happening at social media revolution in farming sector. These multi-media tools are empowering agricultural experts, professionals, transforming agricultural organizations and connecting farmers at different crops at various parts of the world. These are all multi-media tools are helping to connect farmers at world-wide at every day and it helps to transfer of technology among the experts, scientific community to farming community very effectively at present scenario of agriculture. In this research study researchers has been considered to WhatsApp tool to transfer of agricultural technologies to farmers. With these are all benefits WhatsApp can be helpful to farming sector to effective disseminate or transfer of agricultural technologies from scientific community to farmer community. This study was conducted with a specific objective to suggest farmers to improve farm productivity and popularize the farm mechanization technologies among the various sizes of farmers at different crops at Chickaballapura, Kolar and Bengaluru Rural district through multi-media tool WhatsApp.

## **RESOURCES AND METHODS**

The research is done based on WhatsApp group information, it means the researchers has been created one group in the name of “Krushi Mitra” and added around 95 group members including various size farmers who grows vegetables and dry land crops, specialists from agricultural extension and farm mechanization. In that 90 numbers of farmers and 5 members of subject matter specialists has been included. In this platform many types of questions related to farm mechanization has been raised by farmers and those questions has answered by specialists. In this process of research, researchers has been noted questions, answers, number of questions raised per week, number of questions answered by specialists, number of questions seen by farmers, number of answers seen by farmers, number of answers share by farmers related to questions etc., at

all aspects includes cost, availability, subsidy, usage methods of machines, safety measures of machines, repair and maintenance of machines etc.

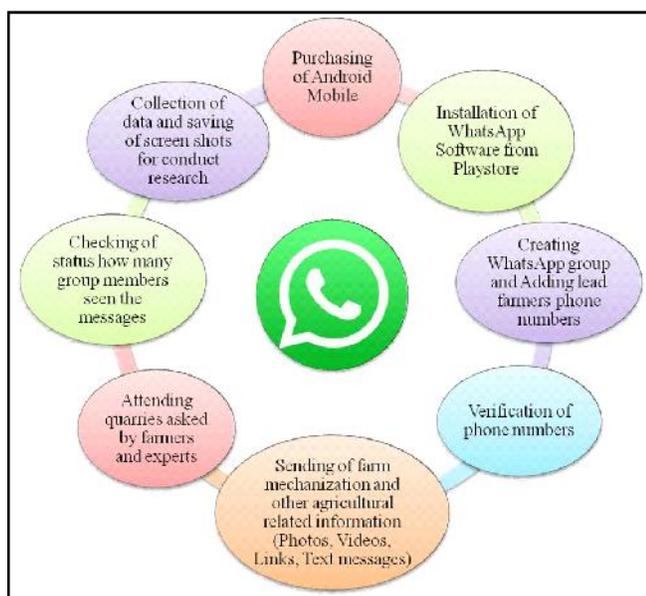
### **Study area and sample size :**

The study was conducted at agricultural information Center at Rai Technology University, Doddaballapura taluk, Bengaluru Rural district of Karnataka, India. The research is considering the maximum number of farmers possessing WhatsApp tool at their personal mobile phones and highest area under vegetables and dry land crops cultivation. The Chickaballapura district contains 6 taluks, Kolar district contains 5 taluks and Bengaluru Rural district contains 4 taluks. To conduct research, sample size has been considered based on farmer’s visit of agricultural information center at RTU campus from three districts. The sample size has been considered to study was 90 farmers majorly who grows vegetables and have less knowledge of farm mechanization and 5 numbers of experts. Most of the questions were related farm machinery because in public sector offices there are no any agricultural engineering experts to give farm mechanization knowledge for farmers. Hence, in questioner the researcher prepared and asked farm machinery related questions to farmers at the time of interview.

### **How to use WhatsApp for technology transformation in farming :**

There are different ways to transfer of technology in agriculture, like (1) Encourage scientists, extension workers, progressive/innovative farmers to create WhatsApp Accounts to network and share information related to farm mechanization in various vegetable crops (2) Scientific extensionists, University faculties, NGOs may create WhatsApp groups for quick sharing of information within their groups to high alert of farmers to improve their knowledge level at various farm equipments (3) KVKs, Department of agriculture and allied departments may create WhatsApp groups to send/share alerts -release of new varieties, meetings, office orders, details of Government Schemes, visits of senior officers, weather forecasting, market information, extension activities like trainings, campaigns, field days at different crops etc.,(4) Scientists and extension personnel can join important WhatsApp groups to disseminate innovations of farmers at different crops at different stages of unit operations (5) Encourage farmers

to form commodity specific WhatsApp groups to share information network with experts and input agencies related to those commodities and promote their agricultural products among the group members, it may be help to them to get good market affordability (6) Special emphasis may be made to create WhatsApp groups by farmer leaders, innovative farmers, farmer friends, lead farmers, awarded farmers. Sending information to farmers through WhatsApp groups is very easy and very much informatics among various sizes of farmers.



**Fig. A : Installation and working procedure of WhatsApp**

## OBSERVATIONS AND ANALYSIS

The strategy is a plan designed for a particular purpose or the process of planning/carrying out a plan in a skillful way. Based on the results, the following aspects are considered to popularize the farm mechanization aspects by using advanced communication gadgets among the farming community. Operational wise equipments posted in WhatsApp group is land preparation equipments are (MB plough, Disc Plough, Cultivator, Disc harrows), sowing and planting equipments are (Dibblers, Seed cum fertilizer drill, Seed drills), Irrigation and Fertigation equipments are (Drip, sprinklers, filters), Weeding equipments are (Power weeders, Rotavators), Spraying equipments are (Solar operated sprayers, Knapsack sprayers, tractor operated sprayers), harvesting equipments are (Naveena Sickles, Vertical conveyer reapers, combine harvesters), Threshing

equipments are (Hand operated threshers, Multi crop threshers) and Cleaning/grading (Hand operated graders).

### Average farmer's participation in WhatsApp group:

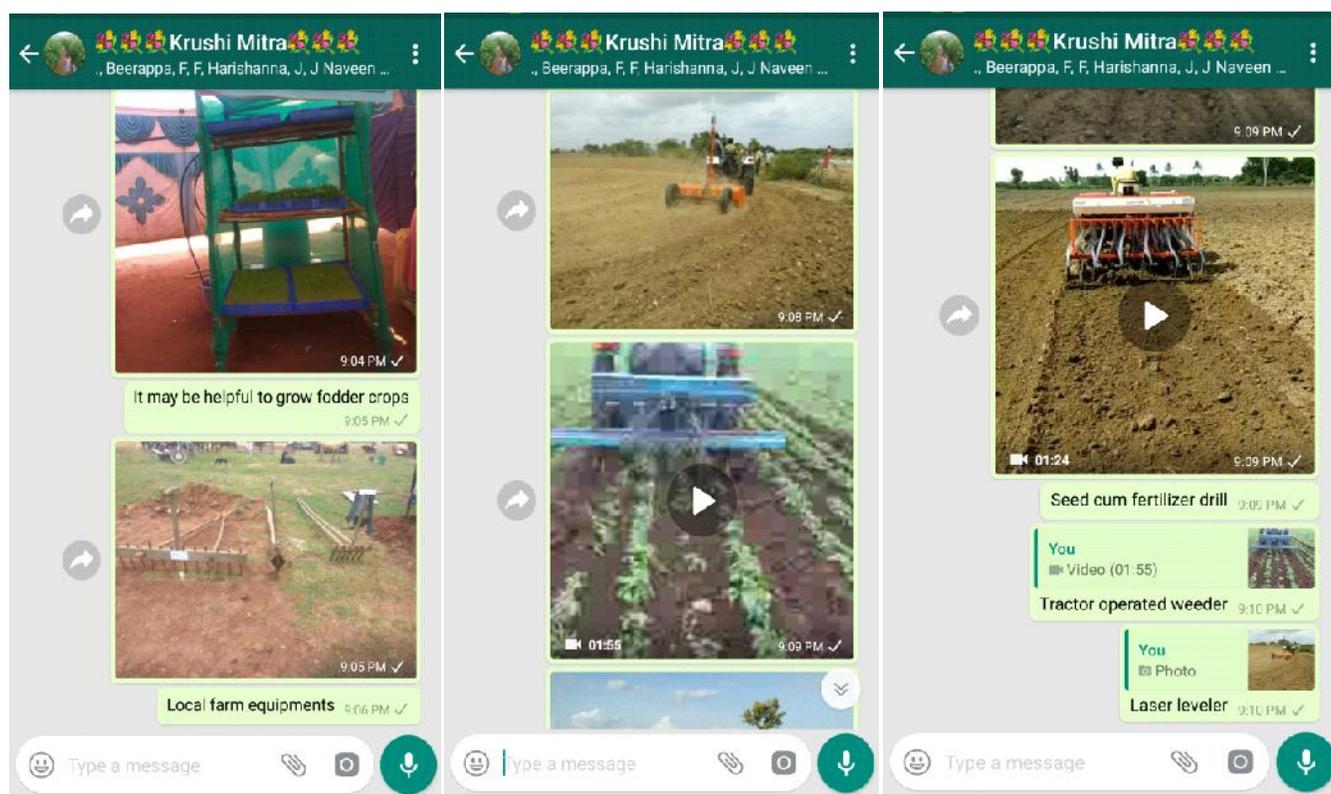
Table 1 has been given complete information about average farmers involvement in WhatsApp group. Average number of messages received by WhatsApp group from different group members from one week at general agricultural messages-50, farm mechanization related messages-6, social messages-153, personal messages-26, humanity concern messages-8, general awareness messages-15, general discussion messages has been depends based on topic raised and intensity of topic. Average number of messages seen by WhatsApp group members within one week at general agricultural messages-85 (89.47 %), farm mechanization related messages-86 (90.52 %), social messages-84 (88.42 %), personal messages-74 (77.89 %), humanity concern messages-85 (89.47 %), general awareness messages-74 (77.89 %), general discussion messages has been depends based on topic raised and intensity of topic. This research has been clearly shown average number of messages received by WhatsApp group from different group members from one week at farm mechanization related messages posted less numbers in group but these messages got tremendous response from farmers regarding gaining knowledge, effective utilization of information for their farming and highest number of group members seen farm mechanization related messages.

Hence, results shown 81 questions has been asked by farmers at one season at various vegetable crops related farm mechanization (Land preparation-8 questions, sowing and planting-14 questions, irrigation and fertigation-11 questions, weeding-14 questions, sparaying-9 questions, harvesting-7 questions, threshing-12 questions and cleaning and grading-6 questions has been asked by farmers) and all of these questions have been answered by experts through WhatsApp tool. 95 number of questions and answers were seen in the WhatsApp group. Number of answers share by farmers related to questions asked in WhatsApp group is (Land preparation-36 farmers, sowing and planting-40 farmers, irrigation and fertigation-45 farmers, weeding-32 farmers, sparaying-35 farmers, harvesting-43 farmers, threshing-34 farmers and cleaning and grading-47 farmers). Number of farmers doesn't know the equipments before posting equipments in WhatsApp group is (Land

**Table 1 : Farmers participation in WhatsApp group at various types of messages** (n=95) n<sub>1</sub>=90, n<sub>2</sub>=5

Sr. No.	Type of messages	Average number of messages received by WhatsApp group from different group members from one week	Average number of messages seen by WhatsApp group members within one week	
			No. of farmers	Per cent
1.	General agricultural messages	50	85	89.47
2.	Farm mechanization related messages	6	86	90.52
3.	Social messages	153	84	88.42
4.	Personal messages	26	74	77.89
5.	Humanity concern messages	8	85	89.47
6.	General awareness messages	15	74	77.89
7.	General discussion messages	*	*	*

\* Depends on topic raised or intensity of topic      n<sub>1</sub>=Farmers      n<sub>2</sub>=Subject matter specialists



**Fig. 1 : WhatsApp group conversions related to farm mechanization**

preparation-60 per cent, sowing and planting-55 per cent, irrigation and fertigation-50 per cent, weeding-64.44 per cent, spraying-61.11 per cent, harvesting-52.22 per cent, threshing-62.22 per cent and cleaning and grading-47.77 %). These all results have been shown in Table 2.

Most of the farmers were interested about farm mechanization because in public sector and private sector there is less availability of agricultural engineering or farm mechanization experts to guide farmers related to all unit operational wise equipments at various crops in three

selected districts. Hence, in WhatsApp group majority of group members were raised more questions related farm machinery to know the experts advise. Similar work related to the present investigation was also conducted by Anandaraja *et al.* (2006); Vanetha and Ponnusamy (2013) and Murthy *et al.* (2017).

**Conclusion :**

Social Media has been impacting on various sectors including the Agriculture sector. Platform like WhatsApp

**Table 2 : Communication between farmers and experts at WhatsApp group related to farm mechanization**

Sr. No.	Operational wise equipments posted in WhatsApp group	Number of questions asked by farmers	Number of answers given by experts	Number of questions seen by farmers (Farmers+ Experts)	Number of answers seen by farmers (Farmers+ Experts)	number of answers share by farmers related to questions asked in WhatsApp group	Number of farmers doesn't know the equipments before posting equipments in WhatsApp group	
							Unknown farmers	Per cent
1.	Land Preparation (MB plough, Disc Plough, Cultivator, Disc harrows)	8	8	95	95	36	54	60.00
2.	Sowing and Planting (Dibblers, Seed cum fertilizer drill, Seed drills)	14	14	95	95	40	50	55.55
3.	Irrigation and Fertigation (Drip, sprinklers, filters)	11	11	95	95	45	45	50
4.	Weeding ( Power weeders, Rotavators)	14	14	95	95	32	58	64.44
5.	Spraying (Solar operated sprayers, Knapsack sprayers, tractor operated sprayers)	9	9	95	95	35	55	61.11
6.	Harvesting (Naveena Sickles, Vertical conveyer reapers, combine harvesters)	7	7	95	95	43	47	52.22
7.	Threshing (Hand operated threshers, Multi crop threshers)	12	12	95	95	34	56	62.22
8.	Cleaning/grading (Hand operated graders)	6	6	95	95	47	43	47.77

tool is majorly encouraging interaction among users like lead farmers and educated farmers and in sharing of information among the farming community based on all size group of agrarians. Earlier days, farmers used to exchange agricultural information and tips on farming when they got together at a meeting place in the villages or depended on newspapers, farm related magazines, television and radio for news. Today, farmers are using various multi-media tools to access farm related news and also spread the news. This is called as a social media revolution, in these revolutions many other multi-media tools will be used to share agricultural information's like Facebook, Twitter, and Messenger etc. These tools are empowering agricultural professionals, transforming agricultural organizations and connecting farmers. This above research shown communication between scientific community and farming community about farm mechanization and results can clearly explains WhatsApp group has been effectively utilized among the vegetable and dry land farming at Chickaballapura, Kolar and Bengaluru Rural districts.

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