

WhatsApp model for Farmer led Extension: Linking actors and generating localized information for farmers

ABSTRACT

Aims: This study aimed to explore the potential of using WhatsApp to enhance farm advisory services

Study Design: Quasi-experimental design

Place and duration of the study: **Sample:** Farmers from 8 districts of the State of Himachal Pradesh India, June 2016-December 2016.

Methodology: An experimental WhatsApp group involving 96 farmers was created across 8 districts of Himachal Pradesh, India. The posting of messages and queries were examined for six months. Different types of farmer queries were responded with the support of subject matter specialists across various relevant agro enterprises.

Results: Over six month period, 442 posts were shared by farmers in the WhatsApp group. Of these, 34.16 percent of posts pertained to the queries on agricultural problems faced by the respondents. This was followed by real life photos (20.59%), greetings (12.44%), irrelevant posts (7.47%). A total of 61 queries related to problems in crops and vegetables, 62 in animal husbandry, 19 in horticulture and 6 in floriculture were referred for advice through WhatsApp.

Conclusion: WhatsApp is an effective tool for real time farm advice and can serve as important platform for sharing need based, demand driven farm extension information across various farming enterprise.

Key Words: *WhatsApp model; Farmers led extension; Agricultural queries; Experimental Evidences*

INTRODUCTION

The agricultural advisory services have largely followed vertical models of information transfer to the farmer clientele. Most of this information has been found to be less relevant and generic{1&2}. The reliance of farmer remains much higher on informal networks consisting of friends and family than the formal institutions. Participatory approaches have been recommended off late to reach out to the farmers. These approaches are more meaningful in capturing the essence of communication and information sharing among rural communities. They emphasize recipient involvement, co-presence, and participation as opposed to the linear vertical paradigms of development communication. There is need to explore the tools which support such type of approaches. Social media tools such as WhatsApp enable greater user participation and feedback in agricultural extension activities {3}. These tools can emulate the preexisting dynamics of social relationships among rural communities by encouraging peer discussions and learning {4} and can even break down the rigid social and professional hierarchical structures that hinders reform in agricultural extension services{5}. Further the benefit of such type of ICT tools cannot incur simply by ensuring their access and availability {6}. Often in the past, this approach of focusing on mere technology than community needs led to failure of several ICT initiatives in the marginalized communities{7}. Socialization of ICT tools depends on the social construction of rural community in terms of their specific, potential and imaginary uses{8}. This involves amalgamation of ICT initiatives with social relationships in solving problems, achieving goals or purposes{9}. Under such situations, role of rural intermediaries remain vital to facilitate access and use of ICT4D. These intermediaries provide interface to rural users with low digital literacy skills and facilitate engagement between new information and communication technologies and marginalized community members and groups {10}. However, we do not find any well documented framework empirically tested for use among

the farming community. In the present study, the researcher provided intermediate link in explaining the concept of utilizing these tools among farmer clientele .The potential of this tool was showcased through sharing relevant farm information as well as offering timely advice to them through mobilizing various resource actors through social media. The current study tested a WhatsApp model involving farmers, extensionsits and subject matter specialists drawn from relevant disciplines. The following conditions were met

1. Intermediation by investigator to the farmers for mobile social media use in agriculture.

2. Ascertaining the relevant information needs of target farmer participants.

3. Seeking support of various stakeholders such as relevant subject matter specialists of agriculture, animal husbandry, horticulture, floriculture from two state agricultural and horticultural university, state animal husbandry department, state department of agriculture and *Krishi Vigyan Kendras*/Farm Science Centres.

4. Utilizing collective wisdom of the researchers and extensionsits in responding to farmer's queries.

The experimental study generated sufficient empirical evidences to showcase the potential of this tool for generating farmer centered information in agricultural advisory services. These evidences have been discussed in the paper.

MATERIAL AND METHODS

This experimental study was undertaken to utilise social media tools such as Facebook and WhatsApp in the dissemination of agriculture and animal husbandry related information among farmers in Himachal Pradesh. The internet usage of 28 percent in rural regions of Himachal Pradesh is one among the highest in India {11}. Eight out of twelve districts of Himachal Pradesh, India were selected, wherein; *Krishi Vigyan Kendras* (KVKs) of State Agricultural University were located. The initial list of farmers using social media was prepared in consultation with officials of these KVKs. Subsequently, 12 farmers from each district were randomly selected. Thus, a total of 96 farmers across 8 districts were purposively selected. After initial arbitrary selection, extensive field visits to these respondents were conducted between April to June 2016. These visits were conducted to interview and explain the concept of WhatsApp use in agriculture and animal husbandry. Consequently, a WhatsApp group entitled "*Unnat Krishi Avam Pashupalan*" was created in June 2016{12}.Following group formation, information sharing pattern among group members were recorded and studied for a period of six months.

Type of posts shared	Frequency (%)
i. Queries on agricultural problems	151(34.16)
ii. Original photos on farming	91(20.59)
iii. Greetings/Inspirational messages	55(12.44)
iv. Irrelevant posts(promotional, jokes ,political news etc)	33(7.47)
v. Pictures of farming	27(6.11)
vi. Text messages on news, notices etc.	27(6.11)
vii. Text Messages on farming practices.	20(4.52)

viii.	Discussions and chats	15(3.39)
ix.	Videos on farming practices	6(1.36)
x.	Video links on farming	6(1.36)
xi.	Newspaper clippings on farming	4(0.90)
xii.	Selfies on farm fields	3(0.68)
xiii.	Videos on songs/jokes/general	3(0.68)
xiv.	Audio messages on farming	1(0.27)
Total posts		442

Table 1: Type of posts shared by Farmers in WhatsApp group

Results and Discussion

Substantial amount of content related to agriculture was shared by the users. A total of 442 posts over six months were shared by the farmers. Out of these, 151 posts were in the form of questions pertaining to agricultural and animal husbandry related problems. This was followed by posts of original photos (91), greetings (51), irrelevant posts (33), pictures of farming (27). Besides, information was also shared as text messages, discussions on a topic, videos and video-links on farming. Queries pertaining to agricultural problems formed the most common types of posts shared in the group. Maximum queries pertained to animal husbandry (62), agriculture (61) followed by horticulture (20), floriculture (6) and forests (2). The nature of queries was reflection of largely diverse type of farming enterprises followed by farmers in the region. Out of 151 queries, 78 were accompanied by pictures which helped in better clarity and understanding the nature of problem of the farmer. Queries seeking advice on poor crop growth, vegetable diseases and livestock diseases were accompanied by pictures (Figure 1). Thus, utilization of WhatsApp in farming was well understood and received by the farmers. It can be concluded that WhatsApp can be successfully used to generate substantial user generated scientific information on agriculture and animal husbandry in a wide variety of formats.

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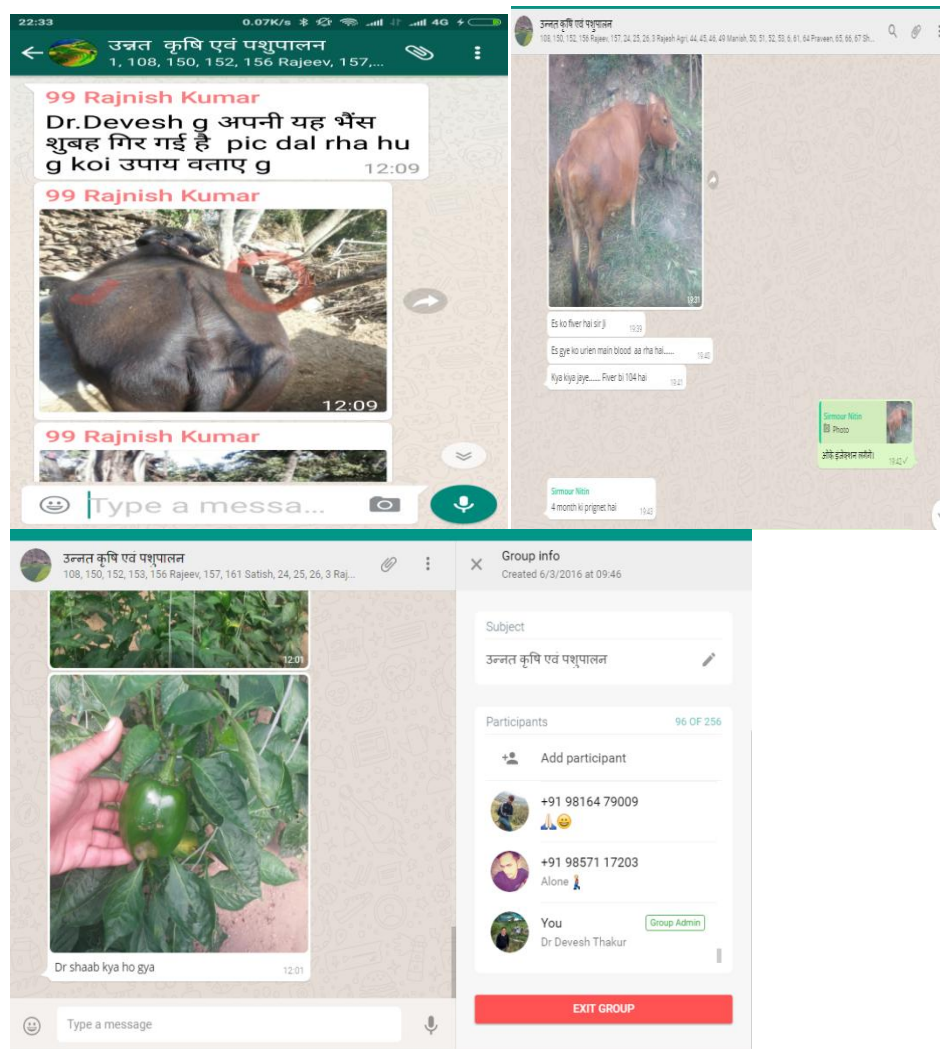


Figure 1: A WhatsApp screenshot showing different types of communication and a potential for offering timely advice to the farmer.

Table 2: Pattern of agricultural queries across different enterprise over different months

Enterprise	June	July	August	September	October	November	Total F	Percentage
1. Animal Husbandry	9	15	16	7	9	6	62	41.06
Dairy	8	13	13	7	7	4	52	34.44
Goat	1	1	3	0	0	0	5	3.31
Poultry	0	1	0	0	0	0	1	0.66
Dog	0	0	0	0	2	1	3	1.99
Pig	0	0	0	0	0	1	1	0.66
2. Agriculture	14	19	16	6	1	5	61	40.40

Crops	6	3	2	1	1	1	14	9.27
Vegetables	8	16	13	5	0	2	44	29.14
Mushroom	0	0	0	0	0	3	3	1.99
3.Horticulture	2	6	5	2	4	1	20	13.25
4.Floriculture	0	1	4	1	0	0	6	3.97
5.Miscellaneous	0	1	0	0	0	1	2	1.32
Total	25	42	40	16	14	14	151	

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98 Pattern of agricultural queries across different enterprise over different months

99 Maximum percentage of queries was received from animal husbandry (41.06%) followed by agriculture
100 (40.40%), horticulture (13.25%) and floriculture (3.97%).As the researcher had animal husbandry
101 background, the perceived background of being a veterinarian might have prompted the respondents to
102 refer to maximum queries in this field. Also, sizeable queries were asked based on the information shared
103 by investigator on animal husbandry. High proportions of farmers were engaged in vegetable cultivation
104 and this might have been reason for large set of queries on vegetable farming (29.14%).One of the great
105 advantages social media offers is the potential for greater engagement because recipients can easily and
106 immediately ask questions, share experiences, and provide feedback using the same social media
107 technologies on which they received educational messages{13}.

108 Overall, group received a diverse set of queries in various fields of agriculture. This could be attributed to
109 two important reasons. The first is that the group members were explained that the WhatsApp platform
110 was meant to offer and receive holistic information in diverse fields. The second probable reason was
111 that the farmers were engaged in different agriculture based enterprise.

112 Over six months, maximum queries were received in the months of July and August. This was more
113 pronounced for vegetables. This might be due to couple of reasons. The first may be due to prevalent
114 vegetable season accompanied by rainy season which causes increased incidence of crop problems in
115 the region. The second reason may be initial enthusiasm of using this platform for seeking agricultural
116 advice.

117 Table 3: Pattern of queries on subthemes of agriculture and allied enterprises

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1.Animal Husbandry								
		June	July	August	September	October	November	Total
i.	Animal feeding and breeding	3	8	6	2	4	3	26
ii.	Animal health	5	5	4	3	5	2	24
iii.	Government schemes and marketing of livestock	1	0	3	2	0	1	7
iv.	Dairy processing and value addition	0	2	3	0	0	0	5
<i>Sub Total</i>		9	15	16	7	9	6	62
2.Agriculture								
i.	Plant protection(Plant Pathology, Entomology, Nematology)	10	13	13	6	0	1	43
ii.	Crop production(Seed	3	6	3	0	0	4	16

	science, Plant breeding, Soil health)							
iii.	Government schemes and marketing	1	0	0	0	1	0	2
	<i>Sub Total</i>	14	19	16	6	1	5	61
3.Horticulture								
i.	Fruit production	0	6	3	2	3	1	15
ii.	Government schemes and marketing	2	0	1	0	1	0	4
	<i>Sub Total</i>	2	6	4	2	4	1	19
4.Floriculture								
i.	Floriculture	0	1	2	1	0	0	4
ii.	Post harvest technology	0	0	2	0	0	0	2
	<i>Sub Total</i>	0	1	4	1	0	0	6
5.Miscellaneous								
i.	Silviculture	0	0	0	0	0	1	1
ii.	Contact details of SAU sale centre	0	1	0	0	0	0	1
	<i>Sub Total</i>	0	1	0	0	0	1	2

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120 Pattern of queries on subthemes of agriculture and allied enterprises

121 In animal husbandry, maximum set of queries received pertained to animal feeding/breeding followed by
 122 animal health. This was an interesting finding and can be explained by couple of factors. The first reason
 123 might be due to the fact that information delivery in animal feeding/breeding is currently not well
 124 addressed by field veterinary personnel .Most of them work as clinicians and cover animal health aspects
 125 paying less attention to animal feeding/breeding area. The farmers have limited opportunities to interact
 126 on breed suitability to their region, feeding of animals etc. The respondents might have explored
 127 WhatsApp to receive this uncatered area of animal production information. Another factor was that a good
 128 number of queries (6) were generated following some post on information sharing on animal
 129 feeding/breeding by the group administrator/student researcher. Seeking advice and information on
 130 animal health has always been a priority for farmers. So, it was not surprising that it also received
 131 sizeable queries in animal health.

132 In queries that referred livestock and crop diagnostic support, the queries were accompanied by pictures
 133 of diseased animals or plants. In other type of queries such as seeking information on input availability
 134 and information about government schemes only text messages were sent. Thus, it can be concluded
 135 that the concept of WhatsApp as ICT tool in agricultural extension was understood well by majority of the
 136 respondents. The advantage with social media tools than other web based ICT tools is that acquiring
 137 basic skills in them are particularly easy to acquire for anyone with regular use of these tools{14}.

138 Majority of the queries were posted in the group though a few members send them as individual
 139 messages to the administrator .These queries were then sent by group administrator (student researcher)
 140 to concerned experts who gave the solution through WhatsApp

141 Queries formed the bulk of posts shared by members through social media platform. These queries
 142 ranged from diverse subjects such as crop farming, vegetables and livestock health. Maximum
 143 percentage of queries was received on animal husbandry .Similarly queries on plant protection were the
 144 highest. This indicates strong potential of WhatsApp in addressing problems on these areas.
 145 Nevertheless, WhatsApp also emerged as a useful platform to queries that extended beyond disease

146 management to feeding, management, input procurement (breed availability, plant material, rootstocks
147 etc.).

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149 **Formation of Social capital**

150 The online interactions and discussions in the WhatsApp group enable farmers to form sound decisions
151 and seek additional information and support from relevant actors. This demonstrates the ability of
152 WhatsApp to build a farmer extension interface through which there is greater farmer feedback and
153 participation in determination of research and extension priorities at regional level. Such tools enable
154 farmers in information exchange with other community members, pursuance of mutual interests
155 (networking), seeking access to expert networks {15} and enables social empowerment{16}.

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158 **Figure 2: The potential of WhatsApp to support networking among the farmers**

159 **CONCLUSION**

160 WhatsApp can be used to deliver demand based information to the farmers by solving their problems.
161 Also, through photos, it is possible to know about the farming operations in the regions. This can keep the
162 extensionists as well as researchers updated about agricultural developments at farmers' level. Thus,
163 broadly such types of queries are likely to be expected from the farmers while managing a WhatsApp
164 group for the farmers especially in this region. Strategic and systematic social media
165 (WhatsApp/Facebook) application can connect anyone with a smartphone with agricultural expertise and
166 knowledge in real-time. It can also escalate networking among the farmers as well as with several actors
167 across the agricultural value chain. This was observed as advice offered through specific queries through
168 WhatsApp guided and encouraged owners to seek required institutional support.

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