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Use of social media for livestock advisory services: The case of WhatsApp in Himachal Pradesh, India

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ABSTRACT

The opportunities of information access to livestock owners especially from institutional sources are minimal under Indian context. Social media tools such as WhatsApp have remarkable ability to reduce the transaction cost as well as increase the coverage of extension services. WhatsApp, a hugely popular medium of information exchange can be a cost-effective tool to improve livestock advisory services since skilful use of WhatsApp can overcome limitations of time and geographical barriers faced by these services. The current study explored and experimented with the possibility of using WhatsApp in livestock advisory work. Under the experimental study, WhatsApp emerged as a most preferred choice of referring to a diverse set of livestock-related information. Furthermore, advice through WhatsApp helped farmers in seeking the timely interventions and information support from other relevant sources. Hence, state development departments must promote its use through suitable models among which one discussed in this paper to enhance the scope and coverage of livestock advisory services.

Key words: Livestock advisory services, Livestock queries, WhatsApp

The scope and coverage of Livestock extension information delivery remains less and limited under Indian context. The proportion of households receiving any sort of information from veterinary institutions remained at 8% for the year 2013 (NSSO 2014). Information and Communication Technologies (ICTs) such as mobile based advisory, phone call centres and web portals have been advocated to offer appropriate information and advice to the farmers. Even then, these initiatives also suffer from several limitations like text-based messages have a tendency to be more generic and absence of interaction with any expert support (Ramaraju *et al.* 2011). Similarly, in phone call centres, sole reliance on information delivered through only voice at both ends (Ramaraju *et al.* 2011) may affect the quality of information offered. The information through call centers is impractical and lacks local context (Fernandes 2015). Moreover, call centers may have a limited role in offering livestock advisories. Most frequently asked queries received by Kisan Call Center pertained to plant protection and weather information (Raju 2015). A meagre 3.64% of the total queries pertained to the animal husbandry queries received by Kisan call center in Madhya Pradesh (Anonymous 2011). Also, feedback about animal recovery, an important parameter seems to be lacking through current mobile based extension communication. This gap can certainly be filled with social media tools. For instance, the Indian Council of Agricultural Research (ICAR) has been exploring the possibilities of utilizing social media tools to expanding its reach by engaging with farmers, partners and other stakeholders (ILRI 2016).WhatsApp as an important social media tool is rapidly becoming popular among masses even in rural areas. It is being used by many different stakeholders in agricultural sector including by agricultural development departments in India (Chander 2016).This could be a highly cost effective, easy platform to establish and maintain linkages with the livestock owners. It can increase the ambit and effectiveness of livestock advisory services, but the animal husbandry institutions are yet to harness this tool (Thakur *et al.* 2015). In fact, a systematic study under Indian context to understand the effectiveness of WhatsApp as an option for offering livestock advisory support to the farmers was found to be very scarce and hence, this study was undertaken in Himachal Pradesh state of India.

MATERIALS AND METHODS

This experimental study was undertaken to see the potential of WhatsApp in information sharing and dissemination of agriculture and animal husbandry related information among livestock owners. Eight out of twelve districts of Himachal Pradesh were selected in which *Krishi Vigyan Kendras* of State Agricultural University were located. Initial list of social media using farmers was prepared in consultation with KVKs. Afterwards, 12 farmers from each district were randomly selected from the list. Thus, a total of 96 social media using farmers across 8

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districts were selected. After initial arbitrary selection, extensive field visits to these respondents were conducted from April to June 2016. Out of 96, 92 farmers were found to possess at least a livestock species. Nineteen out of 20 households in the state keep at least one species of livestock in the state of Himachal Pradesh (GoI 2005).The visits were conducted to interview and explain the concept of WhatsApp use in agriculture and animal husbandry. Consequently, a WhatsApp group "*Unnat Krishi Avam Pashupalan*" was created in June 2016. This group was backed by a team of experts from diverse fields, including veterinarians from State Animal Husbandry Department (SDAH) and from State Agricultural University (SAU). This was ensured to improve the quality of advice offered to the farmers and livestock owners. An expert support system with user-friendly interfaces helps in the fast and proactive delivery of advice (Ramaraju *et al.* 2011). Thus, a query asked by the farmer was simultaneously referred to those veterinarians who later responded individually to the queries. Afterward, the group administrator shared the queries in an easily understandable language with the farmers. The experts were kept in the background to maintain anonymity and free exchange of responses. In a period of three months (June to August 2016), a total of 50 queries were received. This was followed by post intervention feedback on the utilisation of information through semi structured interview schedule in the months of October and November. In this post test survey, respondents were asked to elaborate their choice of availing information sources on the specific set of queries referred by them.

RESULTS AND DISCUSSION

As evident from the Table 1, majority of the WhatsApp user livestock owners possessed crossbred cows and large ruminants. Very few percent households reared small ruminants and poultry. Large ruminant ownership indicates resourcefulness of farmers which require a greater investment in cash, feed, and fodder (Turner and Leonard 2004). Small ruminants are owned by resource-poor farmers in India. This indicates that large proportion of small ruminant rearing households in the region might be outside the ambit of WhatsApp use in the region during the research study.

Table 1. Households rearing different Livestock species

Species of livestock	Number of households possessing livestock	Percentage
Cattle Local	13	13.54
Cattle CB	82	85.42
Buffalo	18	18.75
Bull	4	4.17
Sheep	3	3.13

*Since respondents had mixed livestock so the total value may be more than 94.

Type of queries received in the WhatsApp group: Animal health queries were the most common type of queries referred through WhatsApp. In animal health, queries regarding problems that had immediately threatened to production and reproduction such as udder and teat problems, mastitis, anoestrous formed the maximum queries referred. The results were in partial agreement with a study in which queries received through Kisan Call centers were assessed (Tiwari *et al.* 2010). In that study, queries pertaining to animal health were the highest of all types of queries. Furthermore, among the infectious diseases, mastitis formed the bulk of queries referred.

Demand for information beyond livestock diseases to production aspect: It is evident from the Table 2 that besides disease control, a substantial number of queries were received from production aspects. Under production, the queries referred pertained to pregnant and milch cattle feeding. Further, in breeding aspects, queries pertained to selection and breeding of superior indigenous cows which were non-native to the region. This might be due to renewed interest of farmers about preferring indigenous cows. Further, information about training on value addition and milk processing, as well as on government schemes were asked. This reflects those farmers were interested to know more about existing government schemes on dairy as well as goat husbandry.

Pictures: Most of the queries were asked along with pictures of ailing livestock, which resulted in the better understanding of the nature and severity of the problem. As a result, the quality of advice improved, which resulted in higher satisfaction level of farmers. In livestock production, visuals help learners to focus their attention on the material and to commit the information to long-term memory (Heffernan and Nielsen 2007).

The ability of WhatsApp to generate discussion and promote networking: As evident from the Table 2, quite a number of queries were also responded by other farmers as well. Out of total 50 queries, 10 were responded by other farmers. Given the fact that the group comprised of farmers from different districts and were unknown to each, this was a good sign of discussion. In fact, one of the queries (D, 10; Table 3) led to offline contact and organizing of awareness meetings among the farmers (Thakur 2016). This indicated the strong potential of WhatsApp in discussions and building of networking among farmers.

Preferred choices of seeking information on animal husbandry queries: As evident from the Table 3, in majority of the queries (44 out of 50), WhatsApp appeared as first choice for seeking advice on various aspects of animal health and production. In rest of the queries, the owner had contacted other sources of information and then they also used WhatsApp to seek a reply to their queries. Thus, it appeared as second choice for seeking information in six queries. Veterinary centres were used as second choice of seeking answer to the various set of queries (Table 2) for maximum number of times (11).This happened as primary advice through WhatsApp guided owners to contact nearest

Table 2. Type of queries received in the WhatsApp group

		Picture posted	Responded by group administrator through expert support	Responded by other farmers	Both
	Animal health related queries				
1	What needs to be done to solve the problem of skin sloughing over teats in the cow during summers?	No	Yes	No	No
2.	Foul smell is coming out of the left ear of my cow and its painful condition. What needs to be done?	No	Yes	No	No
3	How to control milk seepage from teats of cow?	Yes	Yes	No	No
4	What should be done to control pain and blackening of udder in the cow?	Yes	Yes	No	No
5	What should be done to reduce wounds over udder in a 8 - month pregnant cow?	Yes	Yes	No	No
6	What should be done to cure anoestrous in the cow?	No	Yes	No	No
7	How to control the lumpy growth in Jaws of Cow?	Yes	Yes	No	No
8	What was the cause of animal death that died due to temperature fluctuation?	No	Yes	No	Yes
9	What should be done as horns of buffaloes were turning backwards?	Yes	Yes	No	No
10	What should be done to cure bloat in an 8- month pregnant cow?	No	Yes	No	No
11	What should be frequency and dose of deworming in animals?	No	Yes	No	No
12	Information about first aid book on animal health and production?	No	Yes	No	No
13	What should be done in my weak and dull goat?	Yes	Yes	No	No
14	My 5 year old buffaloes showed no signs of heat? What should be done?	Yes	Yes	No	No
15	What should be done to cure the affected udder of my dairy cow?	Yes	Yes	No	No
16	My buffalo suffers from a dry cough. What medication should be given?	No	Yes	No	No
17	Provide us extension literature on first aid in animals?	No	Yes	No	No
	Queries on animal feeding and breeding				
1	Provide me information about feeding and nutritional diet of two month old *Sahiwal* calf?	No	Yes	No	No
2	Please provide me information about hydroponics fodder cultivation?	No	Yes	Yes	Yes
3	Sir, please give some tips of feeding pregnant animals?	No	Yes	No	No
4	Provide some managemental tips for my cow due for parturition in 15-20 days?	Yes	Yes	No	No
5	What should be done to increase the thickness of milk from my cow?	No	Yes	No	No
6	Information about semen straws availability of indigenous *Sahiwal* cow?	No	Yes	Yes	Yes
7	Is *Gir* animal suitable to rear in my area?	No	Yes	No	No
8	Can we rear indigenous cow in our colder areas?	No	Yes	No	No
9	What should we do to ensure that animals that do not remain non pregnant after artificial insemination?	No	Yes	No	Yes
10	I want to know more about exotic cattle breed?	No	Yes	No	Yes
11	What should be done to improve milk yield in recently calved (2 months back) cow?	No	Yes	No	No
12	I have an otherwise healthy jersey cow but milk yield is low? What can be done?	No	Yes	No	No
13	Information needed about procuring improved exotic breed of Goat?	No	Yes	No	No
14	Availability and storage of semen straws for indigenous breed?	No	Yes	No	Yes
15	Please help me to identify the breed of cow?	Yes	Yes	No	No
	Queries on milk processing				
1	Training on value addition in milk products?	No	Yes	Yes	Yes
2	Is there any milk processing plant nearby?	No	Yes	No	No
3	Information about training in milk processing?	No	Yes	No	No
4	Details sought about milking machine?	No	Yes	Yes	Yes
5	How much milk of jersey cow is needed to produce 1kg of Ghee?	No	No	Yes	No
	Queries about government schemes and buying and selling of livestock				
1	Information about whether dairy venture scheme (Dugdh Ganga) has started or not in our area?	No	Yes	No	No
2	Anyone interested to buy cow of 12-14 litres of milk?	Yes	No	Yes	No
3	Is there anyone interested to buy 8th month pregnant cow and milk yield of 20 litres?	Yes	Yes	Yes	Yes
4	I want to purchase a cow worth 15000-20,000 litres of cow. Which breed and from where I can buy?	No	Yes	Yes	Yes
5	Information about scientific goat farming to start it as a new venture?	No	Yes	No	No
6	Provide me information about subsidies in goat farming?	No	Yes	No	No
7	Is there any financial assistance on dairy farming?	No	Yes	No	No
8	Is subsidy being provided on dairy loans?	No	No	No	No
9.	Please, provide me more information about scientific goat farming?	No	Yes	No	No
10	Is anyone interested in contract goat farming?	No	Yes	Yes	Yes
	Miscellaneous queries				
1	Information about poultry feeding testing facilities?	No	Yes	No	No
2	Scientific name of a tree possessing veterinary medicinal properties along with further details about therapeutic use?	Yes	Yes	No	No
3	How should we dispose of male calf animals?	No	Yes	Yes	Yes

Table 3. Preferred choice of information for seeking the query (N=50)

	First choice	Second choice	Third choice
WhatsApp	44	6	0
Veterinary centre personnel	2	11	0
Veterinary doctor	1	2	2
Kisan call centre	1	0	0
Internet	1	0	0
ICAR institute	1	0	0
Chemist shop	0	1	0
Elder community member	0	0	1
SAU/KVK	0	3	2
Total	50	23	5

veterinary centre personnel. In some instances, queries which required elaborate information and advice veterinary doctor, resource persons of *Krishi Vigan Kendra*/State Agricultural University and elder community member appeared as third and final choice in seeking advice for the specific set of query posted on WhatsApp.

In conclusion, a fairly good number of farmers' responses were generated through WhatsApp. This is based on the fact that group consisted of a limited number of small farmers of average herd size. The medium served as an important platform for farmers to share and discuss information beyond disease aspects to production, value addition, and marketing. It helped them to formulate sound assessments and take well-timed decisions regarding their livestock venture. WhatsApp also served as a significant avenue to escalate networking between farmers as well as with several institutional actors in the livestock sector.

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