

RESEARCH ARTICLE

Comparative study on effectiveness of the aAQUA e-Agriservice among dairy farmers of Maharashtra

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Abstract Information and Communication Technology (ICT) is being playing significant role in extension delivery system. During last two decades many organizations have undertaken knowledge interventions for promoting scientific farming. Among these interventions aAQUA (Almost All Questions Answered) e-Agriservice is one such project involved in solving farmers' queries. In present study an attempt was made to evaluate the effectiveness of aAQUA e-Agriservice in terms of knowledge gain about Improved Dairy Farming Practices (IDFPs). Ex-post-facto research design was followed and study was conducted in randomly selected four districts of Maharashtra. The data were collected through personal interview with the help of pre-tested interview schedule including developed knowledge test items. It was administered on randomly selected 240 respondents (120 each from users and non-users group). About 52.50 per cent of users had high level of knowledge about IDFPs, while one third (33.33%) of non-users had medium level of knowledge. The users overall knowledge index (66.20) was more as compared to non-users (61.90) and it was significantly differ at 1 per cent level of significance. The study finally revealed that the overall knowledge gain of users of e-Agriservice in IDFPs is quite better than that of non-users due to their efficient utilization of the aAQUA web-portal.

Keywords : aAQUA e-Agriservice, ICT, IDFPs, Knowledge, users, Non-users

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Introduction

Agriculture continues to be an important pillar of the Indian economy and livestock sector is supplementary and complementary to the agriculture. The livestock sector is growing enormously in fulfilling the growing demand of national and global market. It is contributing 3.92 percentage in gross domestic product (National Accounts Statistics 2013). Dairying has been the most promising sector under livestock, which generate means of income and employment for majority of small and medium farmers of India. It can help to assure the balance development of Indian rural economy. However, low productivity of cows is major concern of dairy sector. As per an estimate, '5 dairy cows' in India produces as much milk as produced by '1 dairy cow' in the United States of America (USA) (Hemme et al., 2003). One of the reason, could be the traditional dairy farming practices adopted by the dairy farmers. Sharma and Bairathi (1999) stated that adoption of improved dairy farming practices helps in increasing productivity and production, which leads to make dairy business more remunerative. Another reason could be the lack of information (knowledge) access to the Indian farmers. The information and knowledge available to humanity today is significantly more than at any time before, their distribution is highly uneven and skewed across the nations (Krishnan and Singh, 2011).

Information is key ingredient for success of any individual and its use has increasingly become important for effective decision making by the farming community (Cash, 2001; Galloway & Mochrie, 2005; Opara, 2008; Taragola & Van Lierde, 2010). In this background, during last two decades government of India and many private organizations have undertaken Information and Communication Technology (ICT) based knowledge interventions for providing timely and relevant information on scientific farming. The aAQUA (Almost All Questions Answered) e-Agriservice is one such ICT project launched by the Developmental Informatics Laboratory (DIL) at Indian Institute of Technology, Mumbai in collaboration

with the Farm Science Centre (Krishi Vigyan Kendra, KVK), Baramati and Vigyan Ashram (NGO), Pabal, Maharashtra in 2003 as an information providing system to deliver technology options and tailored information for the problems and queries raised by Indian dairy farmers (Ramamritham *et al.*, 2011). Therefore there is need to explore the effectiveness of such ICT projects in enriching the knowledge of farming community (e.g. aAQUA e-Agriservice). Therefore a study was conceptualized to evaluate the effectiveness of aAQUA e-Agriservice in terms of knowledge gain about improved dairy farming practices among users and non-users dairy farmers. This may address the future planning to get better success of the ICT projects, which may be ultimately helpful to design the effective developmental strategies.

Materials and Methods

Sampling: The Maharashtra state situated in the western part of India was purposively selected for the present study as the aAQUA e-Agriservice was launched as a pilot project in this state in 2003 and still continues to deliver its services to the farmers of this state (www.aaqua.org). Four out of eight districts (Pune, Nasik, Jalna and Amravati) were selected randomly. From each district one block with registered users and another one without registered users were selected randomly. The factors like, socio-economic characteristics and infrastructure availability was kept in mind while selecting the blocks for non-users group category. The block wise list of registered users was obtained from the service provider (Agrocom Software Technologies Pvt. Ltd.). The non-user dairy farmers list was obtained the concerned department of agriculture. From each of the selected block 30 farmers each from users and non-users group were selected randomly giving a total of 60 respondents from each district. Thus, a total of 240 (120 each from user and non-user group) respondents were selected randomly from four districts and surveyed personally.

Instrument: A knowledge test about IDFPs was developed. It consist of 29-questions/ items covering the breeding, feed-fodder, health care and management aspects of the IDFPs. Difference in knowledge gain about the IDFPs among the users and non-users group was used as an indicator of effectiveness of the aAQUA e-Agriservice. The individual farmer response was taken based on three point continuum and it was ranged from 29 to 87. The data generated was computed and analysed by cumulative square root frequency method, mean, standard deviation and Z-stat methods.

Results and Discussion

The figures in Table 1 revealed that about 52 per cent of the users had high knowledge level compared to about 33 per

cent in the non-user category. Similarly, the number of users of e-Agriservice in low knowledge category were less when compared to their counterparts. This indicated that the users of e-Agriservice had better higher knowledge than the non-users. This may be due to users frequently visiting the aAQUA web-portal, to access the relevant information on IDFPs. Several studies reported that the participation of private agencies and the use of information and communication technologies had substantially increased to meet the informational requirements of farming communities (Carney, 1995; Farrington, 1995; Rivera, 1996; Umali-Deinger, 1997).

The findings are in line with the study of Biswas *et al.*, (2012), who revealed that the overall knowledge gain of SHG farmers in IDFPs is quite better than that of Non-SHG farmers due to their efficient training orientation, raised literacy level, Market orientation and Farm Power etc. The knowledge level of respondents was measured based on the four dimensions of the IDFPs. The dimension wise the knowledge index score is presented in the Table 2.

It was shown in the Table 2 that users' knowledge index scores in breeding, feeding & fodder, health care and management aspects of IDFPs were 85.63, 63.67, 69.76 and 70.60 per cent, respectively. The findings were corroborated with the findings of Kumar *et al.*, (2011) who also reported that respondents possessed good knowledge index about breeding (42.00%) and management (41.73%) practices, but faced problems about the feeding (37.84%) and health care (39.75%) practices. The users overall knowledge index about improved dairy farming practices was 66.20, which indicates users have better knowledge about different aspects of the IDFPs. The study indicated that the users of the aAQUA e-Agriservice utilized this service efficiently and effectively to solve their queries, leading to gain in knowledge by adopting the solution provided by the e-Agriservice.

In the case of non-users, the knowledge index scores in breeding, feeding & fodder, health care and management

Table 1 Distribution of the users and non-users of the e-Agriservice according to their knowledge level about IDFPs

| Knowledge Level | Users (n=120) | Non-Users (n=120) |
|------------------------|------------------|----------------------|
| Low (<58.85) | 24 (20.00) | 40 (33.33) |
| Medium (58.86 - 67.71) | 33 (27.50) | 40 (33.33) |
| High (> 67.72) | 63 (52.50) | 40 (33.34) |

Note: Figures in parenthesis shows the percentage.

Table 2 The mean knowledge index of improved dairy farming practices

| Sl. No. | Items | Users | Non-users |
|---------|----------------------------|-------|-----------|
| 1 | Breeding Practices | 85.63 | 75.63 |
| 2 | Feeding & Fodder Practices | 63.67 | 61.39 |
| 3 | Health care Practices | 69.76 | 66.90 |
| 4 | Management Practices | 70.60 | 65.52 |

aspects of IDFPs were 75.63, 61.39, 66.90 and 65.52 per cent, respectively. Overall knowledge index of non-users about improved dairy farming practices was 61.90, which indicates good enough knowledge. The study indicated that non-user group possessed more experience in dairy farming than users, also had enough mass media exposure, which leads to gain in good level of knowledge.

The perusal of table 2 also indicated that both categories of respondents possessed better knowledge about the breeding practices as compared to other dimensions of the dairy farming. However, they were facing problems about the feeding-fodder and health care practices. The respondents unable to make the mixed ration and complete feed blocks proportionately to feed as per the requirement of animals, hence they used to follow traditional practices rather than improved feeding practices, these could be the possible reason for the same.

Table 3 Mean differences in the respondents' knowledge about IDFPs.

| Sl. No. | Respondents | Mean | SD | Z - stat |
|---------|-------------------|--------|-------|----------|
| 1 | Users (n=120) | 66.197 | 9.062 | 3.77** |
| 2 | Non-Users (n=120) | 61.897 | 8.604 | |

**Significant at 1% level of significance

Table 3 clearly revealed that the users and non-users knowledge had significantly differed ($Z=3.770$) at 1 per cent level of significance. It is quite clear from the above findings that dairy farmers who used the aAQUA e-Agriservice had higher knowledge about improved dairy farming practices as compared to the non-user farmers. The findings are also corroborated with the findings of the Promila (1994) and Sah (1996).

Conclusions

The study depicted that the users of the study area were having more knowledge than the non-users on improved dairy

farming practices. Both the categories of farmers possessed better knowledge about the breeding practices, as compared to the feeding-fodder and health care practices. The overall knowledge gain of user dairy farmers in improved dairy farming practices is quite better than non-user dairy farmers due to their efficient utilization of aAQUA e-Agriservice and this could be helpful for the users to overcome various dairy farming constraints and make them independent in technical know-how and to gain required dairy farming skills.

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