



Assessment of Applicability and Usefulness of the Messages Delivered by Kisan Mobile Advisory Service as Perceived by the Beneficiaries of KVK, Raipur

Aastha Nigam^{a+++*}, H. K. Awasthi^{a#} and P. K. Pandey^{a†}

^a Department of Agricultural Extension, Indira Gandhi Krishi Vishwavidyalaya, College of Agriculture, Raipur, C.G., India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2023/v41i92015

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/101140>

Original Research Article

Received: 04/04/2023
Accepted: 08/06/2023
Published: 20/06/2023

ABSTRACT

This study investigates the applicability and usefulness of messages delivered by the Kisan Mobile Advisory Service in the Raipur district of Chhattisgarh. A total of 120 farmers were chosen at random from 10 villages in two blocks, Arang and Abhanpur for the purpose of study. The study reveals that the applicability of messages related to pest management were perceived 'always applicable' by 85.84 per cent respondents with highest overall MPS (92.92). Likewise the

⁺⁺ M.Sc. (Ag.);

[#] Professor;

[†] Assistant Professor;

*Corresponding author: E-mail: nigamaastha18@gmail.com;

applicability of messages related to disease management were perceived 'always applicable' by 85 per cent respondent farmers with second highest overall MPS (92.5). While the messages related to fisheries were reported least applicable with overall MPS (8). As far as the usefulness is concerned the respondents believed that the messages were useful in improving the agriculture knowledge, Nursery management in different crops, Nutrient management, Increases farm yield while the messages were least useful in Creating awareness about health and hygiene. The overall usefulness of the messages was found to be moderate by 55.84% respondents, most useful by 35% and less useful by 9.16% respondents.

Keywords: KMAS; KVK; applicability; usefulness; messages.

1. INTRODUCTION

Being the savior of money, time and offering accurate advantage for farmers, the agriculture sector get benefitted largely by mobile phones in the developing countries. Farmers can be notified of disease outbreaks and other critical agricultural information using the mobile phone system. Due to their isolated and remote location, many farmers lack access to the most up-to-date, exact, appropriate, and timely information, or simply because they do not know how and where to obtain trustworthy information.

Information and communication technologies (ICT) are telecommunications-based technologies that offer access to information. It's comparable to Information Technology (IT), but in ICT the focus is on communication technologies. This includes the internet, wireless networks, cell phones, and other forms of communication. Despite rapid spread and enormous potential of ICTs application in agriculture sector, it is being access on a limited scale due to various issues like weaker IT infrastructure in rural areas, sustainability, and affordability, ease of use, accessibility, scalability and availability of relevant and localized content in appropriate language.

Information and communication technologies (ICTs) are transforming how scientists, academics, and development workers create, share, and apply agricultural knowledge through investments in e-Science infrastructure and collaboration on the one hand, and rapid advancements in digital devices and connectivity in rural areas on the other [1]. Although the potential benefits of ICT usage in rural areas are outweighed by the absence of other input agencies, interventions in other parts of the country indicate that ICT use can improve the efficiency of the entire agricultural supply chain [2]. In India, where mobile networks and handsets are becoming more widely used, there is a chance to provide farmers with vital

information more quickly and widely. The farmer's vulnerability to risk and uncertainty is frequently exacerbated by a lack of information regarding weather, inputs, farm management practises, or market prices, which has a negative influence on crop yield and income [3]. The purpose of agricultural extension is to provide farmers and other stakeholders with knowledge and tactics developed by public researchers [4]. KMAS might help agricultural markets, forecasting departments, and consulting services run more effectively while also assisting the industry in overcoming some of its other difficulties [5].

KMAS was founded by the Indian Council of Agricultural Research (ICAR) with the goal of providing free agricultural information to as many farmers as possible in their native language through SMS. It is run by KVKs across the country. KMA service is one of the best resources for educating farmers and extension workers about agricultural technology and information. It may also significantly improve the effectiveness of extension services by reaching a wide number of people. In the current environment, innovative information and improved communication are essential components of the growth of sustainable agriculture [6].

The use of KMAS is affected by the applicability of the messages delivered by it. So, keeping this in mind this study mainly focuses on the applicability and usefulness of the KMAS messages.

2. METHODOLOGY

The research was carried out in purposively chosen Raipur district of Chhattisgarh. Arang and Abhanpur block of Raipur district were selected because more number of farmers in these blocks was the subscribers of Kisan Mobile Advisory Service [7]. Total of 120 KMAS beneficiary

farmers were selected randomly from Arang and Abhanpur block of Raipur district for the study purpose. Total of 149 messages were assessed from year 2018 – 2020. The applicability of messages with respect to different areas of agriculture like agronomy, soil science, plant protection, horticulture, etc. is considered. Structured schedule were created in order to gauge the applicability of the messages and responses of the respondents were scored according to a three-point continuum scale for each aspect like Always-2, Sometimes-1, Never-0. The method used to determine usefulness was modified somewhat from that used by Sandhu et al. [8]. Also, the farmers were asked to rate the subject matter's usefulness on a three-point scale, from most useful to useful to not useful, with scores of 2, 1, and 0, respectively.

For data analysis, frequency and percentage were also used. The mean percent score was calculated using the following formula based on the respondents' overall scores.

$$MPS = \frac{\text{Total obtained score}}{\text{Maximum obtained score}} \times 100$$

3. RESULTS AND DISCUSSION

Subject areas covered in KMAS: Table 1 shows that between 2018 and 2020, 149 SMS referring to various agricultural disciplines were delivered. The most communications (39) were about agronomy, followed by messages about plant protection (35), soil science (28), horticulture (24), animal husbandry (15), and home science (8). Similar findings were also observed by Sandhu et al. [8].

Fig. 1 depicts the overall percentage distribution of the messages which were sent by KMAS that shows of total 149 messages, 26.17 % messages were from agronomy, 23.5% from plant protection that means 49.67% (~ 50%) messages were from agronomy and plant protection. Other areas viz. soil science (18.8%), horticulture (16.1%), animal husbandry (10.07%) and home science (5.36%) have contributed the remaining 50.33 % of the messages.

Table 1. Subject areas covered in KMAS delivered through KVK, Raipur from 2018-2020

S. No.	Areas	Number of SMS sent	Percentage (%)
1	Agronomy		
a	Seed treatment	10	26.17
b	Weed management	4	
c	Cultivation practices	7	
d	Seed sowing/Varieties	17	
e	Storage	1	
2	Soil science		
a	Nutrient management	7	18.8
b	Soil management	9	
c	Water management/ Irrigation management/Drainage	12	
3	Plant protection		
a	Pest management	22	23.5
b	Disease management	13	
4	Horticulture		
a	Nursery preparation	13	16.1
b	Floriculture	2	
c	Vegetable	9	
5	Animal husbandry		
a	Dairy: Nutrition and health	10	10.07
b	Poultry: Nutrition and health	1	
c	Sheep and goat: Nutrition and health	1	
d	Fisheries	3	
6	Home science		
a	Food and nutrition, Child care, Awareness	8	5.36
	Total	149	100

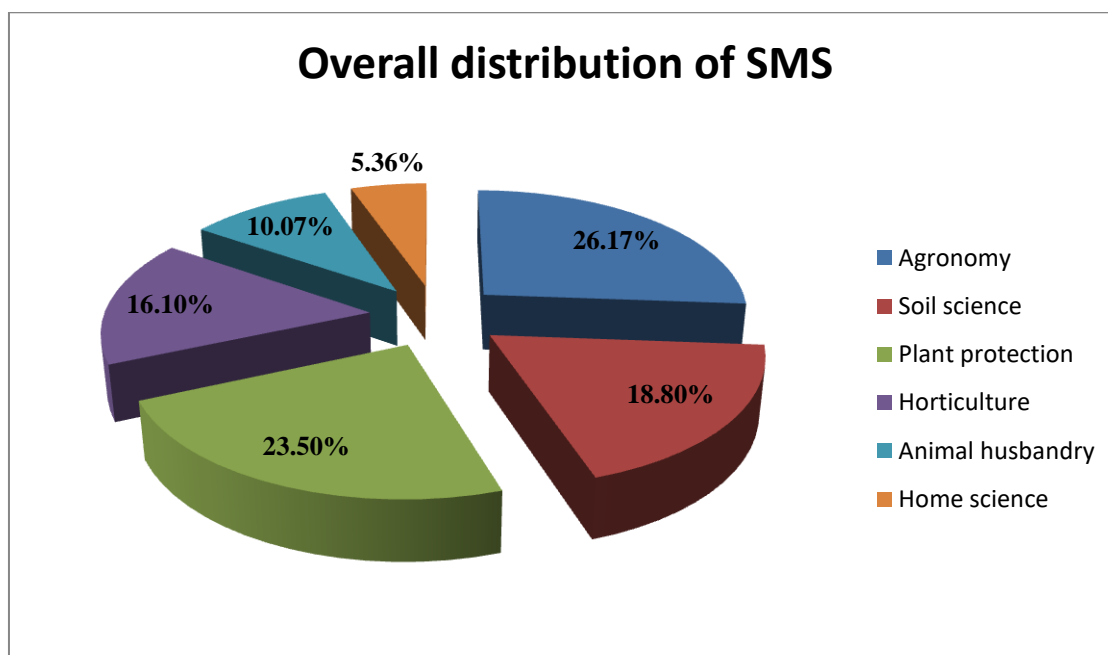


Fig. 1. Subject areas covered in KMAS delivered through KVK, Raipur from 2018-2020

Applicability of the messages: The data presented in Table 2 reveals that applicability of messages related to pest management were perceived 'always applicable' by 85.84 per cent respondents whereas only 14.16 per cent respondent believed that they are 'sometimes applicable' with 92.92 MPS. It is very interesting to note that no respondents reported that they were 'never applicable'. Applicability of messages related to disease management (Fig. 4) were perceived 'always applicable' by 85 per cent while 15 per cent respondents believed that they were 'sometimes applicable' with 92.5 MPS followed by applicability of messages related to cultivation practices and seed treatment (Fig. 2) were reported 'always applicable' by equal percentage of (81.66%) respondents while 18.34 percent respondents reported it as 'sometimes applicable' with 90.84 MPS followed by messages related to seed sowing/ varieties 90 overall MPS, Weed management 89.58 overall MPS, Nutrient management 89.16 overall MPS, Water management/Irrigation management/ Drainage 87.92 overall MPS, Soil management 87.5 overall MPS, Olericulture 81.67 overall MPS, Nursery preparation 79.17 overall MPS, Storage 73.75 overall MPS, Dairy: Nutrition and health 51.25 overall MPS, Floriculture 18.34 overall MPS, Sheep and goat: Nutrition and health 10.4 overall MPS, Poultry: Nutrition and health 10 overall MPS, Home science: Food, Nutrition and child care, Awareness 9.2 overall MPS. Surprisingly, it can be observed from Table

2 that the messages related to fisheries were considered as 'never applicable' by most of the farmers with 8 MPS. The possible reason behind this might be because the respondents mainly belong to farming community and were mainly involved in crop production sector. So, the messages were irrelevant and the applicability of the messages related to fisheries was least for them. Apart from this use of complex words in the messages also becomes barrier for the farmers to understand and apply it [9,10].

Usefulness of the messages: It is evident from the Table 3 that, KMAS SMSs related to plant protection perceived as 'most useful' (96.66%), 'useful' (3.34%) and not useful (0.00%) by the farmers and has received highest MPS (98.34) in terms of usefulness. Further, the majority of farmers perceived that SMS's were 'most useful' (74.16%) for improving the agriculture knowledge (refer Fig. 8) followed by useful (25.84%) and has received 87.1 MPS. The messages related to nursery management in different crops which was considered as 'most useful' by 68.34 per cent respondents and has received overall 84.16 MPS. The messages related to nutrient management received overall 79.16 MPS followed by messages related to improvement of farm yield in which about half (52.5%) of the respondents believed that messages had helped them in increasing the farm yield and reported it as 'most useful' and has received 76.25 MPS followed by the messages that aided in

improvement of farm and home condition with overall MPS 75.42. Farmers also have accepted that messages were useful in increasing adoption of technology with 74.16 MPS which was followed by usefulness of the messages

regarding information on extension activities with 65.84 overall MPS. Lastly, usefulness of the messages regarding creating awareness about health and hygiene received 62.1 overall MPS.

Table 2. Distribution of respondents according to applicability of the advisory

S. No.	Particulars	Always f (%)	Sometimes f (%)	Never f (%)	MPS	Rank
1.	Agronomy					
a	Seed treatment	98 (81.66)	22 (18.34)		90.84	III
b	Weed management	95 (79.16)	25 (20.84)		89.58	V
c	Cultivation practices	98 (81.66)	22 (18.34)		90.84	III
d	Seed sowing/ Varieties	97 (80.83)	22 (18.33)	1 (0.84)	90	IV
e	Storage	57 (47.5)	63 (52.5)		73.75	XI
2.	Soil science					
a	Nutrient management	94 (78.34)	26 (21.66)		89.16	VI
b	Soil management	90 (75)	30 (25)		87.5	VIII
c	Water management/Irrigation management/ Drainage	91 (75.84)	29 (24.16)		87.92	VII
3.	Plant protection					
a	Pest management	103 (85.84)	17 (14.16)		92.92	I
b	Disease management	102 (85)	18 (15)		92.5	II
4.	Horticulture					
a	Nursery preparation	72 (60)	46 (38.34)	2 (1.66)	79.17	X
b	Floriculture	12 (10)	20 (16.66)	88 (73.34)	18.34	XIII
c	Olericulture	77 (64.16)	42 (35)	1 (0.84)	81.67	IX
5.	Animal husbandry					
a	Dairy: Nutrition and health	40 (33.34)	43 (35.83)	37 (30.83)	51.25	XII
b	Poultry: Nutrition and health	5 (4.17)	14 (11.66)	101 (84.17)	10	XV
c	Sheep and goat: Nutrition and health	4 (3.34)	17 (14.16)	99 (82.5)	10.4	XIV
d	Fisheries	7 (5.84)	5 (4.16)	108 (90)	8	XVII
6.	Home science: Food, Nutrition and child care, Awareness	5 (4.16)	12 (10)	103 (85.84)	9.2	XVI

Table 3. Distribution of respondents according to usefulness of the messages

S. No.	Particulars	Most useful f (%)	Useful f (%)	Not useful f (%)	MPS	Rank
1	Improving the agriculture knowledge	89 (74.16)	31 (25.84)	0 (0)	87.1	II
2	Nursery management in different crops	82 (68.34)	38 (31.66)	0 (0)	84.16	III
3	Nutrient management	70 (58.34)	50 (41.66)	0 (0)	79.16	IV
4	Effective in plant protection	116 (96.66)	4 (3.34)	0 (0)	98.34	I
5	Increases farm yield	63 (52.5)	57 (47.5)	0 (0)	76.25	V
6	Improving farm and home condition	61 (50.84)	59 (49.16)	0 (0)	75.42	VI
7	Creating awareness about health and hygiene	29 (24.16)	91 (75.84)	0 (0)	62.1	IX
8	Increasing adoption of technology	58 (48.34)	62 (51.66)	0 (0)	74.16	VII
9	Information on extension activities	38 (31.66)	82 (68.34)	0 (0)	65.84	VIII

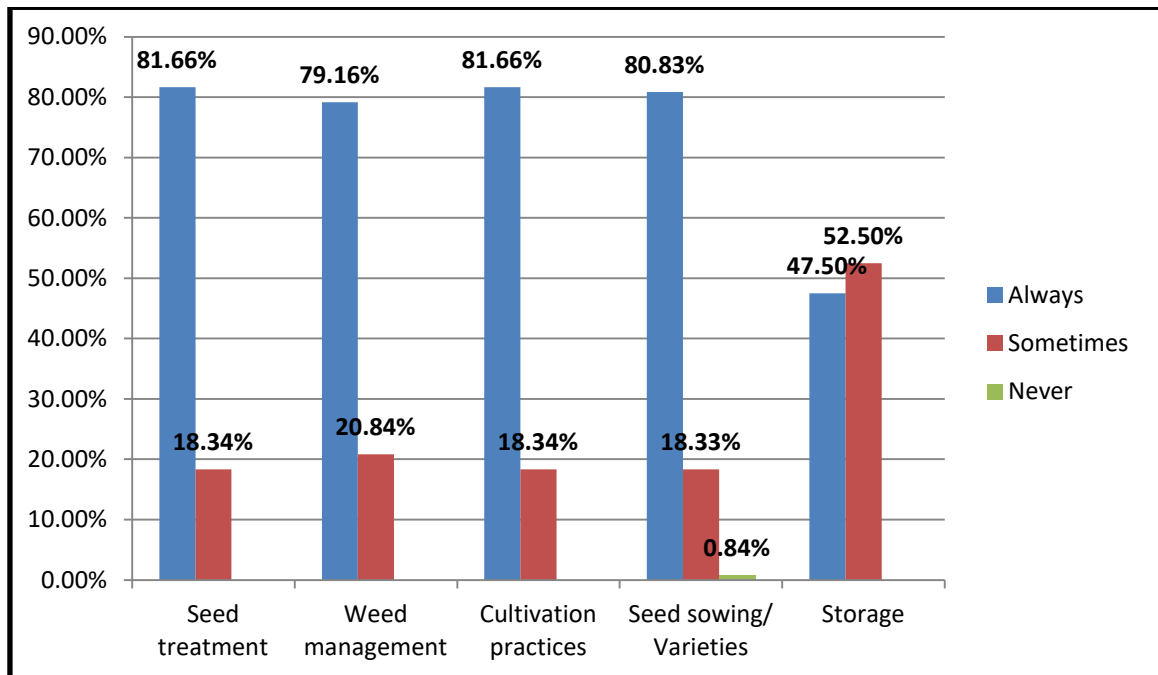


Fig. 2. Pictorial representation of respondents (%age) regarding applicability of messages related to agronomy

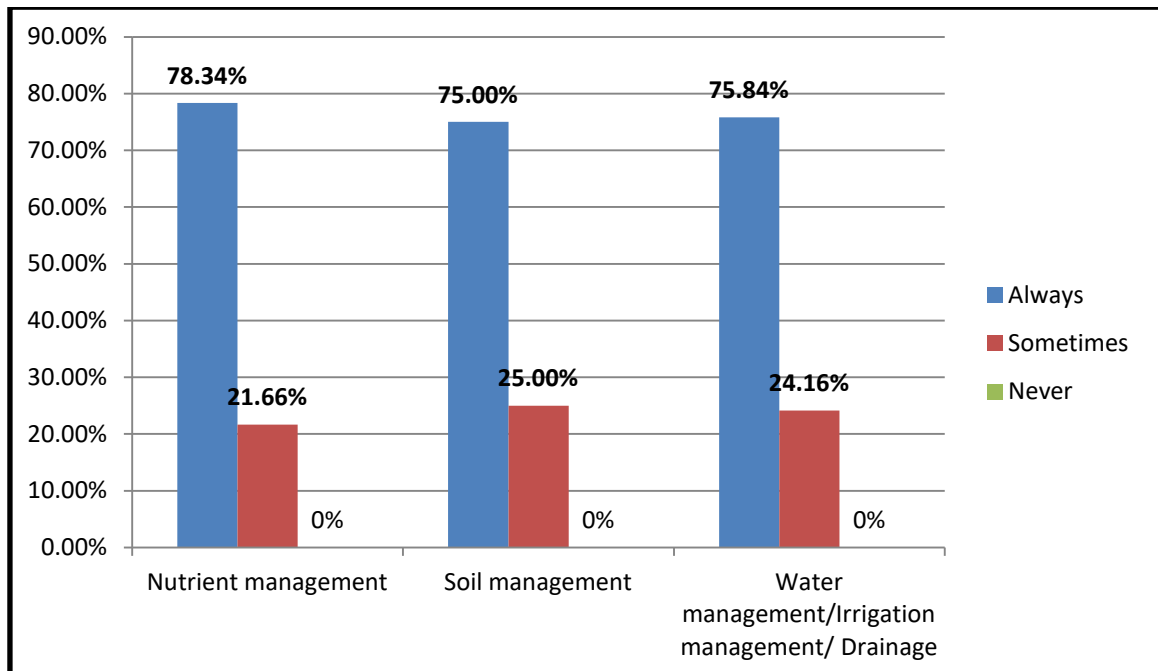


Fig. 3. Pictorial representation of respondents (%age) regarding applicability of messages related to soil science

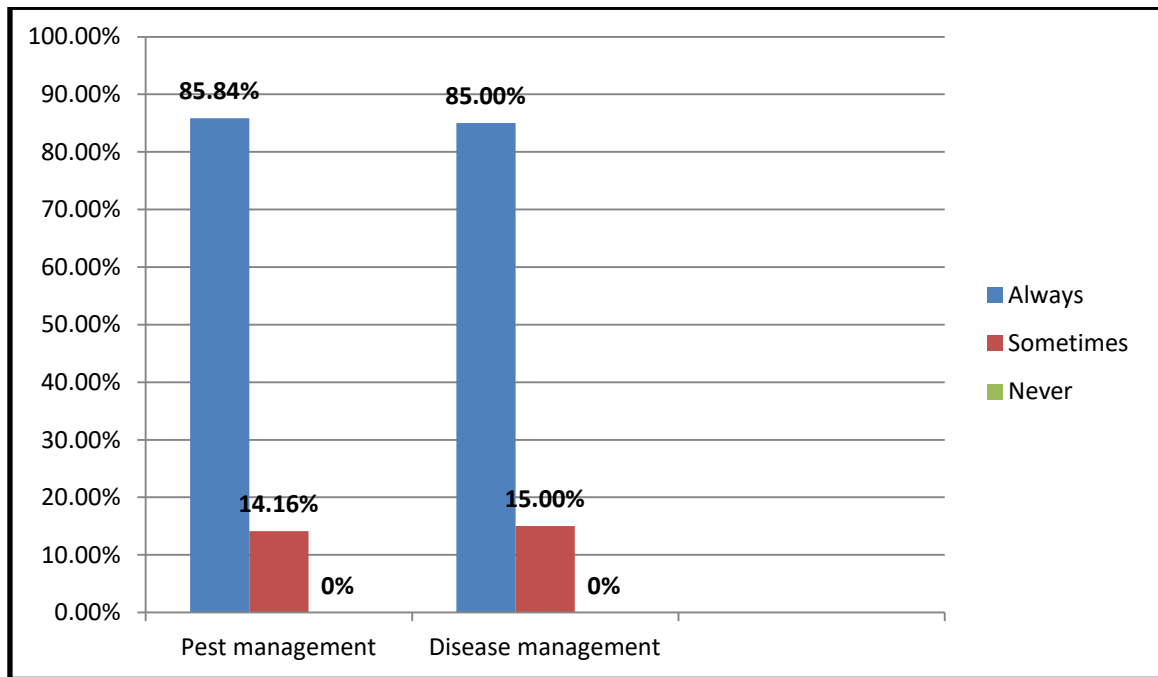


Fig. 4. Pictorial representation of respondents (%age) regarding applicability of messages related to plant protection

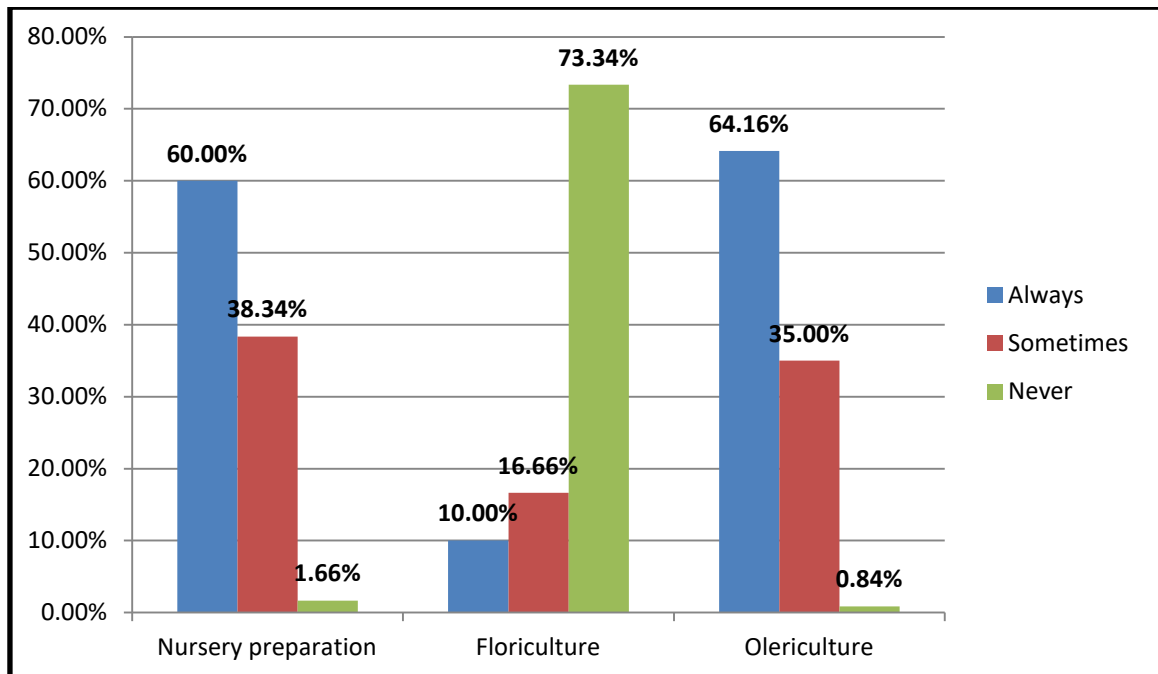


Fig. 5. Pictorial representation of respondents (%age) regarding applicability of messages related to Horticulture

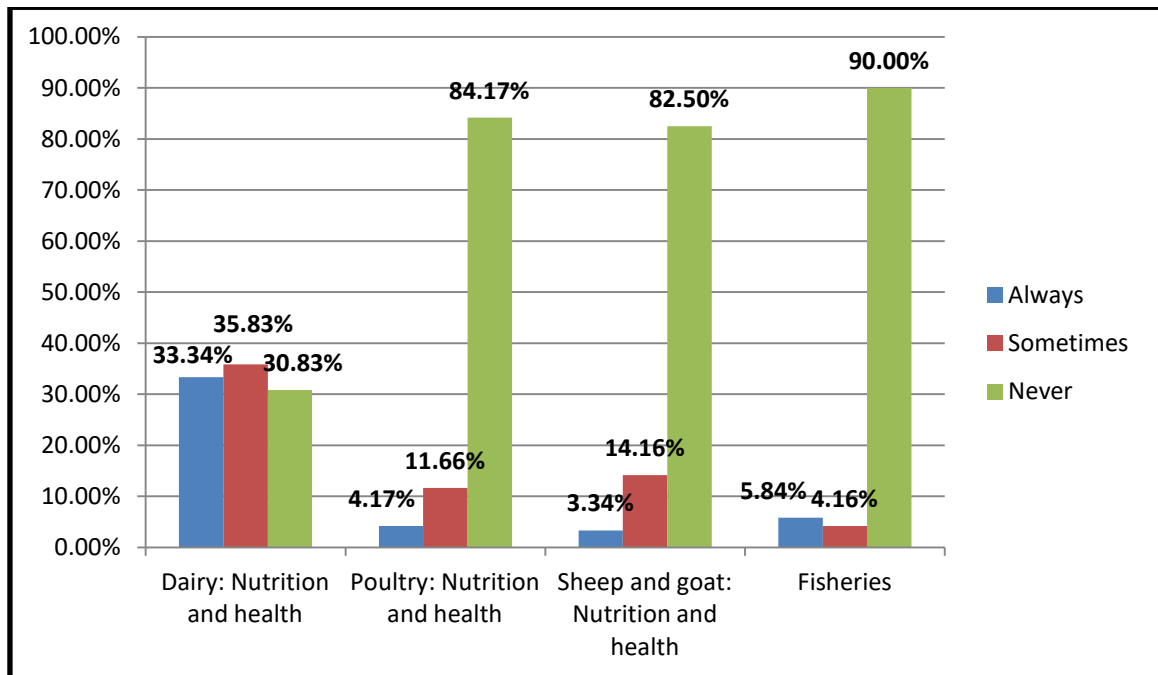


Fig. 6. Pictorial representation of respondents (%age) regarding applicability of messages related to animal husbandry

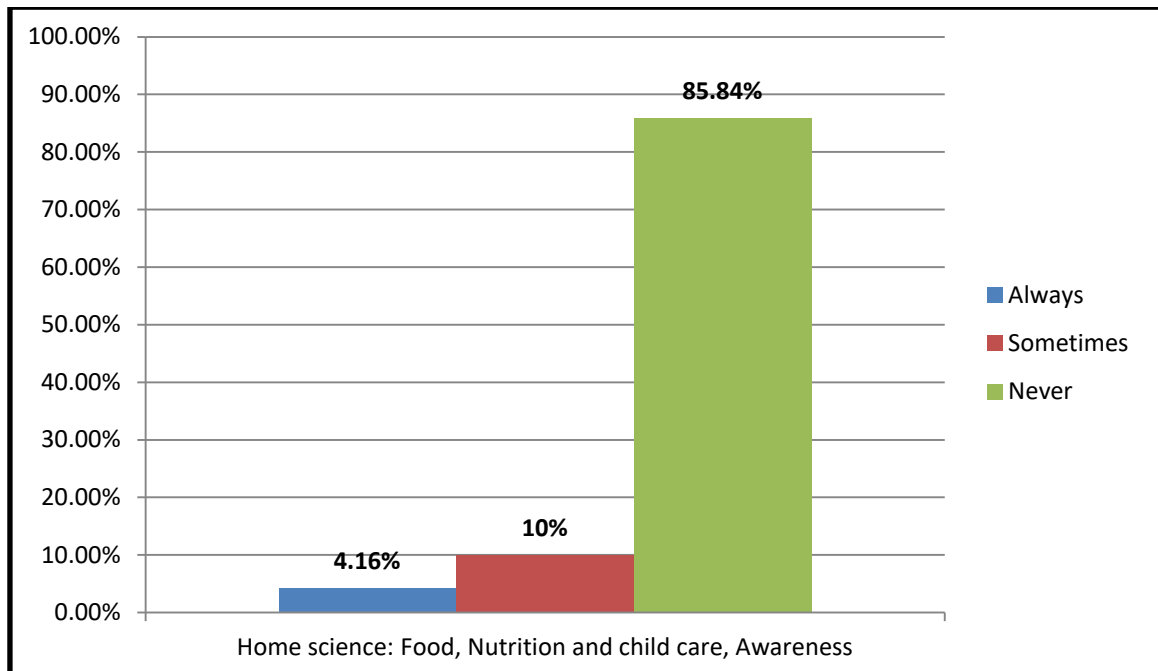


Fig. 7. Pictorial representation of respondents (%age) regarding applicability of messages related to Home science: Food, Nutrition and child care, Awareness

It can be concluded from Table 4 that KMAS messages were considered 'Moderately useful' by more than half (55.84%) of the respondents followed by 'Most useful' (35%) and 'Less useful' (9.16%) respondents (Fig. 9). Findings were supported by the findings of Kanavi and Jahagirdar [11].

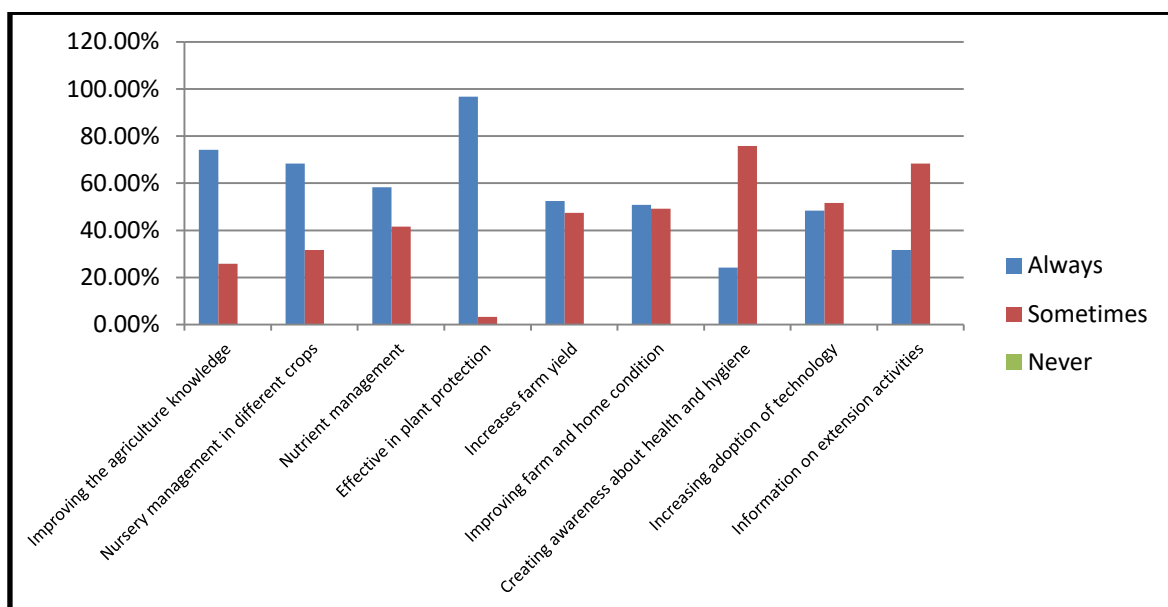


Fig. 8. Pictorial representation of respondents (%) regarding usefulness of the messages

Table 4. Overall usefulness of the messages

S. No.	Category	Frequency(f)	Percentage (%)
1.	Less useful (Below 13)	11	9.16
2.	Moderate useful (13-14)	67	55.84
3.	Most useful(Above 14)	42	35
	Total	120	100

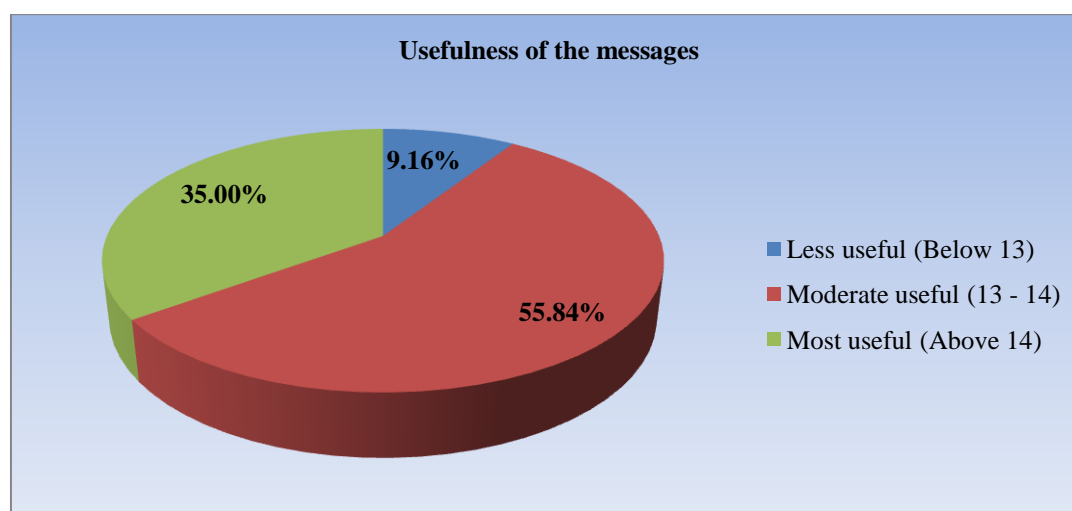


Fig. 9. Pictorial representation of overall usefulness of the messages

4. CONCLUSION

It is interesting to note that none of the respondents reported never applicable for the messages related to Agronomy(Seed treatment, Weed management, Cultivation practices, Storage), Soil science (Nutrient management,

Soil management, Water management/Irrigation management / Drainage), Plant protection(Pest management, Disease management) while majority of respondents reported that the messages related to Animal husbandry(Fisheries, Poultry: Nutrition and health, Sheep and goat: Nutrition and health) and

Home science: Food, Nutrition and child care, Awareness were never applicable. The possible reason behind this conclusion is that the respondent farmers were mostly from farming background and were mainly involved in crop production sector. Apart from it farmers should be served messages in the simple language so that it could be easily understood and applied by them. As far as the usefulness of the messages is concerned it is quite riveting to note that none of the respondents reported that messages were never useful. Therefore it can be concluded from the study that before recommending any technical improvements, the farmer's socioeconomic and agricultural profile should be thoroughly examined. A proper communication network is required for such an endeavor. For continual improvement, the service provider must have a strong system for feedback.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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