



# Assessment of agriculture information needs of farm women for development of ICT based material

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**Abstract :** A study was conducted during 2009-10 to identify the information needs of farmwomen in agriculture and allied areas for development of ICT based material. Data were collected from three categories of stakeholders *viz.*, KVK SMS, agriculture scientists and farmwomen in three major areas *i.e.* farming, horticulture and animal husbandry. The information needs have been prioritized first five as per rank order using Kruskal-Wallis test. It was found that the information needs identified and prioritized by three stakeholders do not match as per rank order. Significant differences (Mann-Whitney test) were found between farmwomen and scientists and KVK SMS in some of the activities of all the three areas. Therefore, those five needs identified and prioritized as per rank order by farmwomen, KVK SMS and scientists and those having no significant difference among three stakeholders were prioritized as needs of information for farmwomen for development of ICT based materials. Some of the prioritized needs were water management practices, intercropping methods, organic farming, post harvest processing of field crops, manuring /fertilizer application, seed selection and seed treatment, appropriate farming systems for different situation, pest management, bio-pesticides and their use, control of diseases, animal breeding aspects and fodder cultivation.

**Key Words :** Information needs, Farming, Horticulture, Animal husbandry, Farm women

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## INTRODUCTION

Agriculture is the mainstay of Indian economy which provides employment to 65 per cent of the total workforce in the country and contributed 15.7 per cent of the GDP in 2008-09 (Economic Survey 2009-10). However, the agricultural sector is confronted with the major challenge of increasing production to feed a growing and increasingly prosperous population in a situation of decreasing availability of natural resources. Information and communication technologies (ICT) play an important role in addressing the challenges agriculture facing now-a-days and uplifting the livelihoods of the rural poor. The role of both women and men is important for sustainable growth and development in agriculture sector. Women constitute 40 per cent of the agricultural workforce and play an enormous role in agriculture and allied activities but they are marginalized with respect to access to information

about latest technological developments in agriculture and allied fields. In this regard, agriculture scientists and extension field functionaries have a key role to play. E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. Parikh *et al.* (2008) conducted study on ICT tool to reach the unreached. It involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture. Use of ICT in agriculture has a promise in ushering agricultural growth, "but miles to go". Keeping in view the importance of latest technological developments in agriculture, there is a need for training farm women regarding the necessary technologies, so that they can perform those activities with more competences. Thus, the present study was undertaken to identify the information

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needs of farmwomen in agriculture and allied fields for development of ICT based materials.

## MATERIALS AND METHODS

The study was conducted during the year 2009 - 2010. Data were collected from the different categories of stakeholders namely, KVK subject matter specialists (SMS) (24), agriculture scientists (26) and farmwomen (30) to determine their opinion/perceptions about the need based areas of information for development of ICT based materials. An interview schedule was developed to identify the information need in women perspective. The interview schedule emphasized the need assessment in three major areas *i.e.* farming activities, horticulture activities and animal husbandry activities. In each area, the information needs were assessed in three point continuum *i.e.* least important, somewhat important and most important, accordingly, 1, 2 and 3 scores were assigned. Data were analyzed through SPSS statistics 17.0 software. The non-parametric tests such as Kruskal-Wallis Test, Mann-Whitney Test were used. Ranking was done according to the mean score given for each question in activity wise through Kruskal-Wallis Test. Mann-Whitney Test was applied for comparison among three stakeholders.

## RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

### Profile of farmwomen:

The farmwomen were in the age group of 28-52 years and belonged to nuclear family (66%). 53 per cent farmwomen belonged to general category followed by 27 per cent SC/ST and 20 per cent OBC. As per their educational qualification 27 per cent had education up to middle school, 36 per cent were high school and 17 per cent were graduates. 50 per cent farmwomen were the member of SHGs and engaged in various enterprise activities such as agro processing, crop production, vegetable cultivation, mushroom cultivation and appliqué work. The monthly income ranged from '2500 - 6000. In land ownership 80 per cent farmwomen have their own land of which 63 per cent were in the medium landholding category (2-5 acre land).

### Information need assessment:

The information needs have been prioritized first five as per rank order. The results of the study (Table 1) revealed that different categories of stake holders had prioritized information needs differently. In farming activities, the KVK SMS had prioritized the seed treatment practices for different field crops, weed management, women friendly implements for drudgery reduction in different field operations, storage practices for field crops and appropriate farming systems as the most important information need for farmwomen in rank order as first, second, third, fourth and fifth, respectively. However, the information needs prioritized by the agriculture scientists in relation to field crops were sowing/ transplanting, manuring/ fertilizer application, pest management practices, storage practices and women friendly implements for drudgery reduction in different field operations. Whereas, farmwomen

**Table 1: Need assessment in farming activities (Kruskal-Wallis Test)**

Sr. No.	Farming activities	KVK SMS (n = 24)		Farm women (n = 30)		Scientists (n =26)	
		Mean score	Rank	Mean score	Rank	Mean score	Rank
1.	Weed management in field crops	46.38	II	34.25	XII	42.29	VI
2.	Appropriate selection of seed variety for field crops	44.56	VII	38.28	VI	39.31	XI
3.	Sowing/ transplanting of field crops	43.27	IX	33.03	XIII	46.56	I
4.	Manuring /fertilizer application in field crops	38.96	XIV	38.63	V	44.08	II
5.	Seed treatment practices for different field crops	46.83	I	35.97	IX	39.88	IX
6.	Pest management practices for field crops	43.15	X	35.55	X	43.77	III
7.	Women friendly implements for drudgery reduction in different field operations	46.23	III	34.25	XII	42.42	V
8.	Appropriate farming systems for different situations	45.96	V	38.17	VII	38.15	XII
9.	Appropriate water management practices for field crops	40.50	XIII	41.50	I	39.35	X
10.	Different intercropping methods	42.75	XI	40.97	II	37.88	XIII
11.	Post harvest processing of field crops	42.08	XII	38.75	IV	41.06	VII
12.	Storage practices for field crops	46.08	IV	34.32	XI	42.48	IV
13.	Pesticide risk reduction	43.42	VIII	38.13	VIII	40.54	VIII
14.	Organic farming	45.35	VI	40.73	III	35.75	XIV

Ranking are based on the mean scores

**Table 2: Need assessment in horticulture activities (Kruskal-Wallis Test)**

Sr. No.	Farming activities	KVK SMS (n = 24)		Farm women (n = 30)		Scientists (n = 26)	
		Mean score	Rank	Mean score	Rank	Mean score	Rank
1.	Seed selection and seed treatment practices for vegetable crops	47.52	III	33.83	XIV	41.71	II
2.	Pest management practices for different vegetable crops.	45.75	V	36.15	XI	40.67	III
3.	Manuring/ fertilizer application in different vegetable crops	42.44	XIII	41.50	IV	37.56	VIII
4.	Appropriate seed selection and seed treatment practices for fruit crops	44.38	XII	40.33	V	37.12	IX
5.	Manuring/ fertilizer application in different fruit crops.	45.13	VIII	43.45	III	32.83	XII
6.	Pest management practices for different fruit crops.	44.83	X	37.32	IX	40.17	IV
7.	Water management in different vegetable and fruit crops	44.88	IX	37.75	VIII	39.63	V
8.	Different intercropping methods	49.46	II	37.05	X	36.21	XI
9.	Post harvest management of different vegetable crops	45.25	VII	40.17	VI	36.50	X
10.	Post harvest management of different fruit crops	45.29	VI	38.72	VII	38.13	VII
11.	Value addition in fruits and vegetables	46.31	IV	46.55	II	28.15	XIV
12.	Marketing of different vegetable and fruit crops	38.50	XIV	49.62	I	31.83	XIII
13.	Bio-fertilizers and their use	49.67	I	34.73	XIII	38.69	VI
14.	Bio-pesticides and their use in horticulture crops	44.54	XI	36.00	XII	41.96	I

Ranking are based on the mean scores

had prioritized their information needs such as, water management practices, different intercropping methods, organic farming, post harvest processing and manuring/ fertilizer application.

Regarding horticulture activities, the prioritized information needs by KVK SMS were bio-fertilizers and their use, intercropping methods, appropriate seed selection and seed treatment practices for vegetable crops, value addition in fruits and vegetables and pest management practices for different vegetable crops. Whereas farmwomen had prioritized their information needs such as marketing of vegetables and fruits, value addition in fruits and vegetables, manuring/ fertilizer application in fruits and vegetable crops and appropriate seed selection and seed treatment practices for different fruit crops.

However, the information needs prioritized by the agriculture Scientists were bio-pesticides and their use in horticulture crops, appropriate seed selection and seed treatment practices for different vegetable crops, pest

management practices for different vegetable and fruit crops and water management in different vegetable and fruit crops (Table 2).

Regarding information needs in the area of animal husbandry, the information needs prioritized by KVK SMS were nutrition/ feed management for cattle, general care of cattle, calf rearing, fodder cultivation and animal breeding aspects. The farm women prioritized the important information needs were control of diseases, animal breeding aspects, fodder cultivation, calf rearing and general care of cattle. However, the information needs prioritized by the agriculture scientists for farmwomen were nutrition/ feed management for cattle, control of diseases, general care of cattle, calf rearing and fodder cultivation (Table 3).

The findings revealed that the information needs identified and prioritized by three stakeholders do not match as per rank order. Therefore, attempts were made to find out the significant differences in information needs as prioritized by different stakeholders. Findings revealed that no significant

**Table 3: Need assessment in animal husbandry activities (Kruskal-Wallis Test)**

Sr. No.	Animal husbandry activities Questions	KVK SMS (n= 24)		Farm women (n= 30)		Scientists (n=26)	
		Mean score	Rank	Mean score	Rank	Mean score	Rank
1.	General care of cattle	46.63	II	33.55	V	42.87	III
2.	Nutrition/feed management for cattle	49.58	I	29.83	VI	44.42	I
3.	Control of diseases	38.46	VI	39.93	I	43.04	II
4.	Calf rearing	46.46	III	34.92	IV	41.44	IV
5.	Animal breeding aspects	43.13	V	38.95	II	39.87	VI
6.	Fodder cultivation	44.69	IV	36.38	III	41.38	V

Ranking are based on the mean scores

Table 4: Differences in need prioritization in farm related activities by three stakeholders (Mann-Whitney Test)

Sr. No.	Questions	KVK SVS vs Farm workers		KVK SVS vs Sectors		Farm workers vs Sectors	
		Mean rank (- 2/)	Median S/B (2.5.100)	Mean rank (- 25)	Median S/B (2.5.100)	Mean rank (- 20)	Median S/B (2.5.100)
1.	Which management in field crops	31.96	+0.013	26.92	0.272	29.82	0.029
2.	So selection of seed variety for field crops	29.71	0.216	21.29	0.207	28.10	0.319
3.	Sowing/spacing/seed rate in field crops	31.11	+0.013	21.33	0.323	27.18	+0.007
4.	Watering/fertilizer application in field crops	21.88	0.856	23.58	0.319	26.93	0.329
5.	Seed selection practices for field crops	31.33	0.052	28.00	0.163	27.03	0.121
6.	Pest management practices for field crops	30.72	0.191	25.23	0.339	29.88	0.165
7.	Water selection practices for horticulture vegetables	31.96	+0.025	26.71	0.111	29.82	0.121
8.	Application of manuring systems for horticulture vegetables	30.33	0.201	28.13	0.181	28.73	0.972
9.	Water management practices for field crops	21.13	0.852	25.88	0.371	29.20	0.703
10.	Water selection practices for field crops	28.71	0.761	21.08	0.725	27.35	0.596
11.	Pest selection practices for field crops	28.73	0.379	25.85	0.751	27.73	0.529
12.	Seed selection practices for field crops	31.18	+0.023	26.71	0.111	29.71	0.113
13.	Pest selection practices for field crops	29.70	0.327	26.52	0.602	27.65	0.655
14.	Organic manuring	29.07	0.771	28.81	0.037	29.97	0.737

\* Indicates significant difference (p < 0.05)

Table 5: Differences in need prioritization in horticulture activities by three stakeholders (Mann-Whitney Test)

Sr. No.	Questions	KVK SVS vs Farm workers		KVK SVS vs Sectors		Farm workers vs Sectors	
		Mean rank (- 2/)	Median S/B (2.5.100)	Mean rank (- 2/)	Median S/B (2.5.100)	Mean rank (- 30)	Median S/B (2.5.100)
1.	Application of seed selection and seed treatment practices for horticulture vegetables	32.38	+0.015	27.55	0.190	25.73	0.121
2.	Pest management practices for horticulture vegetables	30.88	0.122	27.38	0.329	26.35	0.332
3.	Watering/spacing/seed rate in horticulture vegetables	27.75	0.505	27.19	0.371	29.70	0.571
4.	Application of seed selection and seed treatment practices for horticulture vegetables	28.92	0.191	27.56	0.199	29.77	0.599
5.	Watering/spacing/seed rate in field crops	27.75	0.997	29.88	0.121	31.65	0.097
6.	Pest management practices for field crops	30.29	0.215	27.07	0.711	27.55	0.619
7.	Water management practices for horticulture vegetables	30.00	0.279	27.38	0.329	27.75	0.639
8.	Water selection practices for horticulture vegetables	32.13	+0.035	29.83	0.150	28.75	0.892
9.	Pest selection practices for horticulture vegetables	29.53	0.211	28.72	0.281	29.63	0.759
10.	Pest management practices for field crops	29.88	0.126	27.92	0.691	28.62	0.939
11.	Water selection practices for horticulture vegetables	27.29	0.878	31.56	0.001	31.35	0.000
12.	Watering/spacing/seed rate in field crops	29.31	+0.037	27.69	0.263	31.27	+0.001
13.	Seed selection practices for horticulture vegetables	33.07	+0.013	29.13	0.065	27.77	0.732
14.	Seed selection practices for horticulture vegetables	30.67	0.159	26.38	0.661	26.53	0.300

\* Indicates significant difference (p < 0.05)

**Table 6 : Differences in need prioritization in animal husbandry activities by three stakeholders (Mann-Whitney Test)**

Sr. No.	Questions	KVK SMS vs Farm women			KVK SMS vs Scientists			Farm women vs scientists		
		Mean rank		Asymp. Sig. (2-tailed)	Mean rank		Asymp. Sig. (2-tailed)	Mean rank		Asymp. Sig. (2-tailed)
		KVK SMS (n=24)	Farm women (n= 30)		KVK SMS (n=24)	Scientists (n=26)		Farm women (n= 30)	Scientists (n=26)	
1.	General care of cattle	32.21	23.73	*0.008	26.92	24.19	0.272	25.32	32.17	*0.048
2.	Nutrition/feed management for cattle	34.67	21.77	0.000	27.42	23.73	0.160	23.57	34.19	*0.005
3.	Control of diseases	27.06	27.85	0.842	23.90	26.98	0.411	27.58	29.56	0.612
4.	Calf rearing	31.54	24.27	*0.049	27.42	23.73	0.282	26.15	31.21	0.198
5.	Animal Breeding aspects	29.00	26.30	0.505	26.63	24.46	0.568	28.15	28.90	0.854
6.	Fodder cultivation	30.56	25.05	0.158	26.63	24.46	0.553	26.83	30.42	0.371

\* indicates significance of value at P=0.05

**Table 7: Prioritized needs of information by three stakeholders**

Activities	Rank	KVK SMS	Farmwomen	Scientists
Farming related activities	I	Seed treatment practices	Water management practices	* Sowing/ transplanting of field crops
	II	* Weed management in field crops	Different intercropping methods	Manuring /fertilizer application in field crops
	III	* Women friendly implements for drudgery reduction in different field operations.	Organic farming	Pest management practices for field crops
	IV	* Storage practices for field crops	Post harvest processing of field crops	* Storage practices for field crops
	V	Appropriate farming systems	Manuring /fertilizer application	* Women friendly implements for drudgery reduction in different field operations.
Horticulture related activities	I	* Bio-fertilizers and their use.	* Marketing of vegetable and fruit crops	Bio-pesticides and their use in horticulture crops
	II	* Different intercropping methods	* Value addition in fruits and vegetables	* Appropriate seed selection and seed treatment practices for vegetable crops.
	III	* Appropriate seed selection and seed treatment practices for vegetable crops.	* Manuring/ fertilizer application in different fruit crops.	Pest management practices for vegetable crops.
	IV	* Value addition in fruits and vegetables	Manuring/ fertilizer application in different vegetable crops.	Pest management practices in fruit crops
	V	Pest management practices for different vegetable crops	Appropriate seed selection and seed treatment practices for different vegetable crops.	Water management in vegetable and fruit crops
Animal husbandry activities	I	* Nutrition/feed management for cattle	Control of diseases	* Nutrition/feed management for cattle
	II	* General care of cattle	Animal breeding aspects	Control of diseases
	III	* Calf rearing	Fodder cultivation	* General care of cattle
	IV	Fodder cultivation	* Calf rearing	* Calf rearing
	V	Animal breeding aspects	* General care of cattle	Fodder cultivation

\* Significant difference

difference was observed in prioritization of information needs by KVK SMS and agriculture scientists in farming related activities. However, when compared with farmwomen responses with agriculture scientists, a significant difference was found only in sowing/ transplanting activity. When KVK SMS and farmwomen responses were compared, significant difference was found in weed management, sowing/ transplanting, women friendly implements for drudgery reduction and storage practices for field crops (Table 4).

In horticulture activities significant difference was found among KVK SMS and farmwomen in areas such as appropriate seed selection and seed treatment practices for different vegetable crops, different intercropping methods, marketing of different vegetable and fruit crops and bio-fertilizers and their use. Similarly, a significant difference was observed in the responses of KVK SMS and agriculture scientists in activities *i.e.* manuring/ fertilizer application in different fruit crops, different intercropping methods, post harvest management of different vegetable crops and value addition in fruits and vegetables. However, when compared with farmwomen responses with agriculture scientists, a significant difference was found only in activities *i.e.* marketing of different vegetable and fruit crops (Table 5).

From Table 6 it was observed that in animal husbandry activities no significant difference was observed in need prioritization between KVK SMS and agriculture scientists. But significant difference existed between farmwomen

responses with KVK SMS and agriculture scientists in areas *i.e.* general care of cattle, calf rearing and nutrition/feed management for cattle (Table 6).

Therefore, those five needs identified and prioritized as per rank order by farmwomen, KVK SMS and agriculture scientists and those which were having no significant differences among three stakeholders have been considered as prioritized needs of information for development of ICT based material (Table 7).

Thus, it may be concluded that for development of ICT based materials the prioritized information needs of farmwomen in agriculture and allied activities by different stakeholders were water management practices, intercropping methods, organic farming, post harvest processing of field crops, manuring /fertilizer application, seed selection and seed treatment, appropriate farming systems for different situation, pest management, bio-pesticides and their use, control of diseases, animal breeding aspects and fodder cultivation.

## REFERENCES

Economic Survey 2009-2010.

**Parikh, V., Pandya, R. and Mathu, A. (2008).** ICT tool to reach the unreached. *Indian J. Adult Edu.*, **69**(2): 85-92.

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