



## Knowledge of extension personnel about horticultural recommendations on selected fruit crops

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### ABSTRACT

The study was conducted in Nasik and Ahmednagar districts of Maharashtra, during the year 2009-2010. The data were collected from 259 extension personnel viz., Agricultural Assistants (197), Agricultural Supervisors (39) and Agricultural Officers (23). The study revealed that more than half (54.05 per cent) of the extension personnel belonged to the category of medium knowledge level whereas, 28.57 per cent of respondents belonged to high knowledge level category and 17.37 per cent of the respondents belonged to the category of low knowledge level. The variables like education, in-service training participation in professional organizations, facilities available, job satisfaction, achievement motivation and information source use were found to be highly significant relationship with knowledge level.

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### INTRODUCTION

Indian farmers are facing various challenges for their sustainable livelihood. Therefore, there is a need to change from traditional farming to modern farming. In the present situation, not only the state, but at national level, horticulture farming is becoming beneficial to the farming community. The efforts are undertaken for the benefit of farming community by the SAUs, governments and various development departments for generation of horticultural innovations, provision of subsidies and transfer of technology. MPKV, Rahuri has generated various horticultural innovations on high yielding varieties cultivation practices, plant protection measures and post-harvest technology. It is very much essential to create awareness among the farming community about such valuable horticultural recommendations. This work of creating awareness is undertaken by extension functionaries, the Department of Agriculture.

For effective communication of these innovations acquiring the knowledge by the extension personnel working at various levels is essential. Along with knowledge of the innovations, the extension personnel need to have knowledge of handling of different extension techniques for transfer of technology.

The extension personnel namely, Agricultural Assistants, Agricultural Supervisors and Agricultural Officers working at field level have to play a vital role in effective transfer of horticultural recommendations to the farming community. The efficiency and effectiveness of the system mainly depends upon these extension personnel who are expected to perform the duties assigned to them. It is, therefore, important that their proficiency in gaining knowledge has to be raised and maintained at a high level. In view of the crucial nature of the role that the extension personnel are expected to play in the modern horticultural production, there is need for systematic study of their knowledge in transfer of technology.

Many studies have been conducted and transfer of farm technology is general, but more studies on knowledge and effectiveness of extension staff in specific areas, especially in horticulture, is needed. Such studies may prove helpful. With these views in mind, the present study was carried out with the objective to study the background characteristics of the extension personnel, and to study the level of knowledge of extension personnel in fruit crops recommendation.

### Key words :

Fruit crops,  
Extension  
personnel,  
Knowledge level

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## METHODOLOGY

The exploratory type of research design was used for the present investigation. The Mahatma Phule Krishi Vidyapeeth (Rahuri) is nestled between Ahmednagar and Nashik districts of Maharashtra. These two districts were therefore, selected for the present study. The lists of extension personnel were obtained from the Superintendent, Agriculture Officers of these two districts. A 20.00 per cent sample from each of the cadres of Agricultural officers, Agricultural supervisors and Agril, Assistants was drawn by proportionate random sampling method. Finally, a sample of 250 extension personnel was drawn. The variables which were considered to be having some relevance to the investigation were selected. Categorization of quantitative variables was suitably done. The qualitative variables were categorized on the basis of assigning scores. The responses were scored, quantified, categorized and tabulated using statistical methods like percentage analysis, mean and standard deviation, frequencies, chi-square and correlation.

The knowledge of extension personnel was judged against the horticultural fruit crop recommendations of the Mahatma Phule Krishi Vidyapeeth (MPKV). For assessing the level of knowledge of extension personnel, the researcher had developed his own test and scale, in developing knowledge test, various recommendations pertaining to high yielding varieties, cultivation practices and post harvest technology of important fruit crops of the districts.

## OBSERVATION AND ANALYSIS

The results of the present study as well as relevant discussions have been presented under following sub heads:

### Knowledge level about horticultural recommendations:

The data pertaining to the knowledge aspects were quantified and distributed according to the overall

knowledge level about horticultural recommendations. The result in this regards are presented in Table 1. The findings clearly indicated that majority of the Agricultural Assistants (52.79 per cent), Agricultural Supervisors (58.97 per cent) and Agricultural Officers (56.32 per cent) possessed medium level of knowledge about horticultural recommendations. A majority of the extension personnel had medium level of knowledge of horticultural recommendations. However, the extension personnel having high level knowledge ranged from 27.92 per cent for Agricultural Assistants to 34.78 per cent for Agricultural Officers.

### Knowledge of extension personnel about horticultural recommendations:

Distribution of the extension personnel according to the knowledge of recommendation of MPKV, Rahuri for horticulture fruit crops in Table 2 shows that the Agricultural Officers having complete knowledge components of banana under consideration ranged from 30.43 to 39.13 per cent and about half of the respondents had partial knowledge. Banana was cultivated on very small scale in the study area and that may be one of the reasons for absence of knowledge about the recommended practices.

In the case of Kagzilime, it was observed that majority (57.36 per cent) of the extension personnel possessed partial knowledge about NPK requirement for high production of Kagzilime and Sai-Sarbati variety. Similarly, 42.64 per cent had partial knowledge about control of citrus canker. Majority of the Agricultural Assistants possessed partial knowledge of recommendations for Kagzilime (42.64 to 57.87 per cent), followed by that of Agricultural Officers (34.78 to 39.13 per cent) and Agricultural Supervisors (30.76 to 38.46 per cent).

The cultivation of mosambi in the study area was observed on traditional pattern. Therefore, the knowledge of recommended NPK doses, varieties and the plant protection measures was observed partial which ranged

**Table 1: Distribution of extension personnel according to their knowledge level about horticultural recommendations**

Sr. No.	Category	Agricultural assistants (n = 197)	Agricultural supervisors (n=39)	Agricultural officers (n=23)	Overall (n = 259)
1.	Low (up to 28 score)	38 (19.29)	5 (12.82)	2 (8.70)	45 (17.37)
2.	Medium (29 to 53 score)	104 (52.79)	23 (58.97)	13 (56.32)	140 (54.05)
3.	High (54 and above score)	55 (27.92)	11 (28.21)	8 (34.78)	74 (28.57)
	Total	197 (100.00)	39 (100.00)	23 (100.00)	259 (100.00)
		Maximum score = 86		Minimum score = 11	

(Figures in the parentheses indicate percentages)

Table 2: Distribution of extension personnel by their knowledge on horticultural recommendations

Sr. No.	Recommendation of NVKV, relative to horticultural crops	Agric. Assistants (n=37)			Agric. Supervisors (n=39)			Extension Officers (n=23)			Overseers (n=259)		
		Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
A	3. Mango												
1.	NPK for mangoes in banana grove	12 (6.09)	72 (36.55)	6 (5.38)	12 (30.76)	8 (3/18)	13 (56.52)	26 (10.04)	97 (37.45)				
2.	Recommend NPK dose for banana or guava	13 (6.60)	80 (40.61)	5 (2.82)	27 (6.53)	7 (30/3)	12 (52.17)	25 (9.65)	116 (45.19)				
3.	Pruning banana for banana or guava	18 (9.1)	67 (32.9)	9 (23.08)	23 (58.97)	9 (39.13)	11 (47.83)	36 (13.90)	98 (37.87)				
4.	Use pesticides for banana or guava	8 (4.06)	70 (35.53)	11 (28.21)	23 (58.97)	9 (39.13)	11 (47.83)	36 (13.90)	98 (37.87)				
B	3. Mango												
1.	NPK is required for banana or guava	58 (29.4)	113 (57.56)	7 (1.96)	15 (38.46)	5 (21/3)	8 (3/18)	70 (27.03)	136 (52.5)				
2.	Recommend NPK dose for banana or guava	12 (2.32)	117 (57.87)	9 (23.08)	13 (33.33)	6 (26.08)	9 (39.13)	57 (22.0)	136 (52.5)				
3.	Pruning banana for 10 years ago	12 (2.32)	87 (42.6)	13 (33.33)	12 (30.76)	7 (30/3)	8 (3/18)	62 (23.9)	107 (40.5)				
C	4. Watermelon (sweet watermelon)												
1.	Pruning for NPK for watermelon	28 (12.1)	98 (49.15)	3 (1.69)	9 (23.07)	1 (1/39)	9 (39.13)	35 (13.5)	116 (45.19)				
2.	Watermelon for NPK for watermelon	13 (2.83)	102 (51.78)	7 (1.96)	11 (28.20)	5 (21/3)	10 (43/8)	55 (21.2)	123 (47.9)				
3.	Pruning for NPK for watermelon	22 (11.1)	89 (45.18)	10 (25.6)	15 (38.46)	1 (1/39)	8 (3/18)	36 (13.90)	112 (43.2)				
D	5. Watermelon (bitter watermelon)												
1.	Pruning for NPK for bitter watermelon	21 (3.7)	85 (43.15)	8 (20.5)	16 (40.2)	6 (26.08)	9 (39.13)	11 (5.83)	110 (42.7)				
2.	Watermelon for NPK for bitter watermelon	33 (6.75)	109 (55.33)	11 (28.21)	19 (48.7)	7 (30/3)	8 (3/18)	51 (19.69)	136 (52.5)				
3.	Pruning for NPK for bitter watermelon	13 (2.83)	107 (52.3)	7 (35.90)	13 (33.33)	8 (3/18)	11 (47.83)	65 (25.0)	131 (50.58)				
4.	Watermelon for NPK for bitter watermelon	15 (22.89)	111 (55.55)	13 (33.33)	17 (43.58)	7 (30/3)	12 (52.17)	65 (25.0)	110 (42.7)				
5.	Pruning for NPK for bitter watermelon	12 (23.55)	103 (52.28)	9 (23.08)	18 (46.15)	10 (43/1)	10 (43/8)	91 (35.15)	131 (50.58)				
6.	Watermelon for NPK for bitter watermelon	39 (9.80)	103 (52.28)	11 (28.21)	17 (35.89)	8 (3/18)	9 (39.13)	58 (22.39)	126 (48.65)				
7.	Pruning for NPK for bitter watermelon	72 (36.55)	98 (49.15)	15 (38.46)	15 (38.46)	8 (3/18)	12 (52.17)	95 (36.68)	125 (48.26)				
8.	Watermelon for NPK for bitter watermelon	70 (35.53)	108 (54.82)	11 (23.59)	12 (30.76)	7 (30/3)	15 (65.22)	97 (36.39)	135 (52.12)				
9.	Pruning for NPK for bitter watermelon	53 (26.50)	102 (51.78)	9 (23.07)	17 (35.89)	9 (39.13)	11 (47.83)	81 (31.27)	130 (50.19)				
10.	Watermelon for NPK for bitter watermelon	63 (31.98)	128 (64.27)	20 (51.28)	11 (28.20)	10 (43/1)	11 (47.83)	93 (36.9)	150 (57.92)				

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Sl. No.	English	Marathi	Mean	SE	CV	DF	F	P	CV
1.	Control	Control	65 (53.50)	1.6 (1.03)	1/ (35.89)	2 (52.11)	8 (31.18)	1.3/ (5.11)	88 (33.98)
2.	Control	Control	72 (56.55)	1.8 (1.65)	1.0 (25.61)	1.1 (11.82)	9 (39.13)	1.31 (52.90)	91 (35.11)
3.	Control	Control	63 (51.98)	1.09 (55.33)	1.1 (28.20)	1/ (60.81)	7 (30.13)	91 (31.15)	121 (4.03)
4.	Control	Control	112 (56.88)	1.1 (13.59)	1.1 (28.20)	8 (31.18)	1.3 (16.52)	99 (38.22)	1.35 (52.51)
5.	Control	Control	102 (51.18)	1.1 (28.20)	1.1 (28.20)	9 (39.13)	1/ (60.81)	91 (31.15)	121 (39.01)
6.	Control	Control	50 (25.38)	1.6 (1.03)	1.1 (13.58)	5 (21.13)	1.5 (65.22)	1.09 (2.08)	82 (31.66)
7.	Control	Control	126 (63.96)	1.8 (1.65)	1/ (35.89)	1 (30.13)	1.2 (52.11)	1.1 (29.13)	152 (58.69)
8.	Control	Control	88 (11.61)	1.9 (1.81)	1.5 (38.16)	9 (39.13)	1.2 (52.11)	1.22 (1.10)	1.15 (11.10)
9.	Control	Control	105 (53.38)	2.1 (53.85)	1.6 (1.03)	8 (31.18)	1.0 (13.18)	1.1 (5.83)	1.31 (50.58)
10.	Control	Control	82 (11.62)	1.3 (33.33)	1.1 (13.59)	6 (26.09)	1.1 (11.83)	1.19 (30.50)	1.10 (12.11)
11.	Control	Control	81 (11.16)	1.5 (38.11)	1.2 (30.11)	5 (21.13)	1.3 (56.52)	88 (33.99)	1.12 (13.21)
12.	Control	Control	63 (51.98)	1.8 (1.65)	1/ (35.89)	8 (31.18)	1.2 (52.11)	1.10 (21.03)	89 (9.36)
13.	Control	Control	81 (11.16)	1.6 (1.03)	1.5 (38.16)	1 (30.13)	1/ (60.81)	1.13 (28.29)	1.16 (11.19)
14.	Control	Control	91 (11.12)	1.1 (13.59)	1/ (35.89)	5 (21.13)	1.5 (65.22)	1.16 (29.31)	1.23 (11.19)
15.	Control	Control	109 (56.33)	2.1 (53.85)	1/ (35.89)	9 (39.13)	1/ (60.81)	68 (26.25)	1.31 (52.90)
16.	Control	Control	93 (11.21)	1.2 (30.11)	2.0 (51.28)	6 (26.09)	1.6 (69.51)	62 (23.91)	1.29 (19.81)
17.	Control	Control	72 (56.55)	1.8 (1.65)	1/ (35.89)	9 (39.13)	1/ (60.81)	1.19 (30.50)	1.00 (38.61)
18.	Control	Control	36 (18.21)	1.9 (1.81)	1.8 (16.15)	9 (39.13)	1.1 (11.83)	3.3 (12.11)	66 (25.18)
19.	Control	Control	31 (11.26)	1.1 (11.95)	2.1 (53.85)	2 (8.69)	9 (39.13)	3.1 (11.91)	61 (11.11)
20.	Control	Control	109 (56.33)	1.2 (30.11)	1.8 (16.15)	9 (39.13)	1.1 (11.83)	9.9 (38.22)	1.35 (52.51)
21.	Control	Control	66 (13.65)	1.9 (1.81)	1.2 (30.11)	1.1 (11.83)	1.0 (13.18)	9.2 (35.52)	1.08 (11.10)
22.	Control	Control	38 (19.29)	1.5 (2.82)	9 (23.08)	5 (21.13)	1.1 (11.83)	5.1 (20.85)	5.8 (22.39)
23.	Control	Control	36 (18.21)	1.1 (11.95)	1.5 (31.16)	6 (26.09)	1/ (60.81)	5.6 (21.62)	6.5 (26.10)

from 43.15 to 57.83 per cent for Agricultural Assistant, 23.07 per cent to 48.71 per cent for Agricultural Officers. In general, about half of the respondents were having partial knowledge of recommendations of Kagzilime.

As regards knowledge of ber recommendations, about half of the extension personnel had partial knowledge and one fourth extension personnel were having full knowledge about recommendations on cultivation at the overall level. More than half of the Agricultural Assistants had partial knowledge of recommended fertilizers, time of application and plant protection, followed by Agricultural Officers and Agricultural Supervisors.

In the case of grape, it was observed that more than one third of the respondents were having complete knowledge of grape production practices. The Agricultural Supervisors were having complete knowledge of recommendations for grape, which ranged from 38.46 per cent (sub cane pruning) to 51.78 per cent (number of sprays), followed by Agricultural Officers and Agricultural Assistants

More than half of the extension personnel had knowledge about drip irrigation, control of leaf spot of pomegranate in Mrig Bahar, followed by one third of them having partial knowledge and marginal knowledge of having no information. The Agricultural Officers and Agricultural Assistants showed similar trend, whereas the Agricultural Supervisors differed lightly. The knowledge of extension personnel on control measure of shot hole borer of pomegranate was reported partial (49.03 per cent), followed by complete knowledge (37.45 per cent). More than 60.00 per cent Agricultural Officers and 50.00 per cent of Agricultural Supervisors had complete knowledge about control of shot hole borer of pomegranate.

Majority of the extension personnel had partial knowledge about guava recommendations like sprays and their intervals recommended for control of guava canker (58.69 per cent) and control measures for guava canker when fruits attain arecanut size (52.51 per cent). The complete knowledge of effective control of guava canker was possessed by 44.67 per cent Agricultural Assistants, 41.03 per cent Agricultural Supervisors and 21.73 per cent Agricultural Officers with an average of 42.08 per cent extension personnel at overall level.

Majority of extension personnel possessed complete knowledge about control of stone weevil in mango (47.10 per cent) and partial knowledge about shelf-life increase

in mango. A similar trend was observed for different categories of extension personnel.

In the case of fig, it was observed that 34.36 per cent (rust control) to 44.79 per cent (conditions of dried figs) partial knowledge was possessed by extension personnel. The proportion of Agricultural Officers having partial knowledge about recommendation for fig was higher (47.13 to 60.87 per cent) than Agricultural Assistants (31.98 to 44.16 per cent).

In the case of sapota, about 29.34 per cent of extension personnel had complete knowledge about spray of NAA and their interval for higher fruit setting of sapota. About half of the respondents had partial knowledge of spray and NPK requirement for sapota.

In the case of custard apple, knowledge of extension personnel dominated at partial level, followed by no knowledge. The complete knowledge about recommended NPK for custard apple and mealy bug control was reported 23.94 per cent and 30.50 per cent respondents, respectively, at overall level. A similar trend had been observed for the extension personnel except Agricultural Supervisors.

A majority of the extension personnel did not possess knowledge about recommendations for strawberry (61.32 to 63.32 per cent) and cashewnut (53.28 per cent to 56.76 per cent).

The complete knowledge about growth regulator required for Aonla seed was possessed by 30.77 per cent (Agricultural Supervisors) to above 39.00 per cent (Agricultural Assistants and Agricultural Officers) with an average of 38.22 per cent at overall level. The results of the present study are in line with the findings of Walke *et al.* (1995) and Perne (2005).

### **Relationship between the independent variables and knowledge level of extension personnel about horticultural recommendations:**

Relationship between the independent variables and knowledge level of extension personnel about horticultural recommendations was also worked out. The results are presented in Table 3. The findings confirmed that the variables *viz.*, education, in-service training participation in professional organizations, facilities available, job satisfaction, achievement motivation and information source use were found to be highly significant relationship with knowledge level. The findings of the study are in line with the findings of Anilkumar *et al.* (1994), Borkar and Chimurkar (1996) and Jahagirdar and Sethurao (1996).

**Table 3 : Coefficient of correlation between independent variables and knowledge of extension personnel**

Sr. No.	Independent variable	Coefficient of correlation knowledge
1.	Age	0.1990*
2.	Education	0.3672**
3.	Total experience	0.2223*
4.	Experience in the present post	0.1120 <sup>NS</sup>
5.	In-service training	0.4579**
6.	Participation in professional organizations	0.3621**
7.	Organizational climate	0.27121*
8.	Facilities available	0.4110**
9.	Job satisfaction	0.4051**
10.	Achievement motivation	0.4106**
11.	Information sources use	0.4751**

\*\* and \* indicates significance of values at  $p=0.01$  and  $p=0.05$  respectively. N.S. Non-.significant

Based on the findings of the study, it can be conclude that majority of the extension personnel from each of the three cadres possessed medium level of overall knowledge about the fruit crop recommendations. So, it is suggested that practical oriented training programmes, discussions, meetings, demonstrations, film shows, field visits, identification of pest and diseases and handling of plant, protection equipments a series of educational activities may be organized through experts or scientists of State Agricultural Universities, KVK's and NGO's at Taluka level to update their level of knowledge. Also establishment of the good linkages of extension functionaries with scientists of SAUs and ICAR research institutes and

KVK professionals. This would increase their knowledge regarding latest evolved technologies and would keep them abreast with the latest advancements.

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