

Training Need Assessment of Subject Matter Specialists of Krishi Vigyan Kendras

S. S. Patil¹ and K.D. Kokate²

1. Ph. D Scholar, MPKV, Rahuri, MS, 2. DDG (AE) ICAR, KAB I, Pusa, New Delhi-12

Corresponding Author Mail: kdkokate@gmail.com

ABSTRACT

The present study was conducted in western region of the Maharashtra state. The region consisting of ten districts, falls under the jurisdiction of Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri. Thus, the KVKs at Pune, Kolhapur, Solapur, Sangli, Satara, Ahmednagar, Nashik, Jalgaon, Dhule and Nandurbar were selected. All the SMSs of these KVKs were selected as respondents for present study. Questionnaire was used to elicit data from the respondents and collected information was subjected to appropriate statistical analysis. The study indicated 78.42 percent of overall training needs working in KVKs. Maximum training needs of SMS were observed towards agricultural engineering (82.71%), agricultural finance, marketing and exports (82.08%) and Integrated Nutrient Management (80.83%), Integrated Pest Management (80.33%), Extension Education (80.33%), Natural Resource Management (78.75%), Horticultural Crop Production and Management (78.11%), Seed Production, Processing and Marketing (77.50%), Crop Husbandry (76.04%), and, Animal, Dairy, Veterinary and Fishery (75.06%). Fifty percent of SMSs preferred short duration and 65.00 percent of them demanded off campus and, both theory and practical oriented training programmes. In this direction ICAR Research Institutes, State Agricultural Universities and, National and Regional Level Extension Training Institutes need to take concrete efforts to organize need based training programmes for capacity building of KVK professionals.

Key Words: Knowledge and Resource Centre; Subject Matter Specialists; Capacity Building;

The Indian Council of Agricultural Research (ICAR) has established Krishi Vigyan Kendras (KVKs) all over the country as an institutional innovation for application of agricultural science and technology on the farmer's field with the help of a multi-disciplinary team i.e. Subject Matter Specialists (SMS). The KVKs are playing strategic role in technology backstopping, knowledge management and advisory to the different stakeholders like farmers, farm-women, rural youths and extension personnel. The emphasis is given to provide critical knowledge and skills to the participants to enhance the agricultural productivity and also become economically self-reliant through gainful-employment. The other important mandate of KVK is to plan and carry out on-farm research trials to verify, test, validate and refine location-specific technologies developed by the National Agricultural Research System (NARS). The main purpose is to have an appropriate technology

which may be economically profitable, ecologically sustainable, technically feasible and culturally compatible. This many times calls for synthesizing or blending of the indigenous technology knowledge of the farmers with improved technology evolved by the scientists. On other hand, with emerging agricultural challenges and opportunities, KVK is working as a "Knowledge and Resource Centre" with e-Linkage Connectivity, Flagship Technology, Quality Technology Products, Technology Parks, Technology Weeks, Resource Conservation Transfer, Diagnostic Facilitation, Agro-advisory, and, Decision Support and Expert System. The Subject Matter Specialist is a resource person for agricultural knowledge management and information/experience sharing with farming community. In this context, SMSs of the KVKs must be competent to perform such multidimensional tasks and improve their work effectiveness, which would make Indian frontline extension system more visible, vibrant, demand driven and client ori-

ented. In this context the capacity building of KVK professionals is crucial to increase the visibility and vibrancy of KVK system. With this background the present investigation was planned with specific objectives;

- (i) To assess the training needs of SMS of Krishi Vigyan Kendra on agriculture and allied sciences.
- (ii) To know the preferences of SMS about different aspects of training programme.

METHODOLOGY

The study was conducted in western region of the Maharashtra state. The region consisting of ten districts comes under the jurisdiction of Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri. Each district has a separate functional KVK which was selected for study purpose. Thus, total of ten KVKs at Pune, Kolhapur, Solapur, Sangli, Satara, Ahmednagar, Nashik, Jalgaon, Dhule and Nandurbar were selected. The SMSs of all these KVKs were selected as respondents of present study. Descriptive and diagnostic research design was formulated to conduct the investigation. A well-structured and pre-tested questionnaire was used to elicit data from the respondents. Ten broad areas of agricultural and allied sciences viz., crop husbandry, horticultural crop production and management, animal, dairy, veterinary and fishery sciences, integrated nutrient management (INM), integrated pest management (IPM), extension education, seed production, processing and marketing, natural resource management (NRM), agricultural engineering and, agricultural finance, marketing and exports were considered for training need assessment. Further, critical training need sub-areas were identified by reviewing available literature, in consultation with experts, extension scientists and programme coordinators of KVKs. Responses of the respondents were rated on three point continuum viz., mostly needed, somewhat needed and least needed by assigning a score of 3,2 and 1, respectively. Training Need Index (TNI) was computed with the help of following formula.

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

A questionnaire was administered to the 56 SMSs of ten KVKs. Out of them 40 SMSs responded and collected data was subjected to appropriate statistical analysis.

RESULTS AND DISCUSSION

i) Area specific training needs of the SMSs : Data in Table 1 indicates maximum training needs of SMSs for agricultural engineering (82.71%), agricultural finance, marketing and exports (82.08%) and integrated nutrient management (80.83%) which were ranked I, II and III, respectively. This was followed by equal percentage (80.33%) of training needs for integrated pest management and extension education. Further, SMSs of KVKs also had higher priority for natural resource management (78.75%), horticultural crop production and management (78.11%), seed production, processing and marketing (77.50%), crop husbandry (76.04%) and, animal, dairy, veterinary and fishery sciences (75.06%) in descending order. The overall training need of the respondents was high (78.42%). It means that SMSs of KVKs had greater level of training needs on all above subject matter areas.

Table 1. Area specific training needs of Subject Matter Specialists in KVKs

S. No.	Training need areas	Index*	Rank
1.	Crop Husbandry	76.04	VIII
2.	Horticultural Crop Production and Management	78.11	VI
3.	Animal, Dairy, Veterinary and Fishery Sciences	75.06	IX
4.	Integrated Nutrient Management (INM)	80.83	III
5.	Integrated Pest Management (IPM)	80.33	IV 6.
	Extension Education	80.33	IV
7.	Seed Production, Processing and Marketing	77.50	VII
8.	Natural Resource Management (NRM)	78.75	V
9.	Agricultural Engineering	82.71	I 10.
	Agricultural Finance, Marketing and Exports	82.08	II

Overall Training Needs=78.42%

*Training Need Index

ii) Training needs on crop husbandry : Table 2 reveals various training needs of SMSs on crop husbandry viz. integrated cropping system (84.17%), organic farming (80.83%) and integrated farming system (80.17%) ,ranked as Ist, IInd and IIIrd positions, respectively. This was followed by production and processing techniques for major cereals, Bt-cotton production technology and,

Table 2. Training needs related to crop husbandry

S. No.	Training need areas	Index*	Rank
1.	Integrated cotton production techniques	73.33	IX
2.	Sustainable sugarcane production technology	75.83	VIII
3.	Sericulture-mulberry crop management	70.00	X
4.	Bt-cotton production technology	77.50	V
5.	Production, processing and marketing techniques of medicinal and aromatic plants	75.83	VI
6.	Production and processing techniques for major cereals	78.33	IV
7.	Pulse production and processing techniques	76.67	VII
8.	Oilseed production and processing techniques	76.67	VII
9.	Integrated cropping system	84.17	I
10.	Organic farming	80.83	II
11.	Integrated farming system	80.17	III
12.	Jatropha production technology	59.17	XI

*Training Need Index

production, processing and marketing techniques of medicinal and aromatic plants with corresponding percentage of 78.33, 77.50 and 75.83, respectively. Further, SMSs had equal (76.67%) liking for training on both pulse production and processing techniques, and oilseed production and processing techniques. Above findings are some what similar to the observations of *Singh and Waris (2005)*.

iii) *Training needs related to horticultural crops:* Table 3 indicates SMSs highest need for training on hi-tech floriculture and, production and management of quality planting material. It was followed by protected cultivation for high value horticultural crops (80.83%), banana production and processing techniques (79.17%), production and post-harvest technology for exportable vegetables (79.17%), pomegranate production, post-harvest and marketing techniques (78.33%) and, mango production and post-harvest techniques (75.83%). SMSs had 75.00 % training needs on grape production technology, production technology for leafy vegetables (75.00%), production and post-harvest techniques of guava (74.17%) and mushroom production, packaging and marketing techniques (71.67%).

iv) *Training needs for animal, dairy, veterinary and fishery:* Data in Table 4 reveals that out of fourteen areas,

Table 3. Training needs of SMS on horticultural crop production and management

S. No.	Training need areas	Training needs (%)	Rank
1.	Grape production technology	75.00	VI
2.	Banana production and processing techniques	79.17	III
3.	Mango production and post-harvest techniques	75.83	V
4.	Production and post-harvest techniques of guava	74.17	VII
5.	Pomegranate production, post-harvest and marketing techniques	78.33	IV
6.	Hi-tech floriculture	85.00	I
7.	Protected cultivation for high value horticultural crops	80.83	II
8.	Production and management of quality planting material in nursery	85.00	I
9.	Production and post-harvest technology for exportable vegetables	79.17	III
10.	Production technology for leafy vegetables	75.00	VI
11.	Mushroom production, packaging and marketing techniques	71.67	VIII

top most training need was milk processing and marketing (80.83%) followed by entrepreneurship development in dairy (80.00%) and value added milk and milk products (79.17%). Further, forage production, conservation and its utilization, indigenous technological knowledge in animal husbandry, sustainable dairy farming, advances in poultry farming, integrated nutrient management in livestock and advanced techniques in livestock disease diagnosis and management were observed.

Table 5 indicates training on integrated nutrient management for cash crops (82.50%) as top most priority. This was followed by need for training on integrated nutrient management for fruits and vegetables, coarse cereals and pulses.

vi) *Training needs of SMS on integrated pest management (IPM):* Table 6 reveals the training need of SMSs related to integrated pest management for fruits and vegetables (83.33%), pulses and cash crops.

vii) *Training needs of SMS on extension education:* In

context to extension education, it was observed that innovative methods for effective training program (86.67%), use of geographical information system in agriculture (84.17%), improving managerial ability (83.33%), IT based decision support system: multimedia development (83.33%) and, farmer’s group organization and mobilization i.e. FIGs, CIGs, SHGs (82.50%) were major training need areas of the respondents. SMS also indicated higher training needs on application of information and communication technologies (ICTs) in agriculture, upgradation of communication skills, and, preparation of audio-visual aids and training material. These findings derive support from Macklin (1991), Bhople (2000) and Joeny Prasad (2001).

viii) *Training needs related to seed production* : SMSs indicated highest training need for quality seed production (81.67%), seed production techniques in pulses and oilseeds (80%), seed production in vegetables (76.67%) and seed certification, its rules and regulation (71.67%).

ix) *Training needs related to NRM* : SMSs had maximum training requirement for management of saline soils (82.50%); land resource management for sustainable agriculture (80.83%), management of alkaline soils (80.83%) and management of salt affected soils (80.00%). Moreover, SMSs reported higher training needs on moisture conservation techniques for dry land farming (77.50%), management of acidic soils (76.67%), participatory integrated watershed management (75.83%) and conservation of common property resources (CPR) through agro-forestry (75.83%).

x) *Training needs of SMS on agricultural engineering* : As regards to agricultural engineering maximum training needs of SMS were related to use of cost-effective and women-friendly farm implements (86.67%), micro-irrigation system and water conservation techniques (85.00%), design and development of improved agricultural implement (80.50%), and 76.67 % on operation, maintenance and repair of farm equipments.

xi) *Training needs of SMS on agricultural finance, marketing and exports*: Highest training needs were reflected for agricultural marketing management (83.33%), exports of agricultural produce: prospects, procedure and norms (82.50%), credit management for agriculture (81.67%) and 80.33 % on World Trade Organization: its impact, SWOT analysis and implication on Indian agriculture.

Table 4. Training needs of SMS on animal, dairy, veterinary and fishery sciences

S. No.	Training need areas	Training needs (%)	Rank
1.	Sustainable dairy farming	77.50	V
2.	Scientific sheep and goat rearing	73.33	IX
3.	Health management of livestock	68.33	X
4.	Entrepreneurship development in dairy	80.00	II
5.	Sustainable livestock production and management	73.33	IX
6.	Advances in poultry farming	76.67	VI
7.	In land fishery management	67.50	XI
8.	Advanced techniques in livestock disease diagnosis and management	74.17	VIII
9.	Livestock-environment interaction	68.33	X
10.	Integrated nutrient management in livestock	75.00	VII
11.	Forage production, conservation and its utilization	78.33	IV
12.	Indigenous technological knowledge (ITK) in animal husbandry	78.33	IV
13.	Value added milk and milk products	79.17	III
14.	Recent techniques in milk processing and marketing	80.83	I
v)	Training needs related to integrated nutrient management		

Table 5. Training needs of SMS on INM

S. No.	Training need areas	Training needs (%)	Rank
1	Integrated nutrient management for coarse cereals	80.00	III
2.	Integrated nutrient management for pulses	80.00	III
3.	Integrated nutrient management for cash crops	82.50	I
4.	Integrated nutrient management for fruits and vegetables	80.83	II

CONCLUSION

The findings lead to conclude that KVK Subject Matter Specialists had higher (78.42%) training needs about agriculture and allied sciences. SMSs indicated need for training on agricultural engineering, agricultural finance, marketing and export, integrated nutrient

Table 6. Training needs of SMS on IPM

S. No.	Training need areas	Training needs (%)	Rank
1.	Integrated pest management of cotton	76.67	IV
2.	Integrated pest management of major cereals	78.33	III
3.	Integrated pest management of pulses	81.67	II
4.	Integrated pest management of cash crops	81.67	II
5.	Integrated pest management for fruits and vegetables	83.33	I

management, integrated pest management, extension education, natural resource management, horticultural crop production and management, seed production, processing and marketing, crop husbandry, and, animal, dairy, veterinary and fishery. The most critical areas of training need were; integrated cropping system, organic farming, integrated farming system, hi-tech floriculture, production and management of quality planting material in nursery, milk products processing and marketing, entrepreneurship development in dairy, INM of cash, fruits and vegetable crops, IPM of fruits and vegetables, innovative training methods, use of geographical information system (GIS) in agriculture, improving managerial ability, IT based decision support system: multimedia development, farmers group organization and mobilization, management of saline, alkaline and salt affected soils, cost-effective and women-friendly farm implements, micro irrigation system, agricultural marketing management, exports of agricultural produce: prospects, procedure and norms, and credit management for agriculture. In this context the ICAR Research Institutes, National and Regional Level Extension Training Institutes and State Agricultural Universities should timely assess the training needs of Subject Matter Specialists and accordingly need based training module need to be designed for capacity building of the KVK

Table 7. Training needs of SMS on extension education

S. No.	Training need areas	Training needs (%)	Rank
1.	Application of information and communication technologies (ICTs) in `agriculture	81.67	V
2.	Use of participatory techniques (PTD, PRA, RRA, PLA etc.)	79.17	VII
3.	Public-private partnership in agriculture	71.67	IX
4.	Farmer-led and market-led extension strategies	84.17	II
5.	Behavioral skills and motivational techniques	79.17	VII
6.	Gender sensitization in agriculture	69.17	X
7.	Extension program planning, monitoring and evaluation	80.83	VI
8.	Upgradation of communication skills	81.67	V
9.	Improving managerial ability	83.33	III
10.	Writing skills for farm literature and media	75.83	VIII
11.	Use of geographical information system (GIS) in agriculture	84.17	II
12.	Innovative methods for effective training program	86.67	I
13.	Farmer's group organization and mobilization (FIGs, CIGs, SHGs etc.)	82.50	IV
14.	Preparation of audio-visual aids and training material	81.67	V
15.	IT based decision support system: multimedia development	83.33	III

professionals. The emphasis required on medium duration theory and practical oriented training program with experiential learning methods.

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