

## Difference in Role Performance of Subject Matter Specialists of Selected Krishi Vigyan Kendras of Northern India

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### ABSTRACT

*Difference in role performance of Subject Matter Specialists was studied in Punjab, Haryana and Himachal Pradesh. A total of twenty KVKs from these states selected proportionally while taking all of the subject matter specialists (Male-63, Female-34) as respondents. Scale developed by Kumar and Kaur (2014) was used to measure the role performance of SMSs of KVKs. Findings revealed that male to female SMSs ratio was highest (50.00%) in Punjab and least in Haryana (16.13%). In most of the dimensions of role, no significant difference was found in performance of male and female SMSs except front line demonstrations, programme planning and execution, Services and Supplies and supporting activities. In case of overall role performance of the male and female respondents, equal number of the males respondents (49.21%) were having high as well as medium role performance and only one of the respondents was having low performance. Majority of the female respondents (55.88%) were having high role performance, 35.29 percent having medium and only 8.82 per cent were having low role performance. In comparison, female SMSs have apparently high role performance than males. But output of the statistical tests revealed no difference between male and female SMSs as far the overall role performance was concerned.*

**Key words :** Subject Matter Specialists; Krishi Vigyan Kendra; Front Line Demonstrations; Performance;

**K**rishi Vigyan Kendras (KVKs) are instrumental in the development of agriculture in India. Presently it is the key stakeholder in Indian agriculture. In the beginning, the mandate of KVKs was confined only to provide skill based training to the farmers, farm women and rural youth in agriculture as a whole and other allied vocations such as apiculture, mushroom cultivation etc. With the consolidation of other front-line extension projects of the Council during the Eighth Five Year Plan, the mandate was enlarged and revised to take up on-farm testing, long term vocational training, in service training for grass root extension workers and front-line demonstrations on major cereal, oilseed and pulse crops and other enterprises (Venkatasubramanian et al 2009). Levinson (1959) explained role performance in terms of overt behaviour of an individual. It is more or less a characteristic way in which the individual acts as occupant of a position. In the organizations every person is expected to behave in a

particular manner while performing a specific role (Prasad 2000). Every scientist has to play a set role related with a position in an organization and so is the case with Subject Matter Specialists (SMSs). They are responsible for successful execution of the mandate of KVKs. They are expected to perform many duties related to farmers' training, in-service trainings, on farm testing (OFT), front line demonstrations (FLDs), communication, feedback, evaluation and follow-up of trainings etc. To work under the mandate of KVKs, SMSs have to play many roles. Women, who were integral part of agriculture since time immemorial, also play pivotal role in agricultural services now days. In this way, a number of women scientists/SMSs working untiringly for the welfare of farming community. Many times it is noticed that women SMS surpass their male counterpart in role performance. Although both men and women SMS do their job excellently but there is always a debate that who is best role performer. So keeping this

point in view the present study was conducted with the objective of determining gender variation in the role performance of SMSs of KVKs.

**METHODOLOGY**

The study was conducted in Punjab, Haryana and Himachal Pradesh states. A total of twenty KVKs were selected using probability proportion to number of KVKs in each state. Eight KVKs from Punjab i.e. Jalandhar, Fatehgarh Sahib, Ludhiana, Ferozepur, Kapurthala, Amritsar, Bathinda, Mansa, seven from Haryana i.e. Sonapat, Panipat, Jind, Kaithal, Rohtak, Kurukshetra and Faridabad, and five from Himachal Pradesh viz. Kangra, Una, Bilaspur, Kullu and Mandi were selected randomly. For determining the role performance, all the subject matter specialists (total 97) working in the selected KVKs were taken as the respondents. Scale developed by *Kumar and Kaur (2014)* was used to measure the role performance of Subject Matter Specialists of Krishi Vigyan Kendras. The data were collected through mailed questionnaires as well as personal interview. The statistical analysis was done using tools such as mean, standard deviation, Mann-Whitney U test etc.

**RESULTS AND DISCUSSION**

*Gender status of SMSs working in KVKs :* Data placed in Table 1 depicts the gender status of SMSs in selected KVKs of the study. It is clear that if we take the number of women SMSs in KVKs, the Punjab state leads the tally where 50 per cent women were working. Himachal Pradesh with a percentage of 33.33 came at second place. Haryana was hierarchically last performer in this regard where only 16.13 per cent women were working as SMSs.

**Table 1. Gender wise distribution of SMSs working in different states**

State	Male		Female	
	No.	%	No.	%
Punjab	21	50.00	21	50.00
Haryana	26	83.87	5	16.13
Himachal Pradesh	16	66.67	8	33.33
Total	63		34	

*Role Performance Regarding Organization of Trainings:* It is clear from the data given in Table 2 that as far the different roles under organization of trainings are concerned, male respondents performed the assessment of the training needs of the farmers of

the district most (mean score 4.62) followed by organizing discussion session for the better understanding of subject matter (mean score 4.56). Female SMSs performed the role of delivering well prepared lecture to the trainees most (mean score 4.76). Whereas use of proper AV aids were least (10<sup>th</sup> rank) performed role by males and arranging field trips to the demonstration sites, experiment fields and other relevant places (10<sup>th</sup> rank) by female SMSs. Overall difference in performance of male and female SMSs under this role segment was worked out with Mann-Whitney U test. Z value of test indicates that there is no significant difference between the performance of male and female SMSs with regard to organization of trainings.

*Role Performance Regarding On-Farm Trials:* It is observed from the data presented in the Table 3 that the selection of location specific problems was most performed role by male respondents and critically observing and recording data of trials by female respondents. However, applying appropriate statistical tools to analyse the data was the least performed role by males (8<sup>th</sup> rank) and carrying out experiment on own initiation in the field which is neglected one by females. Generally KVKs were known as extension institutes rather than research institutes. Here these least performed roles were a core activity of research. Moreover the probable solutions to the location specific problems found by SMSs were not recommended directly by SAUs. They had to submit their research results to main research system of SAUs, which if found needed conduct research on those lines and after getting the promising results made recommendations. So in this whole process SMSs were not so motivated about above least performed roles. Overall difference in performance of male and female SMSs was find out applying Mann-Whitney U test and. Z value of -.211 indicates that there is no significant difference between the performance of male and female SMSs as far the role performance regarding on-farm testing is concerned.

*Role Performance Regarding Front Line Demonstrations:* Data in Table 4 shows that in the role segment of frontline demonstrations, proper selection of site for demonstration as well as monitoring on continuous and regular basis through visits to FLD plots recording observations, getting the feedback from the farmers and extension workers (1.5 rank jointly) were the most performed roles by both male and female SMSs

**Table 2. Distribution of SMSs according to their role performance regarding organization of trainings**

Role items	Male		Female	
	MS	Rank	MS	Rank
Assessment of the training needs of the farmers of the district	4.6	1	4.62	3.5
Careful selection of the trainees for a training programme	4.11	9	4.35	8
Developing need based curriculum	4.44	4	4.65	2
Use of proper AV aids	4.05	10	4.41	6
Preparing and distributing the training material amongst farmers and extension staff	4.21	7	4.38	7
Delivering well prepared lecture to the trainees	4.46	3	4.76	1
Organizing discussion session for the better understanding of subject matter	4.56	2	4.62	3.5
Arranging field trips to the demonstration sites, experiment fields and other relevant places	4.43	5	3.85	10
Measuring the impact of training programme	4.19	8	4.29	9
Modifying training programme on the basis of feedback received	4.24	6	4.56	5

Z = - 1.4 (NS)

**Table 3. Distribution of SMSs according to their role performance regarding on-farm trials**

Role items	Male		Female	
	MS	Rank	MS	Rank
Finding out location specific problems	4.78	1	4.32	2.5
Carrying out experiment on own initiation in the field which is neglected one	3.94	5.5	3.68	8
Stating the objectives of the research clearly	4.25	4	4.18	4
Laying out the experiments properly	4.32	3	4.32	2.5
Critically observing and recording data of trials	4.49	2	4.35	1
Applying appropriate statistical tools to analyse the data	3.78	8	4.03	6
Carrying out research on the farmers' field to refine the research	3.89	7	4.06	5
Publishing the findings of the on-farm-research trials	3.94	5.5	3.85	7

Z = - .211 (NS)

**Table 4. Distribution of SMSs according to their role performance regarding front line demonstrations**

Role items	Male		Female	
	MS	Rank	MS	Rank
Introducing new technology through progressive farmers	4.59	3	4.15	2.5
Demonstrating improved technologies of agriculture on the farmers' fields	4.67	1	4.15	2.5
Developing a comprehensive plan for organizing the demonstrations	4.13	11	4.00	8
Proper selection of site for demonstration	4.16	10	4.12	4
Conducting survey to ascertain the SE conditions of farmers and the farming situations	3.87	16	3.76	14
Conducting survey to find the existing level of adoption of technologies and the productivity	4.11	12	4.03	6.5
Analysing agro-economic constraints of the representative farmers sample to identify the critical factors/inputs for the adoption of technologies	4.27	7.5	3.62	16
Organizing a orientation training for all the participating individuals/agencies about all aspects of technologies and methodologies to be demonstrated	3.9	15	3.71	15
Informing, all participating persons well in advance about launching of the demonstrations	3.98	14	4.06	5
Supervising and guiding all important farm operations carried out by the demonstrating farmers	4.27	7.5	3.97	9.5
Organizing field day	4.63	2	4.03	6.5
Keeping records of various expenses incurred and yields for deriving cost benefits	4.41	4	4.26	1
Monitoring on continuous and regular basis through visits to FLD plots, recording observations, getting the feedback from the farmers and extension workers.	4.27	7.5	3.94	12
Facilitating the Monitoring teams comprising of Senior Scientists/Officers of the ICAR system/SAUs	4.08	13	3.94	12
Circulating the results of demonstration among all the concerned farmers	4.40	5	3.97	9.5
Publishing the success stories in popular extension journals, newspapers and magazines	4.27	7.5	3.94	12

Z = -3.095\* \*Significant at 5 percent

equally. Here interestingly, conducting survey to ascertain the socio-economic conditions of farmers and farming situations under which the crop is grown was the least performed role both by males (14.5<sup>th</sup> rank) and females (15<sup>th</sup> rank). The possible reasons behind this may be either they were not clear about the necessary steps for conducting FLDs or might be over engaged in other KVKs' activities resulting in lack of full involvement in FLDs. Further it was verbal conveyance that every KVK should conduct at least 100 FLDs every year. So all the roles were not possible to play for so many FLDs keeping in view the limited manpower and only one vehicle for all KVK activities. In this way SMSs had to compromise with some of the most time consuming roles like surveys. Mann-Whitney U test yielded Z value of -3.095 indicates a significant difference between the performance of male and female SMSs as far the role performance regarding FLDs concerned.

*Role Performance Regarding Programme Planning and Execution:* Programme planning and execution is a basis of any extension project and so is of the KVK. Data in Table 5 reveals that implementing or helping in implementation of plan of work was the most performed role by male respondents with mean score of 4.44 and drawing up of a suitable plan of work by female respondents with mean score of 4.24. ATMA, a core agency for the agricultural development of the district in present scenario, emphasizes on development of Strategic Research and Extension plan of the district (Anonymous, 2014). However the male and female SMSs of KVKs performed this role least (5<sup>th</sup> rank). Reason behind this may be that the work of ATMA was still not properly channelized due to individual target activities of the constituent departments. Similarly there were mandated targets of KVKs which leave less time for collaborative work with other line Departments. As a whole significant difference was found between the performance of male and female SMSs as revealed by Mann-Whitney U test.

*Role Performance Regarding Subject Matter Authority:* Data pertaining to information on role performance regarding subject matter authority is given in Table 6. The data in Table 6 clearly indicates that keeping oneself professionally up to date was most performed role both by male and female SMSs (mean score 4.73 and 4.65 respectively), as far the role performance regarding subject matter authority was

concerned. Overall differentiation in the role performance among male and female SMSs was found to be non-significant.

*Role Performance Regarding Communication and Feedback:* It is quite clear from the Table 7 that identifying the key communicators was the role most performed by the male respondents and under role segment of communication and feedback (mean score 4.56). Whereas using key communicators in the diffusion and adoption of agricultural innovations as well as giving feedback regarding the non-availability of certain inputs which hinder the adoption of new technology was performed mostly (mean score 4.35) by female respondents. However giving feedback regarding cultural difficulty and attitude of farmers in adoption of new technology and informing the insect/pest outbreaks/attacks and other calamities which need emergency reporting to concerned authorities were the least performed (5<sup>th</sup> rank) roles by male and female respondents respectively. Overall no significant difference between performance of roles of male and female SMSs was found.

*Role Performance Regarding Evaluation:* Evaluation is important component of any programme and so is with KVK. Role performance of Subject Matter Specialists regarding evaluation was studied in four role items. Data placed in the Table 8 specifies that under the role segment of evaluation, the self-evaluation was most performed role having a mean score of 4.35 by female SMSs and actively involving himself in evaluation of programme by male SMSs with mean score of 4.43. Further evaluating the different individual activities of KVK was least performed role (4<sup>th</sup> rank) by female respondents and self-evaluation (4<sup>th</sup> rank) by male respondents. As a whole no significant difference was there between the performance of male and female SMSs as far the role segment of evaluation is concerned.

*Role Performance Regarding Management:* Management is an important aspect of any organization. Any programme can lead to desired output provided that it is properly managed. Data placed in Table 9 reveals the role performance of SMSs of KVKs in the role segment of management. Under this dimension, Developing and maintaining good relations with superiors, subordinates and associates came out to be most performed role by both male and female respondents with mean score of 4.59. However keeping

**Table 5. Distribution of SMSs according to their role performance regarding programme planning and execution**

Role items	Male		Female	
	MS	Rank	MS	Rank
Collecting and analyzing the facts pertaining to the agricultural production problems of the farmers	4.33	3	4.12	3
Drawing up of a suitable plan of work	4.41	2	4.24	1
Implementing or helping in implementation of plan of work	4.44	1	4.15	2
Reconsidering the plan in the light of results of evaluation of the programme	4.22	4	4.06	4
Development of Strategic Research and Extension plan of the Distt	4.13	5	3.94	5

Z = -1.984\* \*Significant at 5 percent

**Table 6 Distribution of SMSs according to their role performance regarding subject matter authority**

Role items	Male		Female	
	MS	Rank	MS	Rank
Maintaining close association/links/contacts with parent department	4.67	2	4.59	2
Keeping close contacts with other technical departments	4.51	3	4.35	4
Keeping oneself professionally up to date	4.73	1	4.65	1
Selecting, interpreting and making solutions to the specific problems	4.4	4	4.56	3
Attending professional meetings, conferences, seminars and workshops	4.3	5	4.26	5
Attending refresher training courses to update the subject matter knowledge	4.24	6	4.15	6.5
Reading periodicals, journals, magazines and other literature to get latest research developments	4.17	7	4.15	6.5

Z = -0.576(NS)

**Table 7 Distribution of SMSs according to their role performance regarding communication and feedback**

Role items	Male		Female	
	MS	Rank	MS	Rank
Identifying the key communicators	4.56	1	4.29	3
Using key communicators in the diffusion and adoption of agricultural innovations	4.48	2	4.35	1.5
Giving feedback regarding the non-availability of certain inputs which hinder the adoption of new tech.	4.27	4	4.35	1.5
Giving feedback regarding cultural difficulty and attitude of farmers in adoption of new technology	4.1	5	4.24	4
Informing the insect/pest outbreaks/attacks and other calamities which need emergency reporting to concerned authorities	4.44	3	4.15	5

Z = -0.943 (NS)

**Table 8 Distribution of SMSs according to their role performance regarding evaluation**

Role items	Male		Female	
	MS	Rank	MS	Rank
Actively involving himself in evaluation of programme	4.43	1	4.18	3
Self-evaluation	4.24	4	4.35	1
Evaluating the different individual activities of KVK	4.27	3	3.82	4
Impact analysis of KVK	4.3	2	4.26	2

Z = -1.155 (NS)

**Table 9 Distribution of SMSs according to their role performance regarding management**

Role items	Male		Female	
	MS	Rank	MS	Rank
Observing the norms and standards set by the organization/authorities	4.57	2.5	4.38	4
Developing and maintaining good relations with superiors, subordinates and associates	4.59	1	4.59	1
Developing contact with progressive farmers	4.54	4	4.5	2
Keeping informed all concerned associates about what has been decided at organizational level	4.29	6	4.38	4
Establishing working relationships with small, marginal farmers and financial institutions	4.57	2.5	4.38	4
Effectively supervising the execution of the plan	4.33	5	4.29	6

Z = -0.648 (NS)

informed all concerned associates about what has been decided at organizational level and effectively supervising the execution of the plan were the least performed roles (6<sup>th</sup> rank) by male and female SMSs respectively. Mann-Whitney U test extracted Z value of -0.648 which revealed that role performance in role segment of management did not vary significantly between male and female respondents.

*Role Performance Regarding Services and Supplies:* Role performance regarding services and supplies aspect was studied while taking different thirteen role items into consideration. The figures in Table 10 reveals that helping farmers in difficult situation e.g. pest attack, epidemics, draught, flood, etc. was the most performed by male respondents with a mean score of 4.56. Whereas women SMSs performed the role of providing diagnostic services mostly (Mean score 4.47). Here an important role i.e. providing services in collecting soil and water samples came out to be least performed role (13<sup>th</sup> rank) by female SMSs. Actually this is a discipline specific role of Soil Science, so the other scientists were hardly concerned with it especially the female SMSs who were predominantly from home science discipline. In case of male respondents Helping farmers in marketing the produce was the least performed role (13<sup>th</sup> rank). Z value of the data (-2.026) shown that, there was significant difference between male and female SMSs' role performance under role segment of services and supplies.

*Role Performance Regarding Office Work and Reporting :* The data placed in Table 11 indicates that attending to visiting farmers and other visitors and dealing politely with them was the most performed role item among different roles under office work and reporting segment by both male and female SMSs (mean score 4.86 and 4.71 respectively). This was quite expected outcome. However female SMSs also equally performed the role of ensuring timely replies to the correspondence from superior officers, farmers and other deptts. Assisting the office in the preparation of budget and other day to day work was the least performed role responded by female SMSs (8<sup>th</sup> rank), whereas proper use of vehicle according to instructions/guidelines was least performed by male SMSs. As a whole no significant difference was there in the role performance of male and female SMSs under role segment of office work and reporting.

*Role Performance Regarding Supporting Activities:* Role segment of supporting activities is given in Table

12. It clearly denotes that assisting the Programme Coordinators in holding SAC meetings was widely performed role by male respondents (mean score 4.67), whereas delivering invited lectures was most performed by female SMSs (mean score 4.38). In this way arranging ex trainee sammelan was the least performed (14<sup>th</sup> rank) role by males and holding agricultural fairs by female respondents. This result is quite expected as holding agricultural fairs is a very time consuming task with not so much impact at KVK level and film shows are losing interest of the farmers these days in the sampled area. Overall differentiation in performance of male and female SMSs was find out by applying Mann-Whitney U test and. Z value of -2.805 was obtained which is significant at 5 per cent level. Hence there is significant difference between the male and female SMSs was there as far the role performance regarding on-farm testing is concerned.

*Overall Role Performance of the SMS:* Overall role performance was calculated to know the performance of every individual Subject Matter Specialist and to know their standing in the overall sample. Overall role performance score was worked out by summing up all the scores of role items awarded by individual Subject Matter Specialist. Based on this score they were categorized into three categories of low medium and high role performance. It is clear from the table that equal male respondents (44.44 %) were having high as well medium role performance, and only one male fall in the low performance category. In this way majority (55.88%) of the female SMSs was in high role performance category, 35.29 per cent in medium and only 8.82 per cent were under low role performance category. However to check overall variation between male and female SMSs, Mann-Whitney U test was applied. Output of the test ( $Z = -0.810$ ) revealed that there was no difference between male and female SMSs as far the overall role performance was concerned.

Results of the study are in line *Nagayachet et al (2011)* who reported that role performance of assistant veterinary officers indicated that majority (71%) of the respondents fall in the high level of performance, while 20 per cent fall in medium and only 9 per cent fall in low level of role performance category. However findings are in contradiction with *Kadam et al (2012)* who reported that the majority of the experts (51.92 per cent) of KVKs fell in the category of moderately performance role

**Table 10. Distribution of SMSs according to their role performance regarding services and supplies**

Role items	Male		Female	
	MS	Rank	MS	Rank
Helping farmers in marketing the produce	3.76	13	3.62	11
Providing services in collecting soil and water samples	4.1	10	3.35	13
Providing diagnostic services	4.51	2.5	4.47	1
Providing specialized services about seed multiplication programme	4.14	9	3.53	12
Submission of indents well in time to ensure the supply of inputs	4.41	5	4.29	4
Ensuring the delivery of technical inputs to farmers before planting/sowing season	4.38	6.5	4	8
Helping farmers in difficult situation e.g. pest attack, epidemics, draught, flood, etc.	4.56	1	4.18	6
Collaborating with other deptt such as Markfed, IFFCO, KRIBHCO, Dept of Agril. etc for providing services to farmers	4.51	2.5	4.32	3
Paying advisory visits to farms and homes	4.43	4	4.35	2
Launching a special programme in case of epidemic	4.38	6.5	4.21	5
Procuring and supplying fruit plants, seed etc as per the demand of the farmers	3.83	12	3.74	9
Joint touring with agril extension officers for the solution of agricultural problems	4.02	11	3.68	10
Providing technical guidance and other specialized services to the farmers in establishing individual projects	4.17	8	4.09	7

Z = -2.026\* \*Significant at 5per cent

**Table 11. Distribution of SMSs according to their role performance regarding office work and reporting**

Role items	Male		Female	
	MS	Rank	MS	Rank
Preparation and timely submission of various periodic reports prescribed by SAUs and ZPD	4.76	3.5	4.68	3
Preparing and submitting special reports like survey report, FLD report as per requirement	4.79	2	4.62	5
Attending visiting farmers and other visitors and dealing politely with them	4.86	1	4.71	1.5
Attending the visits of the superiors	4.71	5	4.65	4
Ensuring timely replies to the correspondence from superior officers, farmers and other deptts.	4.76	3.5	4.71	1.5
Ensuring timely submission of financial statements to authorities concerned	4.67	6	4.56	6
Assisting office in the preparation of budget and the other day to day work	4.6	7	4.06	8
Proper use of vehicle according to instructions/guidelines	4.51	8	4.47	7

Z = -1.792 (NS)

**Table 12. Distribution of SMSs according to their role performance regarding supporting activities**

Role items	Male		Female	
	MS	Rank	MS	Rank
Arranging Ex trainee sammelan	4.32	5.5	4.15	5
Arranging film shows for farmers	3.79	14	3.88	12
Participating in short duration training/workshops organized by different agencies	4.24	8.5	4.03	7.5
Holding agricultural fairs	4.06	13	3.71	14
Organization of exhibitions	4.17	10	3.97	11
Arranging farm tours	4.16	11.5	3.74	13
Organizing campaigns to solve the problems of masses	4.16	11.5	4.0	9.5
Assisting the Programme Coordinators in holding SAC meetings	4.67	1	4.26	2
Delivering invited lectures	4.6	2	4.38	1
Delivering TV/radio talks	4.4	4	4.21	3
Publishing the research/extension publications	4.48	3	4.18	4
Holding the special days like world food day, world environment day	4.24	8.5	4.0	9.5
Organizing technology weeks	4.3	7	4.03	7.5
Facilitating the formation of self-help groups, farmers' club etc.	4.32	5.5	4.09	6

Z = -2.805\* \*Significant at 5.00 per cent

**Table 14. Distribution of the SMSs according to their overall role performance score**

Role Performance Score	Male		Female	
	No.	%	No.	%
Low (252-328)	1	1.59	3	8.82
Medium (328-404)	31	49.21	12	35.29
High (404-480)	31	49.21	19	55.88

followed by 35.58 and 12.50 per cent of them good and poor level of role performance categories, respectively. On different lines and Jain *et al* (2005) reported that the overall job performance of two - third of DESs was of moderate level and Wankahade *et al* (2007) in their study on role performance of agricultural assistants (AA) revealed that the AA themselves and their supervisors expressed medium level of role performance. In this way,

Singh (2002) reported the overall role performance of 70.00 per cent GPMs was medium to low, as regards overall role performance the GSMs in majority perceived medium level performance of roles.

## CONCLUSION

Role performance is very important aspect of any organization and so is the case of KVKs. It is common notion that there may be difference between the role performance of males and females particularly in the field jobs. But from the present study it was found that there was no difference between the role performance by male and female subject matter specialists of KVKs. Whereas more percentage of female SMSs was found to be in high role performance category.

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