

Impact of Training Programmes of KVKs in Terms of Adoption of Technologies: A Gender Analysis

**Sulekha^{1*}, Amit Kumar², Prakash Chandra³, Dileep Gupta⁴, Manoj Kumar⁵,
Prem Nath⁶ and Kamlesh Kumar Yadav⁷**

¹PG Department of Agriculture, General Shivdev Singh Diwan Gurbachan Singh Khalsa College, Patiala, Punjab – 147001, India.

²Department of Agriculture, N. J. (P.G.) College Mawana, U.P. - 250401, India.

³Department of Agriculture, Programme Assistant (Fisheries) Krishi Vigyan Kendra, Sitamarhi, Bihar-843320, India.

⁴Department of Agriculture, Extension SPRPD College Gahrauli, Hamirpur, U.P, India.

⁵Department of Agriculture, Geust Faculty, Gola Campus, CSAUT, Kanpur, U.P, India.

⁶Department of Agriculture, Technical Assistant Ayodhya, U.P, India.

⁷Department of Agriculture, Mata Gujri College, Fatehgarh Sahib Punjab, India - 140407, 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/CJAST/2020/v39i2630912

Editor(s):

(1) Dr. Orlando Manuel da Costa Gomes, Lisbon Accounting and Business School (ISCAL), Lisbon Polytechnic Institute, Portugal.

Reviewers:

(1) Wisdom O. Anyim, Rhema University, Nigeria.

(2) Luciano Silva Sena, Universidade Federal do Piauí, Brazil.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/60526>

Original Research Article

Received 19 June 2020
Accepted 24 August 2020
Published 05 September 2020

ABSTRACT

The present study was conducted to determine the impact of training programmes of KrishiVigyan Kendra's (KVKs-Farm Science Centres) in terms of adoption of technologies as a result gender analysis. This study was undertaken with a view on 200 respondents selected by random sampling technique from four KVKs i.e. western (Bhiwani and Fatehabad) and eastern (Rohtak and Jhajjar) zones of Haryana in India. Out of total 29 areas in which both male and female respondents attended trainings, female participation was more in three areas of trainings i.e. value addition, processing and cooking and cutting and tailoring whereas in rest all of the trainings male

participation was more. In case of eastern zone KVKs, 35.0 and 23.0 per cent male and female respondents were partial followed by no adoption (12.0% male and 14.0% female) and full (12.0% and 4.0%) adoption of technologies. Pooled data revealed that 31.5 and 25.0 per cent male and female had partial followed by no (11.0% male and 13.5% female) and full adoption (15.5 % male and 3.5% female) of demonstrated technologies.

Keywords: Training programmes; KVKs; adoption of technologies; gender-participation.

1. INTRODUCTION

Human resource is the most precious resource for any country. It is however not the numerical but the qualitative strength of the people which forges a country ahead towards progress and prosperity. It is basically the development of human resources that brings about socioeconomic or political-cultural transformation of a society. India faces the most challenging task of transferring the fast emerging agricultural technologies to sustain and increase in farm productivity and economic viability of farming. A variety of extension programmes are implemented for creating awareness, educating and motivating the farmers, farm women and rural youth to adopt and manage the new agricultural technologies in the field. This is one of the major contributing factors for making India a food surplus country [1].

Training plays an important role in the advancement of human performance in a given situation. It provides an opportunity to the farmers to get awareness of agricultural technologies as well as the shift in agricultural development approach through farming enterprises. It also provides a systematic improvement of knowledge and skills which in turn helps the trainees to function effectively and efficiently in their given task on completion of the training. The training programmes are idealistically designed and conducted for inducing changes in the durable aspects of persons, changes in relationships and changes in action.

Krishi Vigyan Kendras (KVKs) work on three main principle: accelerating agricultural production is the prime goal; second, work experience as main method of imparting training; and third, trainings weaker sections of society. It is an emerging extension model ultimately aims to the socialization of Agro Technology with a view to uplift the socioeconomic condition of the people with the help of eco-friendly agro-technology in a sustainable manner along with a system approach [2].

The training programme of KVK is a multipurpose one to cover not only the varied needs of a person but also the entire needs of village and community. It covers agricultural technology, home crafts, childcare, family welfare, cooperation, animal rearing and management, fisheries, bee-keeping and cottage industries, depending upon the needs of area and people [3].

Gender differences matter in agricultural production in various farming systems all over the world, where the ownership and management of farms and natural resources by men and women are defined by culturally specific gender roles. Gender differences are also obvious in the staffing and conduct of agricultural research and extension in that most agricultural scientist and extension agents are male. Therefore, a gender-responsive agricultural research, development, and extension system needs to address women as well as men as both the clients and actors in agricultural research. Women are important in agriculture, and agriculture is important to women [4].

No doubt men and women participate equally in agricultural activities but still men dominate due to the application of improved technologies by them. Once a new innovation comes out men take it up in agriculture. But women should also be technically educated to adopt the new technologies to improve their status in society [5] Eswarn Sarwathy et al., [6], Tripta [7]. Majority of farm women expressed to undergo training in the area of preparation of farm yard manure followed by storage of food grain, fertilizer application and nursery raising [8]. Studies have shown increased participation of women in training programmes of KVKs, but their participation is comparatively very less than their male counterparts.

KVKs are functioning since 1974, but in literature few evaluation efforts have been available to know the effectiveness of gender-wise performance of various training programmes

Chart 1. Three Point Continuum

Serial Number	Categories	Scores
1.	No adoption (2-6)	1
2.	Partial adoption(7-11)	2
3.	Full adoption (12-17)	3

organized by various KVKs. Keeping these points in view, the present study was undertaken with the following objective: Find out the impact of the trainings in terms of adoption of Technologies.

2. MATERIALS AND METHODS

The study was conducted in purposively selected four Krishi Vigyan Kendra, two each from western (Krishi vigyan kendrs Bhiwani and Fatehabad) and eastern zone (KVKs Rohtak and Jhajjar), of Haryana in India working under Chaudhary Charan Singh Haryana Agricultural University (CSHAU), Hisar and financed by Indian Council of Agricultural Research (ICAR) on the basis of those who were functioning for the last five years and maximum numbers of rural women participated in their training programmes.

To study the impact of the trainings, a list of beneficiaries who have undergone 3-5 days training courses in the last one year was procured from the respective KVKs. Out of that list total sample of 200 respondents i.e., 32 male and 18 female from KVK Bhiwani, 25 each male and female from KVK Fatehabad and Jhajjar and 34 male and 16 female from KVK Rohtak were selected randomly for the study.

The present study deals with the methodological steps and procedures adopted for conducting the study. Methodological procedures have been described as under:

2.1 Adoption of Technologies by the Respondents

To assess the extent of adoption of technologies by the beneficiaries a list of trainings attended by the beneficiaries was prepared. The responses of each beneficiary were recorded on a three point continuum i.e., full adoption, partial adoption and no adoption with scores 3, 2 and 1 respectively for each attended training.

3. RESULTS AND DISCUSSION

Tables 1 to 4 incorporated the data regarding district wise adoption of technologies both by male and female respondents.

3.1 Bhiwani District

It was observed that in Table 1. 30.8% male respondents fully adopted the recommendations suggested during the mushroom production followed by safe drinking water management (28.6%) and bee keeping (10.0%). Whereas hundred percent respondents of value addition and integrated farming system trainings had partial adoption of technologies followed by crop diversification (94.1%) and integrated crop management (86.2%). Results further stated that in case of bee-keeping and mushroom production trainings, 90.0 and 69.2 per cent respondents respectively had no adoption.

Regarding female trainees, 50.0 per cent and 42.8 per cent of mushroom production and safe drinking water management respectively adopted all the suggested recommendations followed by partial adoption by 88.2 per cent, 85.7 per cent and 66.7 per cent respondents of processing and cooking, value addition and crop diversification training's respectively. Further all the beneficiaries (Female) after attending trainings on integrated farming system, pruning and bee keeping not adopted even a single recommendation.

3.2 Fatehabad District

Perusal of data from the Table 2 clearly indicated the adoption of technologies by the respondents of Fatehabad district KVK.

It is evident from the results that 36.4, 25.0 and 18.2 per cent male beneficiaries had full adoption of mushroom production, fodder production and vermi-culture technologies respectively. Only one respondent who attended training on value addition had partial adoption followed by crop diversification (94.1%) and production of low and high value crops (87.5%). Further results indicated that 85.7, 63.6, and 44.4 per cent beneficiaries of bee keeping, mushroom production and integrated pest management trainings respectively have not adopted any of the suggested recommendations during trainings.

In case of female beneficiaries, data further highlighted that exactly half of the participants of bee-keeping, 25.0 and 14.3 per cent respondents of mushroom production and vermi-culture trainings fully adopted the technologies. Whereas, 100% cent per cent respondents had partial adoption of fodder production, value

Table 1. Adoption of technologies by the respondents of Bhiwani district

Sr. No.	Training areas	Male beneficiaries	Adoption of technologies			Female beneficiaries	Adoption of technologies		
			Full adoption	Partial adoption	No adoption		Full adoption	Partial adoption	No adoption
1.	Integrated crop management	29	1 (3.4)	25 (86.2)	3 (10.4)	5	-	3 (60.0)	2 (40.0)
2.	Crop diversification	17	1 (5.9)	16 (94.1)	-	6	-	4 (66.7)	2 (33.3)
3.	Processing and cooking	6	-	4 (66.7)	2 (33.3)	17	2 (11.8)	15 (88.2)	-
4.	Value addition	2	-	2 (100)	-	7	1 (14.3)	6 (85.7)	-
5.	Integrated disease management	19	-	16 (84.2)	3 (15.8)	2	-	1 (50.0)	1 (50.0)
6.	Integrated pest management	14	-	12 (85.7)	2 (14.3)	2	-	-	2 (100)
7.	Training on pruning	5	-	4 (80.0)	1 (20.0)	1	-	-	1 (100)
8.	Integrated farming system	8	-	8 (100)	-	2	-	1 (50.0)	1 (50.0)
9.	Mushroom production	13	4 (30.8)	-	9 (69.2)	2	1 (50.0)	-	1 (50.0)
10.	Bee keeping	10	1 (10.0)	-	9 (90.0)	1	-	-	1 (100)
11.	Safe drinking water management	7	2 (28.6)	5 (71.4)	-	14	6 (42.8)	8 (57.2)	-

Figures in parentheses indicate percentages

Table 2. Adoption of technologies by the respondents of Fatehabad district

Sr. No.	Training areas	Male beneficiaries	Adoption of technologies			Female beneficiaries	Adoption of technologies		
			Full adoption	Partial adoption	No adoption		Full adoption	Partial adoption	No adoption
1.	Weed management	17	-	14 (82.4)	3 (17.6)	3	-	2 (66.7)	1 (33.3)
2.	Integrated crop management	21	2 (9.5)	18 (85.7)	1 (4.8)	6	-	5 (83.3)	1 (16.7)
3.	Crop diversification	17	1 (5.9)	16 (94.1)	-	8	-	6 (75.0)	2 (25.0)
4.	Off season vegetable	16	-	10 (62.5)	6 (37.5)	13	-	5 (38.5)	8 (61.5)
5.	Value addition	1	-	1 (100)	-	17	2 (11.8)	15 (88.2)	-
6.	Management of young plants/ orchards (vegetables)	18	1 (5.6)	11 (61.1)	6 (33.3)	9	-	7 (77.8)	2 (22.2)
7.	Integrated disease management	20	-	17 (85.0)	3 (15.0)	6	-	4 (66.7)	2 (33.3)
8.	Integrated pest management	9	-	5 (55.6)	4 (44.4)	3	-	1 (33.3)	2 (66.7)
9.	Fodder production	8	2 (25.0)	6 (75.0)	-	2	-	2 (100)	-
10.	Production of low and high value crops	8	-	7 (87.5)	1 (12.5)	5	-	2 (40.0)	3 (60.0)
11.	Integrated farming system	9	-	6 (66.7)	3 (33.3)	5	-	4 (80.0)	1 (20.0)
12.	Mushroom production	11	4 (36.4)	-	7 (63.6)	8	2 (25.0)	-	6 (75.0)
13.	Bee keeping	7	1 (14.3)	-	6 (85.7)	2	1 (50.0)	-	1 (50.0)
14.	Entrepreneurial development of farmers/youths	7	-	5 (71.4)	2 (28.6)	13	-	8 (61.5)	5 (38.5)
15.	Vermin-culture	11	2 (18.2)	7 (63.6)	2 (18.2)	7	1 (14.3)	5 (71.4)	1 (14.3)

Values in parentheses indicate percentages

Table 3. Adoption of technologies by the respondents of Rohtak district

Sr. No.	Training areas	Male beneficiaries	Adoption of technologies			Female beneficiaries	Adoption of technologies		
			Full adoption	Partial adoption	No adoption		Full adoption	Partial adoption	No adoption
1.	Weed management	20	2(10.0)	13(65.0)	5(25.0)	6	-	4(66.7)	2(33.3)
2.	Nursery management	22	1(4.5)	15(68.2)	6(27.3)	2	-	1(50.0)	1(50.0)
3.	Management of young plants/orchards(vegetables)	11	-	8(72.7)	3(27.3)	2	-	1(50.0)	1(50.0)
4.	Cutting and tailoring	3	2(66.7)	1(33.3)	-	16	4(25.0)	9(56.2)	3(18.8)
5.	Layout and management of orchards (fruit)	9	-	4(44.4)	5(55.6)	2	-	1(50.0)	1(50.0)
6.	Cultivation of fruits	3	-	2(66.7)	1(33.3)	3	-	2(66.7)	1(33.3)
7.	Integrated disease management	14	1(7.2)	10(71.4)	3(21.4)	5	-	2(40.0)	3(60.0)
8.	Integrated pest management	7	-	5(71.4)	2(28.6)	2	-	-	2(100)
9.	Production of low and high value crops	10	-	7(70.0)	3(30.0)	2	-	1(50.0)	1(50.0)
10.	Integrated farming system	3	-	2(66.7)	1(33.3)	2	-	1(50.0)	1(50.0)
11.	Mushroom production	19	4(21.0)	-	15(78.9)	1	-	-	1(100)
12.	Bee keeping	6	1(16.7)	-	5(83.3)	5	3(60.0)	-	2(40.0)
13.	Formation and management of SHGs	18	-	12(66.7)	6(33.3)	7	-	5(71.4)	2(28.6)
14.	Entrepreneurial development of farmers/youths	14	1(7.1)	9(64.3)	4(28.6)	8	-	5(62.5)	3(37.5)
15.	Post-harvest technology	1	-	1(100)	-	5	-	4(80.0)	1(20.0)

Values in parentheses indicate percentages

Table 4. Adoption of technologies by the respondents of Jhajjar district

Sr. No.	Training Areas	Male beneficiaries	Adoption of technologies			Female beneficiaries	Adoption of technologies		
			Full adoption	Partial adoption	No adoption		Full adoption	Partial adoption	No adoption
1.	Resource conservation technologies	14	2(14.3)	6(42.8)	6(42.8)	5	-	3(60.0)	2(40.0)
2.	Crop diversification	4	1(25.0)	2(50.0)	1(25.0)	3	-	2(66.7)	1(33.3)
3.	Nursery management	12	2(16.7)	6(50.0)	4(33.3)	13	-	9(69.2)	4(30.8)
4.	Grading and standardization	13	-	8(61.5)	5(38.5)	12	-	8(66.7)	4(33.3)
5.	Processing and cooking	5	1(20.0)	3(60.0)	1(20.0)	25	2 (8.0)	22(88.0)	1(4.0)
6.	Value addition	6	-	4(66.7)	2(33.3)	21	1(4.8)	18(85.7)	2(9.5)
7.	Protective cultivation (Green house, shade net etc.)	5	1(20.0)	-	4(80.0)	5	3(60.0)	-	2(40.0)
8.	Management of young plants/orchards (vegetables)	10	-	2(50.0)	2(50.0)	8	-	6(75.0)	2(25.0)
9.	Cutting and tailoring	2	1(50.0)	1(50.0)	-	21	3(14.3)	18(85.7)	-
10.	Layout and management of orchards fruit	3	-	2(66.7)	1(33.3)	6	-	2(33.3)	4(66.7)
11.	Integrated nutrient management	3	-	2(66.7)	1(33.3)	2	-	-	2(100)
12.	Integrated disease management	14	2(14.3)	12(85.7)	-	7	-	4(57.1)	3(42.9)
13.	Dairy farming	15	4(26.7)	-	11(73.3)	12	2(16.7)	8(66.6)	2(16.7)
14.	Training on pruning	2	-	1(50.0)	1(50.0)	1	-	-	1(100)
15.	Integrated farming system	5	1(20.0)	4(80.0)	-	4	-	3(75.0)	1(25.0)
16.	Mushroom production	7	2(28.6)	-	5(71.4)	5	1(20.0)	-	4(80.0)
17.	Bee keeping	4	1(25.0)	-	3(75.0)	2	-	-	2(100)
18.	Formation and management of SHGs	2	-	1(50.0)	1(50.0)	11	1(9.1)	7(63.6)	3(27.3)
19.	Entrepreneurial development of farmers/youths	7	-	4(57.1)	3(42.9)	5	-	4(80.0)	1(20.0)
20.	Safe drinking water	3	1(33.3)	2(66.7)	-	13	7(53.8)	6(46.2)	-

Figures in parentheses indicate percentages

Table 5. Overall adoption of technologies by the respondents of different KVKs

Sr. No.	Category	Krishi Vigyan Kendras													
		Western zone						Eastern zone						Grand total 200	
		Bhiwani n = 50		Fatehabad n = 50		n=100		Rohtak n = 50		Jhajjar n = 50		n=100		M	F
M	F	M	F	M	F	M	F	M	F	M	F				
1.	No adoption (2-6)	8(16.0)	7(14.0)	2(4.0)	6(12.0)	10	13	10(20.0)	5(10.0)	2(4.0)	9(18.0)	12	14	22(11.0)	27(13.5)
2.	Partial adoption (7-11)	21(42.0)	10(20.0)	7(14.0)	17(34.0)	28	27	19(38.0)	9(18.0)	16(32.0)	14(28.0)	35	23	63(31.5)	50(25.0)
3.	Full adoption (12-17)	3(6.0)	1(2.0)	16(32.0)	2(4.0)	19	3	5(10.0)	2(4.0)	7(14.0)	2(4.0)	12	4	31(15.5)	7(3.5)

Figures in parentheses indicate percentages M = Male, F = Female

addition and integrated crop management technologies. Further majority of the trainees (75.0%) of mushroom production, integrated pest management (66.7%) low and high value crops (60.0%) had no adoption of technologies.

3.3 Rohtak District

Gender-wise adoption of technologies by the respondents of Rohtak district KVK is presented in Table 3.

It was found that 66.7 per cent male respondents had full adoption of cutting and tailoring followed by mushroom production (21.0%) and bee keeping (16.7%) technologies. Majority of the respondents had partial adoption of technologies included post-harvest technology (100%), management of young plants/orchards (vegetables) (72.7%), integrated disease management, integrated pest management (71.4% each) and nursery management (68.2%). Further, results indicated that 83.3 and 78.9 per cent respondents not adopted any of the recommendations suggested by the extension personnel during bee keeping, Mushroom production technology training's respectively.

Results further revealed that 60.0 and 25.0 per cent female respondents have fully adopted bee keeping and cutting tailoring technologies' respectively, while 80.0 per cent respondents had partial adoption of post-harvest technology, followed by formation and management of self-help groups (71.4%), weed management and cultivation of fruits (66.7 per cent each) technologies. 100 per cent female respondents had no adoption in integrated pest management, mushroom production technology. But, 60.0% respondents adopted integrated disease management. Half of the respondents each of nursery management, management of young plants/orchards (vegetables), layout and management of orchards (fruit), production of low and high value crops and integrated farming system had not adopted any recommendations.

3.4 Jhajjar District

It is clear from the data in Table 4 that 50.0 per cent male respondents had full and partial adoption of cutting and tailoring respectively, followed by dairy farming (40.0%) and safe drinking water management technology (33.3%).

Out of total beneficiaries (male) of integrated disease management and integrated farming system technologies 85.7% and 80.0% had

partial adoption of technologies. Further, out of 5 beneficiaries 4 (80.0%) had no adoption of protective cultivation (green house, shade net etc.) followed by bee keeping (75.0%) and dairy farming (73.0%).

Data in the same Tables further pin pointed that 60.0 percent female beneficiaries had full adoption of protective cultivation (green house, shade net etc.), followed by safe drinking water (53.8%) and mushroom production (20.0%) technologies.

Further, results indicated that majority of the respondents (Female) of processing and cooking (88.0%), value addition (85.7%), cutting and tailoring and integrated farming and management of young plants/orchards (vegetables) (75.0% each) respectively had partial adoption. Whereas hundred percent respondents of integrated nutrient management, training and pruning, bee keeping, followed by mushroom production and layout and management of orchards fruit (80.0% and 66.7% respectively) had no adoption.

3.5 Overall Adoption Level of Technologies

3.5.1 Western zone

It can be seen from the data in Table 5 that overall adoption level of technologies by male 28.0 per cent and female beneficiaries 27.0 per cent was partial followed by full (19.0 per cent male and 3.0 per cent female) and no (10.0 per cent male and 13.0 per cent female) adoption level of technologies.

3.5.2 Eastern zone

Results further pointed out that in case of eastern zone KVKs, 35.0% and 23.0% male and female respondents had partial followed by no (12.0% male and 14.0% female) and full (12.0% and 4.0%) adoption of technologies.

Pooled data revealed that 31.5 and 25.0 per cent male and female had partial followed by no (11.0% male and 13.5% female) and full adoption (15.5% male and 3.5% female).

4. CONCLUSION

Out of total 29 areas in which both male and female respondents attended trainings, female participation was more in three areas of trainings i.e; value addition, processing and cooking and

cutting and tailoring whereas in rest all of the trainings male participation was more.

Overall adoption level of technologies by male 28.0 per cent and female 27.0 per cent beneficiaries in western zone was partial followed by full adoption (19.0 per cent male and 3.0 per cent female) and no adoption (10.0 per cent male and 13.0 per cent female) of technologies. In case of eastern zone KVKs, 35.0 and 23.0 per cent male and female respondents had partial followed by no (12.0 per cent male and 14.0 per cent female) and full (12.0 per cent and 4.0 per cent) adoption level of technologies.

Pooled data revealed that 31.5 and 25.0 per cent male and female had partial followed by no adoption (11.0 per cent male and 13.5 per cent female) and full adoption level of technologies (15.5 per cent male and 3.5 per cent female) respectively.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Samanta R, Gowda M. Krishi Vigyan Kendra: the capacity builder of farmers. *Kisan World*. 2003;4: 41-43.
2. Pradhan K, Mukherjee K. Revamping the Technology Dissemination Process through Farm Science Centre. *Indian Res. Journal of Extension Education*. 2012;12:48-52.
3. Dubey AK, Srivastva JP, Singh RP, Sharma VK. Impact of KVK training programme on socio-economic status and knowledge of trainees in Allahabad district. *Indian Res. J. Ext. Edu*. 2008;8(2&3):60-61.
4. Doss CR, Morris M. How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. *Agricultural Economics*. 2009;25(1):27-39.
5. Ratan RPS, Mohsin MA, Roy NK. Empowering tribal farm women: Issues and approaches. Paper at the national seminar on women in Agriculture- Development Issues, December 28-30. National Agricultural Research Management, Hyderabad, India; 1993.
6. Eswaran KR, Sarwathy, Swamineth K, Kathrivel G. Improved implementation for women agricultural; 2002.
7. Tripta. Inter-gender access to and control of productive resources among rural families in western zone of Haryana, Ph.D. Thesis, CCS, Haryana Agricultural University, Hisar, Haryana, India; 2007.
8. Thakur RF, Patel KF. Training needs of rural women .*Gujarat Journal of Extension Education*. 1998;9:134-137.

© 2020 Sulekha et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/60526>