FARMERS'TRAINING ON '*TRENCH VEGETABLE PRODUCTION TECHNOLOGY*' VIS-À-VIS KNOWLEDGE AND ADOPTION LEVEL IN TRANS HIMALAYAN REGION

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ABSTRACT

The availability of fresh vegetables in cold arid zone during peak winter is a day dream. The assessment of the impact of trainings on area specific technology offering vegetables availability round the year clamoured the attention. The findings of the study revealed that the technology had been adopted moderately and the knowledge of the trained farm women was significantly higher than that of untrained farm women. However, non availability of quality inputs like plant protection chemicals, seeds, fertilizers, local political taboo are some of the reasons for low adoption of the technology. The technology having vast scope need to be diffused up to last corner of the district and in addition the practicing farm women need to be supported with required material and technical guidance from time to time.

Key Words : Trench vegetable production technology, adoption score, adoption quotient, knowledge score, knowledge quotient

INTRODUCTION :

Ladakh the northern most part of India faces harsh climatic conditions and traditionally agriculture is possible within a limited period of year i.e. May to October. The vegetables are grown only in an area of 860 ha. Against the net cropped area of 10960 ha. In Leh district resulting in transportation of vegetables of rupees Lakhs from other parts of the country. Looking forward the tremendous scope of vegetable production and its consumption, Krishi Vigyan Kendra, Leh has evolved an area specific technology through 'trench vegetable production technology' which offer availability of green vegetables round the year even at the time when mercury falls up to 30°C below zero. Besides giving big boost to vegetable production, provides ample opportunities to unemployed rural youth for income generating ventures. Trench of the size 10-12 feet in length, 6 feet in breadth and 11/2 feet in depth is made. Four such standard trenches are kept in a block. In a block 21/2 feet inter-trenches spacing is advisable to facilitate inter-cultural operations. While digging the trench, the top layer of 6" should be kept separate. Spade the soil in the trench till fine tilth. Level the trench with six inches layer of topsoil and 15-20 Kg well rotten compost mixture. If desired, the soil may be treated with formalin as precautionary measure to check soil born diseases. The trench should be covered with black alkathine film till sowing. This will help in soil sterilization as well as prevention of moisture loss by evaporation. The vegetables grown through this technique are cabbage cauliflower, *knol khol, karak sag, mangol* (beet palak) and leafy vegetables. KVK Leh organized number of training courses on the subject along with on farm and off farm demonstrations to promote the technology.

The present study has been undertaken with the specific objective to assess the change in knowledge and adoption level of the trained farmers. The investigation had been carried out on women farmers as most of the operations related to the vegetable production are performed by the women farmers.

METHODOLOGY :

The study was conducted in Leh block of the district. Ex post facto research design was used to meet the objectives. Fifty farm women from ten villages namely *Tukcha, Skara, Chanspa, Choglamsar, Chuhot Yokma,Chochot Shamma, Chochot Gogma,Shey, Thicksay* and *Stakna* were selected as experimental group (who were exposed to the trench vegetable production technology through Krishi Vigyan Kendra training) whereas equal number of farm women from villages *Nimmo, Bazgo* and *Phyiang* (not exposed to the trench vegetable production technology) were selected randomly as control group. KVK, Leh was also running Watershed Development Programme (WDP) in the villages from where the experimental group of farm women were selected, so, in addition to the training, they were also being supported with the alkathine sheet through WDP, required to be used in the trench vegetable production technology. As the study was aimed to measure the knowledge level of the farming women regarding the trench vegetable production technology, as a measure of impact of training, the knowledge as a dependent variable was measured with the help of a struc-

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tured schedule, developed for the purpose in consultation with the subject matter experts. The tool consisted of 25 statements on trench vegetable production technology covering various aspects like 'method of trench digging', 'measurement of trench', 'preparation of trench for vegetable production', 'nursery raising', 'transplanting and spacing', 'fertilization', 'irrigation', 'intercultural operations', 'diseases and insect pest management', 'cropping schedule', and 'management of trench'. The scoring of each item was performed on a three point continuum i.e. correctly known, partially known and not known. The scoring was done assigning numerals 2 to correctly known, one to partially known and zero to not known. Thus, every respondent was able to score from zero to 50 depending on their responses. These individual scores were converted to a standardized score of knowledge quotient with the help of following formula :

$$\text{Knowledge Quotient} = \frac{\text{Obtained Knowledge score} \times 100}{\text{Actual total score}}$$

The mean knowledge quotient was calculated with the help of knowledge quotient and with the help of standard deviation of the knowledge quotient the respondents were classified in three categories as fully knowledgeable (> mean+ S.D.) , partially knowledgeable (mean ± S.D.) and least knowledgeable(<mean-S.D.)

RESULTS AND DISCUSSION :

(A) Extent of Gain in Knowledge–Mean knowledge quotient (Table 1) of the trained respondents was calculated 64.46 with a Standard Deviation (SD) of 15.68 and that of non trained respondents (control sample population) was 15.35 with a SD of 5.79. the calculated 'z' value for the test of significance of difference between the two means was significant at 1% level of probability which indicate that the knowledge level of two groups are significantly different i.e. the knowledge of trained farmers was significantly higher than that of non trained farmers. The findings are in confirmation with Hussain et. al. (1994), Srivastava et. al. (1995), Sanadhaya and Solanki (2000-2001) and Ghosh and Pandey (2003).

Table 1. Distribution of trained and untrained respondents on the basis of mean knowledge quotient

	Trained Farm Women	Untrained Farm Women	'z' Value
Knowledge Quotient	64.46	15.35	20.77**
S.D.	15.68	5.79	

** Highly Significant

The differential level of knowledge regarding trench vegetable production technology was further studied in terms of categorization of respondents into differentknowledge levels. Table 2 shows distribution of respondents according to their knowledge quotient. It is evident from the table that the majority of the trained women farmers (52.00%) were having partial knowledge followed by full knowledge (28.00%) and low level of knowledge (20.00%). On the other hand all the untrained respondents were having low level of knowledge in comparison to trained one. However, on further analysis among their own group i.e. non trained respondents similar findings were observed I,e, majority falling in partial knowledge group (56.00%) followed by high knowledge group (26.00%)and low level of knowledge group(18.00%). Thus, it can be concluded that the women who are trained and supported in trench vegetable production technology through KVK, Leh were having more knowledge regarding the technology as compared to those who were not exposed to similar type of training courses.

Table 2. Distribution of trained and untrained respondents according to their level of mean knowledge

Category	Experimental group	Control group	
		In comparison with experimental group	Within own group
Low(‹mean-S.D.).	10 (20.00)	50(100.00)	09 (18.00)
Medium(mean± S.D.)	26 (52.00)	-	28 (56.00)
High(› mean+ S.D.)	14 (28.00)	-	13 (26.00)

Figures in parenthesis indicate the respective percentages.

(B) Extent of adoption–The extent of adoption of trench vegetable production technology was measured against the recommended technology by KVK, SKUAST (K), Leh for the trained respondents only. Ten aspects viz. Trench design, Trench layout, Preparation of trench for vegetable production, Nursery raising, Transplanting and spacing, Fertilization, Irrigation, Intercultural operations , Diseases and insect pest management and Cropping schedule were measured on three point scale i.e. fully adopted, partially adopted and not adopted at all with 2,1 and zero scores respectively. The total score obtained by individual farm women were calculated and classified on the basis of mean and standard deviations. Table 3 depicts that 54 per cent of farm women were having medium level of adoption followed by 24 per cent as high level of adoption and 12 per cent as low level of adoption.

Further, item wise level of adoption was calculated using the score of individual item/ subject matter area for all the respondents. As such attainable sore for each

Table 3. Distribution of trained respondents according to their level of adoption

Category	No. of respondents	Percent
Low	06	12
Medium	32	64
High	12	24

Table 4. Major subject matter area wise level of adoption regarding trench vegetable production technology

S. No.	Major aspects/ Subject matter areas	Totalscore attained	Level of adoption	Rank
1	Trench design	75	High	III
2	Trench layout	86	High	II
3	Preparation of trench for vegetable production	65	Moderate	V
4	Nursery raising	48	Low	VIII
5	Transplanting and spacing	56	Low	VII
6	Fertilization	45	Low	IX
7	Irrigation	74	High	IV
8	Intercultural operations	87	High	I
9	Diseases and insect pest management	43	Low	X
10	Cropping schedule	63	Moderate	VI

subject matter area ranged from zero to 100 (for 50 respondents) but the actual obtained scores ranged from 43 to 86, hence, level of adoption was classified as low up[to 57 score , medium from 58 to 71 and high above 71 score. The data in table 4 reveals that the subject areas viz. intercultural operation, trench layout, trench design and irrigation were highly adopted whereas, trench preparation for cultivation and cropping schedule were adopted moderately followed by low level of adoption in the subject areas of disease and pest management, fertilization, nursery raising and transplanting and spacing. On further inquiry, the reasons for low level of adoption regarding fertilization and disease and pest management was reported to the reluctance in using chemicals for agriculture as they are being condemned by the activists of locally influential Ladakh autonomous hill development council (LAHDC). The reasons for low adoption in case of nursery raising was that most of the women farmers were either dependent for the nursery on research and development organisations (KVK, DRDO, SDA Leh) or fellow farmers. Whereas, transplanting and spacing recommendations were least adopted due to high mortality rate of nursery. The findings of Meena (2001) and Kumar and Dangi (2003) support indirectly the present findings. The findings also direct towards some grey areas of non-availability of quality plant protection chemicals, fertilizers and seeds which need to be looked into.

CONCLUSION :

Based on the study it can be concluded that the training in trench vegetable production technology imparted to the women farmers of the Leh district have a significant impact on knowledge and adoption of the technology. The untrained farmers were having very low level of knowledge, KVK, Leh need to take up the technology to the remotest corner of the district (Anonymous 2001) and other organizations need to come up with a strong zeal to increase vegetable production in the area and also making vegetables available round the year for nutritious and sustained life *on the top of the world*. The zone is attracting number of domestic and foreign tourists, hence there is vast scope for increased vegetable production, and in addition excess production may be supplied to the defense troops deployed in the region.

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