

RESEARCH NOTE

Impact of Training Programmes on Adoption of Organic Farming Practices with Organic Marketing in East Sikkim

Pallabi Phukan¹, Boniface Lepcha² and Ravikant Avasthe³

1. Subject Matter Specialist (Agril. Extension), 2. Subject Matter Specialist (Horticulture), KVK, East Sikkim,

3. Joint Director, ICAR Research Complex, Sikkim Centre, Tadong, East Sikkim, Sikkim

Corresponding author e-mail: pallabi.phukan83@gmail.com

Paper Received on August 01, 2017, Accepted on September 16, 2017 and Published Online on September 28, 2017

ABSTRACT

This study was conducted at Krishi Vigyan Kendra, East district of Sikkim with a sample size of 120 consisting of 60 on-campus trainees and 60 off-campus trainees from the training programmes conducted during the year 2012-13, 2013-14 and 2014-15. The results of the analysis on perception of different farming practices showed that FYM was the only major soil nutrients which the respondents used for the cultivation of crops under organic soil nutrient management i.e., 60 per cent. The KVK training was perceived as the most effective by the respondents as reflected from the perception score of 50.8 per cent. The study also revealed that the farmers of Sikkim lack entrepreneurial ability with 86.6 per cent farmers' perception which was at par with non-availability organic seeds and lack of proper market channel for organic farming produce were the major problems experienced by the farmers during adoption of organic farming practices in Sikkim. Similarly, lack of proper local market yard facilities as well as lack of wholesale market (92.5 and 81.6%, respectively farmers' perception) was also found as the two major constraints during marketing of their agricultural produce.

Key words: Constraints; Krishi Vigyan Kendra; Organic Farming; Perception; Training;

Agriculture is defined as a system that is designed and maintained to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumer. Organic farming is gaining popularity all over the world today as it can diversify agricultural production systems towards attaining improved productivity, farm income and food safety and is seen as a sustainable alternative to chemical-based agricultural systems. International Federation of Organic Agriculture Movements (IFOAM) has defined organic agriculture as "a process that develops a viable and sustainable agro ecosystem" (IFOAM, 2000). There is continuum of thoughts from earlier days to the present, that the modern organic movement is radically different from its original form, and now it has environmental sustainability and productivity at its core in addition to the founders' concerns for the healthy soil, healthy food and healthy people. Therefore, it has become of

paramount importance to study the attitude of farmers towards organic farming, as attitude forms an essential component for better implementation and success of any innovative farming practice. Currently, India is ranked 15th in terms of world's organic agricultural land (FIBL & IFOAM Year Book 2015). The total area under organic certification is 5.71 million ha (2015-16). This includes 26 per cent cultivable area with 1.49 million ha and rest 74 per cent (4.22 million ha) forest and wild area for collection of minor forest product (APEDA 2016). The growth in consumer demand for organically produced food and the standardization of organic farming methods have created a distinguished marketing opportunity for agricultural producers. Organic farming systems differ from conventional systems in several aspects like non use of artificial pesticides or fertilizers (Seyedet al., 2010) and it does not totally exclude the elements of modern agriculture and it is one of the several approaches found to meet

the objectives of sustainable agriculture. The need for organic farming in India arises from the un-sustainability of agriculture production and the damage caused to ecology through the conventional farming practices.

Agriculture in hill states has always been a challenge the world over. It was reported that total food grain production of Sikkim increased from 28.14 tonnes in 2013-14 to 53.36 tonnes during 2014-15. Sikkim's transition to an organic state is good for public health and the environment in the area. On January 18, 2016 Sikkim had become India's first fully farming state by implementing organic practices on around 76,000 ha of agricultural land (*The Indian Express, 2016*). The various extension agencies are continuously making efforts to create awareness among the farmers about organic farming viz. govt. institute, non govt. organization, private agencies and KVK etc. Innovative extension education institutions i.e., Krishi Vigyan Kendra (KVKs). KVK share playing major role for promoting the organic farming and TOT by conducting training programme, exhibition, kisan mela, sangosthi and other programmes for dissemination of information about organic farming with low cost production technologies for and environmentally safe conditions in Sikkim. Training is the critical input for improving knowledge, skill and attitude of farmers and consists largely of well organized opportunities for participants to acquire necessary understanding and skill (*Lynton and Pareek, 1990*). Need based technological interventions through training is necessary to augment the productivity, profitability and livelihood of farm families. This calls for updating the knowledge and skills of the farm families through farmer-friendly means to provide them first hand information on the potential of new and need based interventions in improving the efficiency and cost effectiveness over existing technology. To be fruitful, the training programmes should be designed based on actual training needs and socio-economic profile of potential trainees. Evaluation is an integral part of a training programme. It not only serves the purpose of grading the trainees but also helps the trainers for continuous updating his training materials. KVK East Sikkim has constantly disseminated various organic modern technologies every year with about 80-110 training courses (on and off campus) to practicing farmers, rural youth, farm women, extension personnel with respect to every discipline. Thus, training

programme needs to be evaluated in order to study its impact on the trainees with respect to the change in their level of knowledge, attitude, symbolic adoption and retention of knowledge.

Keeping the above in consideration, study entitled, *Impact of training programmes on adoption of organic farming practices with special reference to organic marketing in East Sikkim*.

METHODOLOGY

The study was conducted in Pakyong, Ranka and Martam blocks of east district of Sikkim comprising of four villages from each block which were selected purposively as these villages had maximum number of trainees, making it easy to get the required number of trainings (off campus as well as on campus). A total of 10 respondents each of the 12 villages viz., Lossing, Pacheykhani, Basilakha, Namecheybong from Pakyong block, Timpyem, Sajong, Rey, Mindu from Ranka block and Thanka, Namin, Tshalamthang, Burung from Martam were selected for the study. The sample was taken from all the categories of farmers comprising of marginal (<1ha), small (1-2 ha), medium (2-5 ha) and large farmers (>5ha). The study was organized during the months of August and September 2016. The farmers underwent specialized training programmes on organic farming during the years 2012-13, 2013-14 and 2014-15 formed the population of the study. A list of trained farmers with a total of 120 samples consisting of 60 on-campus trainees and 60 off-campus trainees concerned with KVK were selected as respondents. The ex-post facto research design was employed in the present investigation. The data was collected through personal interview method using structural schedule. The collected data was analyzed with help of suitable statistical test like frequency and percentage.

RESULTS AND DISCUSSION

Extent of perception of training programme among the trained farmers about organic farming practices: The study revealed (Table 1) maximum farmers (60%) use FYM as organic nutrient source in their field. It was also reported that farmers of Sikkim mostly (58%) use poultry manure as it is rich organic manure since solid and liquid excreta that is excreted together resulting in no urine loss also rejuvenates soil physically, chemically and biologically. Goat manure helps farmers produce

healthier plants and crop yields where 53.3 per cent respondents used this manure as a fertilizer. The study also showed that cow urine was used by 45 per cent of the respondents as a powerful natural pesticide and fertilizer in organic farming.

Table 1. Extent of perception regarding organic farming practices among the trained Farmers (N=120)

Organic farming Practices	Extent of perception		
	Low	Medium	High
Application of FYM	17(14.2%)	31(25.8%)	72(60%)
Poultry manure	30(25%)	32(26.7%)	58(48.3%)
Bio-fungicide	56(46.7%)	40(33.3%)	24(20%)
Use of cow urine	29(24.2%)	37(30.8%)	54(45%)
Green manure	68(56.7%)	36(30%)	16(13.3%)
Pig manure	28(23.3%)	54(45%)	38(31.7%)
Goat manure	20(16.7%)	36(30%)	64(53.3%)
Vermicompost	22(18.3%)	68(56.7%)	30(25%)
Bio fertilizer	63(52.5%)	31(25.8%)	26(21.7%)
Bio-pesticide	53(44.2%)	39(32.5%)	28(23.3%)
Use of neem oil/cake	62(51.7%)	36(30%)	22(18.3%)
Soil liming (dolomite)	24(20%)	58(48.3%)	38(31.7%)

Findings indicated that 56.7 per cent of the respondents had medium perception on the use of vermicompost; it may be because the farmers of Sikkim had attended different training programmes on vermiculture from KVK as well as state department. It was also found that 48.3 and 45 per cent respondents had moderate use of pig manure as well as soil liming (dolomite). It was reported that farmers were provided lime/dolomite by the state department but lacked its technology. The data related to use of green manure depicted in the Table 1 revealed that adoption of green manure was low (56.7%) by the respondents. It may be because of lack of awareness on the benefits of green manure that it improves the soil fertility and increase nitrogen in the soil through biological nitrogen fixation. It was clear from the study that 52.5 and 51.7 per cent respondents were not aware about proper use of bio-fertilizer and neem oil/cake. Close observation of the Table 1 showed that the most of the farmers were not using bio-fungicide (46.7%) and bio-pesticide (44.2%) due to lack of knowledge on the management practices.

Assessment of training programmes as perceived by trained farmers with regards to organic farming practices: Farmers of Sikkim exposed to different trainings on organic farming by KVK East Sikkim. Pre

and post attending training assessment was done to know the perception of farmers. The perception of farmer was categorised as low, medium and high perception and it was found from Table 2 that before attending the trainings the perception level organic farming practices was low i.e., 49.2 per cent followed by medium i.e., 38.3 per cent and 12.5 per cent with high perception. The Table 2 also revealed that the perception of farmers had increased with most of the respondents with medium category (50.8%) followed by high perception and low perception (19.2%) on organic farming practices after attending the training programme. Thus, it may be inferred that, most of the respondents had medium to high perception (30%) about organic farming after undergoing training. This finding is in conformity with the finding of *Badodiya et al. (2011)*.

Table 2. Distribution of respondents according to their perception in relation to organic farming practices pre and post training (N=120)

Categories	Before		After	
	No.	%	No.	%
Low	59	49.2	23	19.2
Medium	46	38.3	61	50.8
High	15	12.5	36	30
Total	120	100	120	100

Constraints faced by farmers' during adoption of organic farming practices : Constraints are certain forces or factors that prevent and restrict the action of others. It was observed that the respondents faced number of constraints that restricted their action towards adoption of organic farming practices. Out of twelve enlisted major constraints for adoption of organic farming practices (Table 3) lack of entrepreneurial ability was the major reason of the farmers (86.6%) for failure of commercial adoption of organic farming practices which was ranked first among the constraints. It may be because of lack of training on entrepreneurship development in different aspects of agriculture. Non-availability organic seed was also a factor in non adoption of commercial scale of organic farming which was found second rank with 80 per cent. The required quantity of seeds of cereals, pulses, oilseeds, some of the vegetables should be grown and produced locally in the state to ensure chemical free seeds by adopting the concept seed villages, (*State Policy on Organic Farming Government of Sikkim 2003*). An efficient marketing channel is indispensable for the success of any

Table 3. Distribution of respondents according to various constraints faced by them in using organic farming practices (N=120)

Constraints	Beneficiaries		Rank
	No.	%	
Lack of entrepreneurial ability	104	86.6	I
Non- availability organic seed	96	80	II
Lack of proper market channel	88	73.3	III
Non-availability of plant protection measures	81	67.5	IV
Non-availability of bio-fertilizers	79	65.8	V
High cost of inputs	76	63.3	VI
Lack of knowledge	71	59.1	VII
Lack of proper irrigation facility	62	51.6	VIII
Lack of sufficient amount of nutrients	55	45.8	IX
High soil acidity	48	40	X
Poor financial condition	45	37.5	XI
Lack of farm mechanization	41	34.1	XII

agricultural production system and during the investigation it was found that 73.3 per cent of the respondent faced problem in marketing due to lack of proper marketing channel and ranked third among the all constraints. It was also found that 67.5 per cent of the respondents faced problem due to non availability of plant protection measures (4th rank). It is very important to manage insect-pests and diseases right from land preparation to harvesting of crop under organic condition, because proper crop protection is important to produce higher quality crops with minimal wastage. Application of bio-fertilizers results in increased nutrient and water uptake, root development, vegetative growth and nitrogen fixation but 65.8 per cent respondents found non-availability of bio-fertilizers within the state and was ranked fifth. High cost of inputs is one of the factors due to which the farmer faces lot of problem during adoption of organic technologies and it was ranked sixth by 63.3 per cent by the respondents. On the other hand, lack of knowledge with 59.1 per cent was categorized at seventh and it may be demands higher exposure to different training programmes/demonstration programmes within the state. Sikkim is basically agriculture oriented state and lack of proper irrigation facility remains a major constraint, it was placed at eighth position by 51.6 per cent. Economic development is totally based on agriculture depending on irrigation and the department's aim and objectives is to remove poverty by better agriculture and generation of

Table 4. Distribution of respondents according to various constraints faced during marketing (N=120)

Problems identified	No.	%	Rank
Lack of proper local market yard	111	92.5	I
Lack of wholesale market	98	81.6	II
Lack of regulated market	91	75.8	III
Low production due to lack of proper marketing facility	85	70.8	IV
Interference of middleman	76	63.3	V
Delay in cash payment by the middleman	71	59.1	VI
Price fixation by middlemen	66	55	VII
Delay in cash payment by marketing agencies	52	43.3	VIII
High transportation costs	50	41.6	IX
Lack of storage facilities in growing area	47	39.1	X
Lack of awareness about market news and intelligence during distress sale	44	36.6	XI
Non-availability of information from distributors/retailers/suppliers/input dealers	37	30.8	XII
Cost of cultivation is more than profit	34	28.3	XIII
Frequent price fluctuation	31	25.8	XIV
Lack of info. about foreign markets	29	24.1	XV

employment in diverse areas through assured irrigation facilities. Study also found that lack of sufficient amount of nutrients (9th rank), high soil acidity (10th rank), poor financial condition (11th rank) and lack of farm mechanization (12th rank) were less important constraints as stated by 45.8 per cent, 40 per cent, 37.5 per cent and 34.1 per cent respondents, respectively.

Constraints faced by the respondents during marketing: Marketing is one of the manifold problems, which have direct bearing upon the prosperity of the cultivators and also brings marketable surplus to the market for sale where farmers will retain a portion of their produce for self-consumption and cattle and the remaining portions sold. Farmers of Sikkim found problems in different aspects of marketing and almost fifteen constraints were encountered by all the respondents during the investigation (Table 4). Among the various constraints, lack of proper local market yard facilities was perceived as the most serious constraint (severity 92.5%). It was also evident from the study that lack of wholesale market (severity 81.6%) was quoted as the second serious constraint. The present market system did not provide a convenient point for aggregating large amounts of produce from different sources and for its packaging into small assortments to

meet the needs of the retailers in Sikkim. At present, the regulated market is available only in Siliguri and farmer has to transport agricultural produce to Siliguri, which consumes huge amount money as well as time. Therefore, lack of regulated market (severity 75.8%) was ranked third and considered as one of the major problems. The presence of marketing channel helps to transfer the ownership of goods, and move goods, from the point of production to the point of consumption. Consequently, lack of marketing channel resulted in low agricultural production is one of the main problem to be ranked fourth (70.8%) among all the constraints. Interference of middleman as quoted by 63.3 per cent, delay in cash payment by the middleman by 59.1 per cent and price fixation by middlemen by 55 per cent respondents were also the important problems in marketing which ranked fifth, sixth and seventh, respectively. 43.3 per cent felt that the delay in cash payment by the marketing agencies and 41.6 per cent of the respondents observed the high transportation costs were also the major problems during marketing of their produce. Similarly, 39.1 per cent of the respondents faced problem in getting high market value for the produce due to lack of proper storage facility (10th rank). It was also found that 36.6 per cent of the trainees expressed that the lack of awareness on market news and intelligence created distress sale. Similarly, other important constraints were also put forth by the

respondents *i.e.*, high cost of cultivation due to shortage of agricultural labours, frequent price fluctuation in the market and absence of proper and timely information on marketing of agricultural produce at the international market.

CONCLUSION

This study concluded that only 15.0 per cent of the respondents had high pre training perception in organic farming while the post training figure increased up to 30.0 per cent. In this study, lack of entrepreneurial ability, non-availability organic seed and lack of proper market channel for organic farming were major problems experienced by the farmers during adoption of organic farming practices in Sikkim. On the other hand, the study clearly revealed that lack of proper local market yard during marketing followed by lack of wholesale market and lack of regulated market also held back the faster growth of commercialization of organic farming. According to the farmers' perception, establishment of new wholesale market in Sikkim will offer special opportunities along with setting up of market information systems, with emphasis on full, fast and reliable information like quantities of produce marketed, stored and transported, the range of products, stocks, sources, destinations, varieties, quality and packaging and market and price trends to strengthen the commercialization of organic farming.

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