



Study of constraints analysis in organic farming cultivation in Sonipat and Hisar district of Haryana state, India

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Abstract: The present study was undertaken in two purposively selected districts, namely Sonipat and Hisar of Haryana state and a total no. of one hundred twenty farmers were selected and interviewed to study the prospects of organic farming and to assess the constraints in adoption of organic farming. The finding regarding farmers' perception about input constraints in adoption of organic farming show that lack of knowledge and demand of bio pesticides (90.8%) was ranked first, the results regarding perception about technical constraints in adopting of organic farming reveals that non- availability of improved organic production technology and Lack of knowledge about weed management practices in organic farming were ranked first (94.2 %). The finding regarding farmers perception about marketing and economic constraints in adoption of organic farming showed that no separate market for organic produces and Weak marketing network /sale point both were ranked first with highest weight mean score (360). Absolutely hundred percent of the respondents had perceived it as most serious constraint in organic farming, the results show that transfer of technology constraints in adoption of organic farming namely, Data bank not available about consumers and demand was ranked first with highest weight mean score (2.98). Moreover 98.3 percent of the farmers had perceived it as most serious constraint in organic farming and the finding regarding farmers' perception of certification constraints in organic farming shows that complicated process of organic certification was ranked first constraint (67.5 which in tern reflects the combersome procedure that may restrict the adoption of organic cultivation.

Keywords: Constraints, Organic farming, Prospects, Sustainability

INTRODUCTION

Organic agriculture is a production system that avoids use of synthetic compound fertilizers, pesticides, growth-regulators and livestock-feed additives, and thus offers some solutions to the problems currently be setting the agricultural sector of industrialized or green revolution countries. The broader aims of organic farming are sustainability of natural resources, minimize the cost of cultivation, provide healthy food, augment farm profits and improve soil health and healthy environment. Organic farming reduces human and animal health hazards by reducing the level of residues in the product, reduces the cost of agricultural production and also improves the soil health, ensures optimum utilization of natural resources for short-term benefit and helps in conserving them for future generation, It not only saves energy for both animal and machine, but also reduces risk of crop failure, improves the soil physical properties such as granulation, and good tilth, good aeration, easy root penetration and improves water-holding capacity (Tiwari *et al.*, 2012).

On the contrary, farmers are also reluctant to convert to organic production because constraints in availability of adequate quantities of organic manures and other organic inputs in the local market, lack of complete knowledge about organic farming principles, practices

and advantages, complex and costly procedures of certification and the risks of marketing of organic produce at premium rates in domestic markets. Hence, strategies are needed to promote organic farming in India include adequate research and extension support by the government, quantification of role of organic agriculture in improving the resource sustainability and in mitigating the climate change by the researchers, acknowledgement of organic agriculture as an effective mechanism to reduce green house gases and sequester carbon, organic market development, mission-mode programs for on-farm demonstrations and capacity building of all stakeholders, with full research back-up and government support for cheaper access to organic certification of farms (Anonymous 2011).

Hence, the challenge is to develop systems, which facilitate acceptance of organic cultivation by the farmers and the consumers. Keeping these potentials in mind, farmers in various states of India have started practicing organic farming but at the same time they are facing several constraints. So the efforts from various players of policy makers, researchers, extension workers, farmers' representatives, input suppliers, marketing personnel and consumers are needed to promote organic farming in a big way to tackle the present agrarian crisis and it is hoped that organic farming will

emerge as an important component of sustainable agriculture and congenial environment in years to come (Anonymous 2013). Therefore, the present study was undertaken in Haryana state to assess the constraints analysis for organic farming movements among farmers.

MATERIALS AND METHODS

The present study was conducted in Haryana state and two districts Sonepat and Hisar were selected, purposively, because multiple cropping systems are practiced in these districts and thereafter from each district, two blocks were selected randomly. Thus four blocks were selected and three villages were selected from each block and from each village, ten farmers were selected, randomly. Hence, a total number of 120 farmers were interviewed.

For measuring constraints, a schedule was developed with the help of literature available, experts of the agricultural department and from the university, progressive farmers and other concern sister departments like NGOs etc. The respondents were asked to state the constraints encountered by them in organic farming cultivation. An inventory of constraints was developed in order to measure the constraints among the respondents about various items in adoption of organic farming. Comprehensive close ended statements were prepared and the respondents were asked to reply their responses pertains seriousness of constraints on a three point continuum rating scale against each item as 'most serious', 'serious' and 'not so serious' and a weightage of 3, 2 and 1, were given, respectively based on their responses. After that an aggregate total score was calculated to measure each constraint separately, and on the basis of calculated total score, a weighted mean score were obtained which were ranked according to the maximum or minimum mean scores for assessing the seriousness of constraints and ranks orders were assigned as per their weighted mean score.

RESULTS AND DISCUSSION

Constraints are the factors that impede the farmer's efforts in adoption of organic farming practices. An endeavor was made in the present study to find out the constraints faced by farmers in adoption of organic farming practices. Farmers' perception regarding constraints was recorded, analyzed and discussed under the following sub heads:

General constraints in adoption of organic farming:

The examination of the data presented in the table 1 indicated that the constraints in adoption of organic farming namely, low production of organic produce was ranked first with highest weighted mean score (2.91), followed by high price of organic produce hence demand is less was ranked second (2.87), less consumers for organic products was ranked third constraint (2.74). High cost of organic cultivation and lack of cold storage facility were ranked as fourth constraint with the same weighted mean score (2.60), non avail-

ability of soil/water testing lab was ranked fifth constraint (2.55), and lack of cold frozen carrying vehicles was ranked sixth constraint (2.54). The study revealed that low production of organic produce was the most serious constraints (91.7 %) followed by high price of organic produce, hence demand is less (90 %), less consumers for organic products (79.2 %), high cost of organic cultivation (77.3 %), lack of cold storage facility (64.2 %), non - availability of soil/water testing lab (60 %), lack of cold frozen carrying vehicles (60 %), poor Infrastructure facilities (62.5 %), small land holding/land in patches (41.7 %) and lack of irrigation facility (17.5 %).

In accordance of study, Lanting (2007) reported that organic products, has identified some of the problems as follows: non-payment of premium price for these products because they are in the transition stage, lack of cold storage facility, with cash paid (preferably 70 % of the crop value) for the stored products, high cost of organic cultivation and lack of cold frozen carrying vehicles were major constraints in organic farming.

Hence, experts, scientists, NGOs come together to resolve the obstacles in adoption of organic practices so that more farmers come forward to adopt the organic cultivation.

Input constraints in adoption of organic farming:

The data presented in table 2 regarding farmers perception about input constraints in adoption of organic farming shows that lack of knowledge and demand of bio pesticides was ranked first with highest weighted mean score (2.90) and inadequate availability of bio insecticides / bio pesticides and bio herbicides was ranked as second major constraint (2.78) whereas dealers' interest in selling of chemical pesticide was ranked third constraint (2.69).

While less availability of organic manures was ranked as fourth (2.45), difficulty in handling the organic manure was ranked fifth (2.37), risk of insect & pest from the residues of other crops was ranked sixth (2.19), in sufficient nutrient supply was ranked seventh (1.75). Foul smell of organic manure' was ranked eighth (1.71). Whereas, poor water resources for raining green maturing crops was ranked ninth (1.60) and green manuring crops compete with cash crops for inputs' was ranked last 10th with lowest weighted mean score (1.36).

The finding regarding farmers' perception about input constraints in adoption of organic farming show that lack of knowledge and demand of bio pesticides (90.8%) was ranked first. Also inadequate availability of bio insecticides / bio pesticides and bio herbicides (78.3%), dealers' interest in selling of chemical pesticide (82.5%), less availability of organic manures (63.3%), difficulty in handling the organic manure (60.8%), risk of insect & pest from the residues of other crops (43.3%), in sufficient nutrient supply (18.3), foul smell of organic manure' (30.8%), poor water resources for raining green maturing crops

Table 1. General constraints in adoption of organic farming (n=120).

S. N.	General constraints	Constraints			Total score	Weighted mean score	Rank Order
		Most Serious (3)	Serious (2)	Not so Serious (1)			
1	Low production of organic produce	110 (91.7%)	10 (8.3%)	0 (0%)	350	2.91	I
2	High price of organic produce, hence demand is less	108 (90%)	9 (7.5%)	3 (2.5%)	345	2.87	II
3	Fewer consumers for organic products.	95 (79.2%)	19 (15.8%)	6 (5%)	329	2.74	III
4	High cost of organic cultivation	93 (77.3%)	7 (5.9%)	20 (16.8%)	313	2.60	IV
5	Lack of cold storage facility	77 (64.2%)	39 (32.5%)	4 (3.3%)	313	2.60	IV
6	Non availability of soil/water testing lab	72 (60%)	42 (35%)	6 (5%)	306	2.55	V
7	Lack of cold frozen carrying vehicles	72 (60%)	41 (34.2%)	7 (5.8%)	305	2.54	VI
8	Poor Infrastructure facilities.	75 (62.5%)	18 (15%)	27 (22.5%)	288	2.40	VII
9	Small land holding/land in patches	50 (41.7%)	27 (22.5%)	43 (35.8%)	247	2.05	VIII
10	Lack of irrigation facility	21 (17.5%)	11 (9.2%)	88 (73.3%)	173	1.44	IX

Table 2. Input constraints in adoption of organic farming (n = 120).

S. N.	Input constraints	Constraints			Total score	Weighted mean score	Rank Order
		Most Serious (3)	Serious (2)	Not so serious (1)			
1	Lack of knowledge and demand of bio pesticides.	109 (90.8%)	10 (8.4%)	1 (0.8%)	348	2.90	I
2	Inadequate availability of bio insecticides / bio pesticides and bio herbicides.	94 (78.3%)	26 (21.7%)	0 (0%)	334	2.78	II
3	Dealer's interest in selling of chemical pesticides	99 (82.5%)	5 (4.2%)	16 (13.3%)	323	2.69	III
4	Less availability of organic manures	76 (63.4%)	22 (18.3%)	22 (18.3%)	294	2.45	IV
5	Difficulty in handling the organic manure	73 (60.8%)	19 (15.8%)	28 (23.4%)	285	2.37	V
6	Risk of insect & pest from the residues of other crops.	52 (43.3%)	39 (32.5%)	29 (24.2%)	263	2.19	VI
7	In sufficient nutrient supply	22 (18.3%)	46 (38.3%)	52 (43.4%)	210	1.75	VII
8	Foul smell of organic manure	37 (30.8%)	12 (10%)	71 (59.2%)	206	1.71	VIII
9	Poor water resources for raising green maturing crops.	23 (19.2%)	26 (21.6%)	71 (59.2%)	192	1.60	IX
10	Green manuring crops compete with cash crops for inputs	20 (16.7%)	4 (3.3%)	96 (80%)	164	1.36	X

Table 3. Technical Constraint in adoption of organic farming (n=120).

S. N.	Technical constraints	Constraints			Total score	Weighted mean score	Rank Order
		Most Serious (3)	Serious (2)	Not so serious (1)			
1	Non availability of improved organic production technology.	113 (94.2%)	7 (5.8%)	–	353	2.94	I
2	Lack of knowledge about weed management practices in organic farming	113 (94.2%)	7 (5.8%)	–	353	2.94	I
3	Production of organic manure is time & energy consuming task.	99 (82.5%)	7 (5.8%)	14 (11.7%)	352	2.93	II
4	Lack of knowledge of organic production technology	113 (94.2%)	2 (1.7%)	5 (4.2%)	348	2.90	III
5	Lack of coordination among different organic production Agencies/firms	100 (83.3%)	20 (16.7%)	–	340	2.83	IV
6	Non-availability of package of practices about organic farming technology.	108 (90.0%)	4 (3.3%)	8 (6.7%)	340	2.83	IV
7	Lack of knowledge grading & value additional	88 (73.3%)	32 (26.7%)	–	328	2.73	V
8	Lack of knowledge about insect / pest control and nutrient management in organic farming.	93 (77.5%)	9 (7.5%)	18 (15.0%)	315	2.62	VI
9	Complicated technology for organic production	67 (55.8%)	53 (44.2%)	–	307	2.55	VII
10	Lack of proper guidance regarding preparation of bio pesticides / plant vitalizes.	30 (25.0%)	48 (40.0%)	42 (35.0%)	228	1.90	VIII

(19.2%), and green manuring crops compete with cash crops for inputs (16.7%). Similar constraints were also reported by Aulakh *et al.*

(2009) who found that the difficulty in control of insect, pest and diseases (60.2%) was the top most constraint expressed by the organic growers. On the same

Table 4. Marketing and Economic constrains in adoption of organic farming (n = 120).

S. N.	Marketing & Economic constrains	Constraints			Total score	Weighted mean score	Rank Order
		Most Serious (3)	Serious (2)	Not so serious (1)			
1	No separate market for organic produces	120 (100.0%)	–	–	360	3.00	I
2	Weak marketing network /sale point	120 (100.0%)	–	–	360	3.00	I
3	Lack of marketing intelligence among organic growers	112 (93.3%)	8 (6.7%)	–	352	2.93	II
4	Low yield of organically produced crops	111 (92.5%)	9 (7.5%)	–	351	2.92	III
5	Less premium prices for organic products	114 (95.0%)	1 (00.8%)	5 (4.2%)	349	2.90	IV
6	More labour is required thus increased cost of production	106 (88.3%)	9 (7.5%)	5 (4.2%)	341	2.84	V
7	Less interest of major Indian & international companies in bio-pesticides/bio fertilizers	106 (88.3%)	14 (11.7%)	–	340	2.83	VI
8	Less demand of organic produced due to high price	102 (85.0%)	8 (6.7%)	10 (8.3%)	332	2.76	VII
9	Lack of finance for purchase of bio pesticides and plant vitalizes.	85 (70.8%)	23 (19.2%)	12 (10.0%)	313	2.60	VIII
10	High cost of organic products	92 (76.7%)	6 (5.0%)	22 (18.3%)	310	2.58	IX

Table 5. Technology related constraints in adoption of organic farming (n=120).

S. N.	Transfer of technology constraints:	Constraints			Total score	Weighted mean score	Rank Order
		Most Serious (3)	Serious (2)	Not so serious (1)			
1	Data bank not available about consumers and demand	11 (98.3%)	2 (1.7%)	–	358	2.98	I
2	Lack of knowledge about environment degradation	108 (90.0%)	10 (8.3%)	2 (1.7%)	346	2.88	II
3	Consumers are not health conscious	89 (74.2%)	26 (21.7%)	5 (4.2%)	324	2.70	III
4	Lack of information and supply of various practices of organic farming	82 (68.3%)	38 (31.7%)	–	322	2.68	IV
5	Lack of media & propaganda and advertisement for promotion of organic farming	99 (82.5%)	1 (00.8%)	20 (16.7%)	319	2.65	V
6	Lack of training for organic production	79 (65.8%)	32 (26.7%)	9 (7.5%)	310	2.58	VI
7	Lack of co-ordination between various service supply and marketing agencies / organic promoting organization	58 (48.3%)	60 (50.0%)	2 (1.7%)	296	2.46	VII
8	Lack of competent extension personnel	55 (45.8%)	65 (54.2%)	–	295	2.45	VIII
9	Lack of organic farming promoting organizations	74 (61.7%)	12 (10.0%)	32 (26.7%)	280	2.33	IX
10	Lack of timely and appropriate transfer of technology measures.	60 (50.0%)	32 (26.7%)	28 (23.3%)	272	2.26	X

Table 6. Certification related constraints in adoption of organic farming (n=120).

S. N.	Certification constraints	Constraints			Total score	Weighted mean score	Rank Order
		Most serious (3)	Serious (2)	Not so Serious (1)			
1	Complicated process of organic certification	81 (67.5%)	24 (20.0%)	15 (12.5%)	306	2.55	I
2	High certification cost for organic products	65 (54.1%)	35 (29.2%)	20 (16.7%)	285	2.37	II
3	Lack of knowledge about certification process	67 (55.8%)	4 (3.4%)	49 (40.8%)	258	2.15	III
4	Lack of standardization for certification of organic products	61 (50.8%)	44 (36.7%)	15 (12.5%)	257	2.14	IV

lines Ram (2003) reported that the use of chemical inputs over the past four decades have resulted in not only loss of natural habitat balance and soil health but have also caused many hazards like soil erosion, decreased groundwater level, soil stalinization, pollution due to fertilizers and pesticides, genetic erosion, ill effects on environment, reduced food quality and increased the cost of cultivation, rendering the farmer poorer year by year. To give boost up to organic farming, required facilities must available whereas needed.

Technical constraints in adoption of organic farming: The data contained in the table 3 regarding perception about technical constraints in adoption of organic farming reveals that non-availability of improved organic production technology and lack of knowledge about weed management practices in organic farming were ranked first with highest in the same percentage and weighted mean score (2.94). However, 'production of organic manure is time & energy consuming task' was ranked as second constraint (2.93) followed by lack of knowledge of organic production technology was ranked third constraint (2.90), lack of coordination among different organic production agencies/firms and non availability of package of practices about organic farming technology were ranked 4th (2.83).

While lack of knowledge grading & value additional was ranked 5th constraint (2.73) and lack of knowledge about insect / pest control and nutrient management in organic farming was ranked 6th constraint (2.62). Whereas, complicated technology for organic production' was ranked 7th constraint (2.55.) and lack of proper guidance regarding preparation of bio pesticides / plant vitalizes was ranked 8th constraint with the lowest weighted mean score (1.90). The results revealed that 'non availability of improved organic production technology and lack of knowledge about weed management practices in organic farming were ranked first (94.2%) followed by production of organic manure is time and energy consuming task (82.5%), lack of knowledge of organic production technology (94.2%) lack of coordination among different organic production Agencies/firm (83.3%), non availability of package of practices about organic farming technology (90.00%), lack of knowledge grading and value additional (73.3%), lack of knowledge about insect / pest control and nutrient management in organic farming (77.5%), 'complicated technology for organic production' (55.8%).

Similar results were supported by the finding of Dhaka *et al.* (2011) who revealed that there were some barriers in the adoption of organic farming practices having a rational basis, conflicting information, fear of low yields, lack of knowledge about weed management practicing in organic farming, lack of knowledge about insect / pest control and nutrient management in organic farming, higher labour requirement, and loss of flexibility, complexity, incompatibility with other as-

pects of farm management and farm and personal objectives are the major technical constraints in adoption of organic farming practices.

Marketing and economic constraints in adoption of organic farming: The data presented in table 4 regarding farmers perception about marketing and economic constraints in adoption of organic farming show that no separate market for organic produces and weak marketing network /sale point both was ranked first with highest weighted mean score (3.00), while lack of marketing intelligence among organic growers was ranked as 2nd major constraint (2.93). low yield of organically produced crops was ranked 3rd constraint (2.92) and less premium prices for organic products' was ranked as 4th constraint (2.90), more labour is required thus increase cost of production was ranked 5th constraint (2.84).

On the other hand less interest of major Indian & international companies in bio-pesticides/bio fertilizers was ranked 6th constraint (2.83), less demand of organic produced due to high price was ranked 7th constraint (2.76), lack of finance for purchase of bio pesticides and plant vitalizes was ranked 8th constraint (2.60), whereas, high cost of organic products was ranked 9th constraint (2.58).

The finding regarding farmers perception about marketing and economic constraints in adoption of organic farming show that no separate market for organic produces and weak marketing network /sale point both was ranked 1st with highest weighted mean score (360) with 100 percent of the respondents had perceived it as most serious constraint in organic farming. Also, lack of marketing intelligence among organic growers (93.3%), low yield of organically produced crops' (92.5%), less premium prices for organic products (95% per cent), more labour is required thus increase cost of production (88.3), less interest of Major Indian & international companies in bio-pesticides/bio fertilizers (88.3%), less demand of organic produced due to high price (83%), lack of finance for purchase of bio pesticides and plant vitalizes' (70.8 %), high cost of organic products (76.7 %) were some other constraints of serious nature. Aulakh *et al.* (2009) reported similar results and also supported by Namdev *et al.* (2012) who reported that the major constraints reported by organic paddy growers included lower yield, high seed price, lack of availability of improved seed and high price of seed.

The study has suggested creation of a strong network for purchasing of organic products and announcement of separate market for organic products and support prices for the organic products.

Technology related constraints in adoption of organic farming: The examination of the data presented in the table 5 indicated that transfer of technology constraints in adoption of organic farming namely, data bank not available about consumers and demand with highest weighted mean score (2.98), lack of knowledge

about environment degradation (2.88), consumers are not health conscious (2.70), lack of information and supply of various practices of organic farming' (2.68) were ranked 1st, 2nd, 3rd, and 4th, respectively.

Whereas, lack of media and propaganda and advertisement for promotion of organic farming (2.65), lack of training for organic production (2.58) were some other serious constraint. While lack of co-ordination between various service supply and marketing agencies/ organic promoting organization (2.46) were serious constraints ranked as 5th, 6th, and 7th, respectively.

Other constraints of serious nature perceived were lack of competent extension personnel (2.45), lack of organic farming promoting organizations (2.33) and lack of timely and appropriate transfer of technology measures (2.26) ranked as 8th, 9th, and 10th, respectively.

The results show that transfer of technology constraints in adoption of organic farming namely, data bank not available about consumers and demand was ranked first (2.98) and therefore (98.3%) of the farmers had perceived it as most serious constraint in organic farming followed by lack of knowledge about environment degradation (90.00%), consumers are not health conscious (74.2%), lack of information and supply of various practices of organic farming (68.3%), lack of media & propaganda and advertisement for promotion of organic farming (82.5%), lack of training for organic production (65.8%), lack of co-ordination between various service supply and marketing agencies/ organic promoting organization (48.3%), lack of competent extension personnel (45.8%), lack of organic farming promoting organizations (62.7 %), and lack of timely and appropriate transfer of technology measures was (50 %).

Satish *et al.* (2011) reported that the constraints in adoption organic farming practices were identified as cent percent respondents' encountered lack of media and propaganda and advertisement for promotion of organic farming and products, lack of information and supply various organic farming practices undertook similar study. It is therefore suggested to provide more and more training in respect of recommended organic farming practices to the farmers for organic agriculture.

Certification related constraints in adopting of organic farming: It's clear from table 6 regarding farmers perception of certification constraints in organic farming that complicated process of organic certification (2.55), high certification cost for organic products (2.37), lack of knowledge about certification process (2.15) and lack of standardization for certification of organic products (2.14) were ranked as 1st, 2nd, 3rd, and 4th, respectively.

The finding regarding farmers' perception of certification constraints in organic farming shows that complicated process of organic certification were ranked first (67.5%). Also high certification cost for organic products (54.1%), lack of knowledge about certification process (55.8%) and lack of standardization for certifi-

cation of organic products (50.8%). Organic produce needs certification to ensure that all synthetic inputs are prohibited and soil-building approaches are followed. Certification authenticates organic produce for consumers and validate price margin of the product in the market. The certification process aims at converting the growing area to comply with requirements of standard within a period of 3 years. For this reason, farmers who adopt organic management need to wait for up to three years under certification procedures that requires purging of chemical residues.

Conclusion

Organic farming is a good food system that raises the income and increases food and food safety at both the ends. It is one in which the environment is preserved, farmers and workers have fair access to the means of food production while the receiving a fair return for their labour and consumers have their food at fair price. Organic farming which relies on internal inputs has higher productivity than external input of inorganic agriculture practices. Keeping these potentials in mind, farmers starts practicing organic farming but at the same time they are facing several constraints. So the efforts from the various players like policy makers, researcher, extension workers, farmers' representative, inputs suppliers, marketing personnel and consumers are needed to promote organic farming in a big way to tackle the present crises. It is hoped that organic farming will emerge as an important component of sustainable agriculture and congenial environment in future.

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