I J A B E R, Vol. 14, No. 12, (2016): 8609-8633

PROSPECTS OF ORGANIC TOURISM IN HIMACHAL PRADESH

Devender Singh

Abstract: *Tourism has a significant contribution in Himachal Pradesh economy, and agriculture is the main occupation of the people here. About 15 per cent of the total State Income (SGDP) comes from the agriculture and its allied sectors. Emerging trends for eco-friendly technology, gives a phenomenal idea of amalgamation of organic farming practices and tourism development initiatives in this state. This will help in sustainable income and employment generation of small and marginal farmers (which are approximately 88%) in the State.*

Keywords: *Organic farming, organic tourism, group certification*

JEL classification*: Q00, Q010, Z30*

INTRODUCTION

Himachal Pradesh is the land of deities (Dev Bhomi) and snowy mountains of Western Himalayas. The charm and beauty of snowy mountains, valleys, rivers, rivulets, and lush green landmass here, like rhyme of a beautiful poem fill mind with resonant frequencies. It seems that nature has bestowed herself affectionately, to every living creature in this State. That is why; it is difficult sometime to separate nature from the rhythm of life of the *pahari* people. Every year several tourists from different regions come and find a blissful rendezvous in the lap of such a beautiful state. Tourism in Himachal Pradesh has been recognized as one of the most important sectors of the economy of the State and a potential engine of economic growth. The contribution of the tourism sector to the State gross domestic product (SGDP) is 7.5 per cent which seems quite significant for this small state (Economic Survey of Himachal Pradesh 2014-15). However, agriculture is the main occupation of the people of Himachal Pradesh and has an important place in the economy of the State. About 15 per cent of the total State Income (GSDP) comes from the agriculture and its allied sectors. Himachal Pradesh is the only state in the country whose approximately 90 per cent population (as per 2011 census) lives in rural areas. Agriculture provides direct employment to about 70 per cent of the main working population in this state. Out of the total geographical area of 55.67 lakh hectares, area of operational holding is about 9.68 lakh hectares, owned by 9.33 lakh farmers. The average holding size is about 1.04 hectare (Status of Agriculture in Himachal Pradesh pp. 1-3).

Emerging trends for eco-friendly technology and health consciousness induced individuals to get long lasting pleasure. Environmental consciousness is increasing among them, which has affected their behaviour to seek more purposeful satisfaction, while wondering around in tourist destinations. Therefore, new vocabulary has emerged in recent years such as; green goods, green hotels or eco-hotels, holistic tourism, rural tourism, cultural tourism, eco-tourism, responsible tourism, adventure tourism, health tourism, and sustainable tourism. In this chain of vocabulary there is one more link and that is organic tourism, which sometime seems a synonym of sustainable, health, responsible, and eco-tourism in practice. Organic tourism is bestowed with the idea of esteemed principles of organic agriculture i.e., *principle of health, principle of ecology, principle of fairness and principle of care.* In general, organic tourism is a kind of tourism that gives the tourist an opportunity to make direct contact with agricultural practices at organic farms, and get the taste of healthy food and healthy life.

A brief review of the tourism policy of Himachal Pradesh (2005) gives the impression that at policy level too, there is repercussions regarding the essentials of sustainable tourism in the State, which will not only environmentally compatible but also leads to economic betterment of the rural people of the State. Even the organic farming policy of Himachal Pradesh (2011) highlights the expansion of tourism to rural areas by involving villagers, and giving an opportunity to add value to rural home stays through producing and distributing organic food to tourists. This will certainly broaden the scope of organic agriculture and pave the path towards organic tourism in the State.

Organic agriculture has its root in traditional holistic agriculture approach, where mixed cropping system was adopted to maintain the balance of nutrients in the soil as well as to reduce diseases in the crops, where the concept of feeding the soil rather plant to maintain the fertility of the soil was taken, where farm was as a living organism. There is a comprehensive definition of organic agriculture given by the international food standards Codex Alimentarius, in association with the International Federation of Organic Agriculture Movements (IFOAM) and the Food and Agriculture Organisation of the United Nations (FAO), state, "Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological and mechanical methods as opposed to using synthetic materials, to fulfill any specific function within the system." (Partap 2011, p.21).

Typical geographical situation and varied and conducive conditions provides Himachal Pradesh a distinct advantage in production of vegetables. The economy of the State is agricultural based with majority of the population deriving sustenance from the agriculture vocation. Although the Himachal economy is essentially cereal based, there is observed a visible shift in respect of area under horticulture crops in the State. The total area under fruits and vegetables during the year 2006-2007 aggregates 10.50 per cent of total cropped area, of which vegetables accounted for 3.5 per cent of total cropped area (Annual Season and Crop Report 2006-07). The area under vegetables has increased by 4.9 per cent from agriculture census 2000-01 to 2005-06. The increase in area under vegetables may be due the tendency of farmers to adopt cash crops instead of cereals, and the State government initiatives to promote vegetables farming in the region (Agriculture Census 2005-06). Vegetables being rich source of vitamins and minerals may lead to solve the problem of malnutrition up to a greater extent, but on the other hand the conventional production system has endangered our health and environment due to abundant use of chemical fertilizers and pesticides/insecticides etc. The organic farming has been used to develop an alternative eco-friendly technology for sustainable vegetable production (Singh, S.R. et. al. 2001). Organic vegetable farming will fulfill many purposes simultaneously such as healthy soil-healthy vegetables, high value as a cash crop; increasing the income of vegetable growers mostly small and marginal farmers. Development of organic vegetable clusters in rural areas will open the door for organic tourism; this will supplement the income of vegetable growers, and will lead to sustainability in vegetables production, and holistic development of the area, farmers, visitors, and ultimately the State. Therefore, there is a need to see the amalgamation of organic farming practices and tourism development initiatives, so that this would help more pragmatically in the economic development, especially the small and marginal farmers (which are approximately 88%) in the State. The study is focusing on the prospects of organic tourism in Himachal Pradesh, and trying to find resemblance between the organic vegetable farming initiatives and organic tourism, and proposing a model for the success of this in the State.

METHODOLOGY

Design of sample

The sampling method is multi-stage stratified random cum purposive sampling.

Selection of blocks and villages

Two blocks from Shimla and Solan districts each were selected purposively. From selected four blocks from Shimla and Solan districts, revenue villages were selected purposively.

Selection of sample households

From the selected revenue villages a final sample of 200 organic farms was taken and categorized into 140 marginal organic farms, 40 small organic farms and 20 other organic farms, which was 70 per cent, 20 per cent, and 10 per cent to total sample of organic farms, respectively.

Period of the study

The present study pertained to the agricultural year 2011-12, starting from 1st July to 30th June. Both primary and secondary data was collected to come on conclusion.

Analytical tools

The trends in area, production, and yield of vegetables, and trends in tourist arrivals in Himachal Pradesh have been analyzed with the help of Compound Growth Rates (CGR).

$$Y = Ab^t$$

The values of parameter A and b are obtained by converting the exponential function into Log-Linear function as below:

$$\text{Log } Y = \text{Log } A + t \text{ Log } b$$

The compound annual growth rate is obtained as:

$$\text{C.G.R. (\%)} = (\text{Antilog of log } b - 1) \times 100$$

The significance level of the estimates of compound growth rates was tested with the help of "t – test".

$$t_{n-2} = \frac{C.G.R.}{S.E.(r)}$$

Where

C.G.R. = Compound Growth Rate

S.E. (r) = Standard Error of Compound Growth Rate, and

suffix *n*-2 connotes the degree of freedom of '*t*'.

Assessment of constraints faced by organic farms

To assess the constraints in adoption of organic agriculture and their relevance, opinion on possible constraints was sought on a three point continuum of 'relevant', 'partial relevant' and 'irrelevant' with a score of 2, 1 and 0, respectively. Based on this assessment, the scientific relevance score for each constraint was estimated by using following formula as below:

$$P = \frac{\sum_{i=1} X_i}{2N} \sim \left(0 \le P_i \le 1\right)$$

Where,

P = Scientific relevance score (SRS)

N = Number of key informants.

X_i= 2 if i^{th} constraint is relevant.

X_i= 1 if i^{th} constraint is partial relevant.

X_i= 0 if i^{th} constraint is irrelevant.

After accounting the scientific relevance score, ranks were further expressed in percentage term by applying Rank Based Quotient formula as follows:

$$\text{R.B.Q} = \frac{\sum f_i (n+1-i)}{N \times n} \times 100$$

Where,

R.B.Q = Rank Based Quotient

f_i = Number of farmers reporting a particular problem under i^{th} rank

N = Number of farmers

n = Number of problems identified

i = (1, 2, 3….. n)

The Kendall Coefficient of Concordance W

When it is to decide the degree of association among several (k) sets of ranking of N objects Kendall's coefficient of concordance, represented by the symbol W was used.

The Kendall coefficient of concordance W is computed by following formula (Kothari 2007; Siegel et al 1988):

$$W = \frac{12\sum R_i^2 - 3k^2 N(N+1)^2}{k^2 N\left(N^2-1\right) - k\sum T_j}$$

Where

k = number of sets of rankings, e.g., the number of farms

N = number of objects being ranked

$\sum R_i^2$ = the sum of the squared sums of ranks for each of the N objects being ranked

The presence of tied ranks reduce the value of W, therefore the correction of this the correction factor is the same as the one used with the Spearman rank-order correlation coefficient.

Testing the Significance of W

Chi-square is used to determine the significance of an observed W.

χ^2 = k (N – 1) W, with degree of freedom = (N – 1) for judging W's significance.

RESULTS AND DISCUSSION

Trends in number of Indian and foreigner tourists visited Himachal Pradesh

The number of Indian and foreign tourists arrival has increased in absolute terms (in lakh) during year 2001-02 to 2013-14 in Himachal Pradesh. There is significantly positive compound growth rate with respect to Indian and foreigner tourists' arrival in the State, which was 10.6 and 11.7 per cent per annum, respectively during these thirteen years (Table 1). Over the years a positive policy framework for tourism development has resulted into successive increase of tourists' arrival in the State (See Figure 1 to 3).

This positive growth picture of tourists' arrivals in the State, gives an idea, to think more perennial avenues which can attract more tourists for long time. There is a need to emphasis not just on the scenic beauty of this state alone but, other similar conducive areas which can attract more tourists. In present setting organic farming seems a best option for this. Recent years, has observed a visible shift towards vegetable production in Himachal Pradesh. This can be seen from coming analysis in following paragraphs. Vegetables being cash crop, and take less time duration to harvest, have emerged as a worthy source of income generation for farmers in this state. For sustainable vegetable production, the State government is promoting organic vegetable farming by creating vegetable clusters. Vegetables' growers are being taken into a group in these clusters for group certification. The justification for group certification is that, in Himachal Pradesh maximum farmers are small and marginal; they cannot individually bear the cost of organic certification. Therefore, in a group their individual cost of certification is low. Promotion of organic farming is directly linked with the market for organic products. In these vegetable clusters there is a possibility to promote organic tourism so that this will create a niche market for organic vegetables.

District-level trends in area under vegetables in Himachal Pradesh

The area under vegetables has increased in absolute terms during year 2001-02 to 2013-14, almost in all the districts of Himachal Pradesh (Table 2). In some districts

for instance Bilaspur, Lahaul & Spiti and Shimla the area has almost doubled, while in some other districts such as Chamba, Hamirpur, Kangra, Kinnaur and Mandi the area under vegetables has more than doubled during these years. There is significantly positive compound growth rate in area under vegetables in every districts of the State.

Table 1
Trends in number of tourists (Indian & foreigner) visited Himachal Pradesh during 2001-02 to 2013-14

(in lakh)

Serial Number	*Year*	*Indian*	*Per cent share in H.P*	*Foreigner*	*Per cent share in H.P*	*Total*	*Per cent share in H.P.*
1.	2001-02	51.11	97.46	1.33	2.54	52.44	100.00
2.	2013-14	147.16	97.26	4.14	2.74	151.30	100.00
C.G.R.		10.6* (22.54)		11.7* (10.95)		10.6* (22.66)	

Source: Statistical year book of Himachal Pradesh (2013-14), Department of Economics & Statistics, Himachal Pradesh, Shimla

Note: Figures in parenthesis are t-values

*Significant at 1 per cent level of significance

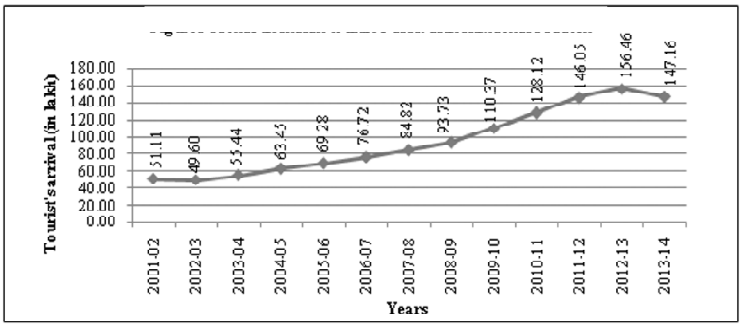

Figure 1: Trends in Indian tourist's arrival in Himachal Pradesh

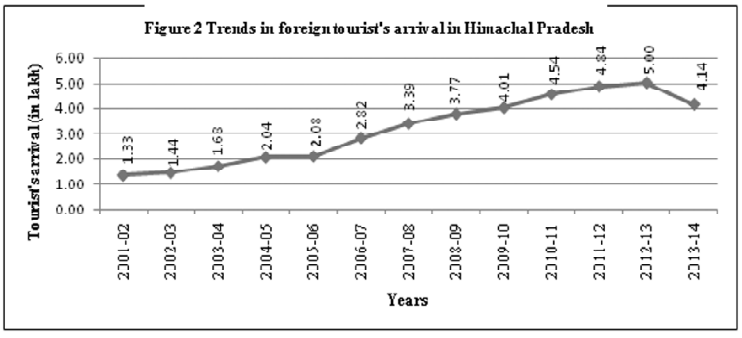

Figure 2: Trends in foreign tourist's arrival in Himachal Pradesh

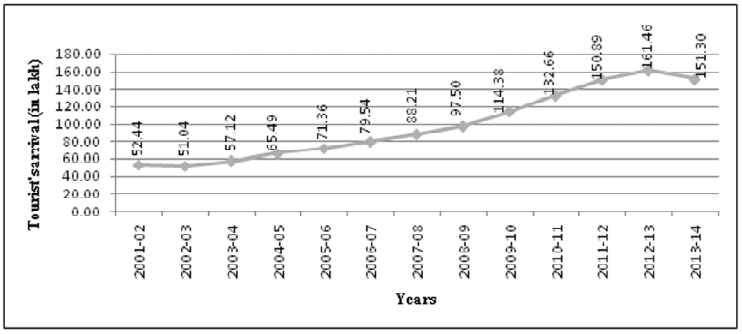

Figure 3: Trends in total tourist's arrival in Himachal Pradesh

District-level trends in production of vegetables

There has been significantly positive compound growth rate of production of vegetables in all the districts of the State (Table 3). The production increasing at a rate more than 9 per cent per annum in districts Mandi, Kinnaur, Chamba, Kangra, and Hamirpur during years 2001-02 to 2013-14, whereas Bilaspur, Shimla, Solan, Sirmour, and Kullu districts have more than 5 per cent but less than 9 per cent annual compound growth rate during these years. Una and Lahaul & Spiti districts have below 5 per cent growth rate in the production of vegetables during these thirteen years.

Table 2
District-level trends in area under vegetables in Himachal Pradesh

Serial Number	*District*	*Area ('000'ha)* 2001-02	*Per cent share in H.P.*	2013-14	*Per cent share in H.P.*	*C.G.R.*	*t-value*
1.	Bilaspur	1.62	4.74	2.69	3.74	3.47*	11.70
2.	Chamba	1.40	4.10	3.16	4.39	7.48*	10.01
3.	Hamirpur	1.03	3.02	3.61	5.01	11.65*	12.75
4.	Kangra	2.70	7.91	8.05	11.18	7.61*	4.55
5.	Kinnaur	1.06	3.10	3.49	4.85	9.11*	6.07
6.	Kullu	3.33	9.75	5.59	7.76	4.34*	32.81
7.	Lahaul & Spiti	2.16	6.32	4.21	5.85	3.83*	2.85
8.	Mandi	3.32	9.72	10.18	14.14	8.79*	11.71
9.	Shimla	6.14	17.98	12.64	17.55	6.82*	17.76
10.	Sirmour	4.37	12.80	7.79	10.82	4.90*	18.04
11.	Solan	6.01	17.60	8.98	12.47	4.07*	7.15
12.	Una	1.01	2.96	1.61	2.24	3.90*	11.80
	Himachal Pradesh	34.15	100.00	72.00	100.00	6.14*	13.39

Source: Directorate of Agriculture, H.P.
Note: *significant at 1 per cent level of significance

District-level trends in productivity of vegetables

There have been significantly positive compound growth rates of productivity of vegetables in districts Bilaspur, Chamba, Kangra, Kinnaur, Kullu, Mandi, Sirmour, and Solan (Table 4). Expansion of area and increase in production of vegetables due to favourable horticulture development initiatives such as Himachal Pradesh Crop Diversification Project have resulted in positive growth trends in productivity of vegetables (Fig.4(a) to 4(I)). It is apparent that the efforts to improve the vegetable crops productivity have not yielded uniform results. Despite these efforts the productivity has declined in a few districts, like Hamirpur and Lahual & Spiti. Lack of irrigation facilities, low input use, and climatic conditions along with various issues of crop management etc. are the main culprit of low productivity growth in vegetables in the State.

Cropping pattern on sample organic farms

The sample farms are mainly vegetables growing units, with higher area allocations in kharif and rabi season. Beans, peas, potato, tomato, capsicum, cabbage and cauliflower are the main vegetables grown. Higher proportion of gross cropped area was devoted to vegetables in kharif season on organic farms. Tomato, beans, capsicum, cabbage, and cauliflower are the main vegetables in kharif season on sample farms, mainly cultivated under in irrigated conditions. Some vegetables

Table 3
District-level trends in production of vegetables in Himachal Pradesh

Sr. No.	*District*	*Production ('000'MT)*				*C.G.R.*	*t-value*
		2001-02	*Per cent share in H.P.*	*2013-14*	*Per cent share in H.P.*		
1.	Bilaspur	29.02	4.62	72.88	4.97	6.68*	10.71
2.	Chamba	20.12	3.21	56.37	3.85	10.54*	7.39
3.	Hamirpur	16.80	2.68	55.39	3.78	9.78*	11.41
4.	Kangra	45.55	7.26	169.43	11.56	9.80*	7.47
5.	Kinnaur	12.83	2.04	42.48	2.89	10.86*	7.32
6.	Kullu	65.24	10.39	108.37	7.39	5.91*	4.21
7.	Lahaul & Spiti	22.58	3.60	43.42	2.96	2.77***	1.53
8.	Mandi	50.36	8.03	199.12	13.58	11.27*	15.55
9.	Shimla	101.12	16.12	231.02	15.77	6.68*	17.49
10.	Sirmour	90.54	14.43	173.78	11.85	6.33*	10.96
11.	Solan	155.05	24.71	283.60	19.35	6.48*	8.70
12.	Una	18.24	2.91	30.10	2.05	4.05*	10.57
	Himachal Pradesh	627.45	100.00	1465.96	100.00	7.40*	18.06

Source: Directorate of Agriculture, H.P.
Note: *significant at 1 per cent level of significance
*** significant at 10 per cent level of significance

such as, beans, cabbage, and cauliflower are grown in both kharif and rabi seasons by sample farms. Pea is the main cash crop of rabi season (Table 5& Annexture Table A1 p.22).

Composition of farm income

On different size of organic farms total income had direct relationship with farm size. Income from vegetables farming was higher in absolute as well as percentage terms. Vegetables farming had important place in the income generation on sample marginal organic farms. The average annual income generation from vegetables farming ranged between Rs. 98412.68 to Rs. 157392.50 on different size of organic farms. The total farm and non-farm income on organic farms was Rs. 200442.46 and Rs. 68290.00 per farm, respectively. On organic farms the per capita income was Rs. 43583.73 per farm. There was a direct relationship between farm size and per capita income on organic farms. The income of the farmers can further be supplemented if farmers are provided with a platform to sell their organic vegetables (Table 6).

Constraints in the adoption of organic farming

There were observed some constraints which discourage farmers to go for organic farming. Constraints viz. lack of knowledge, package of practice (pop) not available,

Table 4
District-level trends in yield of vegetables in Himachal Pradesh

Sr. No.	*District*	*Productivity (MT/ha)*		*C.G.R.*	*t-value*
		2001-02	*2013-14*		
1.	Bilaspur	17.91	27.06	3.21*	6.98
2.	Chamba	14.36	17.84	3.04*	2.31
3.	Hamirpur	16.31	15.36	–1.88**	–2.06
4.	Kangra	16.87	21.05	2.18*	3.50
5.	Kinnaur	12.10	12.16	1.74*	2.61
6.	Kullu	19.59	19.37	1.56***	1.17
7.	Lahaul & Spiti	10.45	10.31	–1.07**	–1.98
8.	Mandi	15.17	19.57	2.48*	3.07
9.	Shimla	16.47	18.28	–0.14^{NS}	–0.45
10.	Sirmour	20.72	22.32	1.43*	2.76
11.	Solan	25.80	31.58	2.40*	6.10
12.	Una	18.06	18.66	0.13^{NS}	0.32
	Himachal Pradesh	18.37	20.36	1.26*	5.25

Source: Directorate of Agriculture, H.P.
Note: NS–Non-significant
*significant at 1 per cent level of significance
**significant at 5 per cent level of significance
***significant at 10 per cent level of significance

fear of decline in production, limited or no-availability of organic substitutes of chemical fertilizers and plant protection chemicals, find local conditions are conducive for chemical farming, other farmers are practicing conventional farming, organic seeds unavailability, lack of marketing facilities, and farmers are reluctant to form groups for group certification, were some of the constraints behind in adoption of organic farming in the State (Table 7).

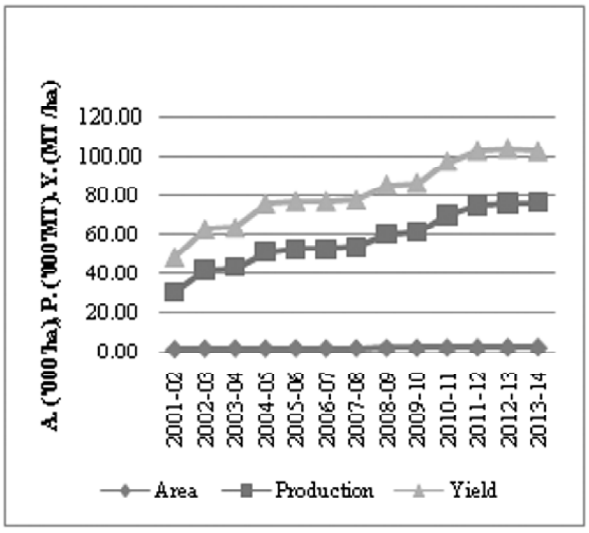

Figure 4(a): Trends of vegetables in district Bilaspur

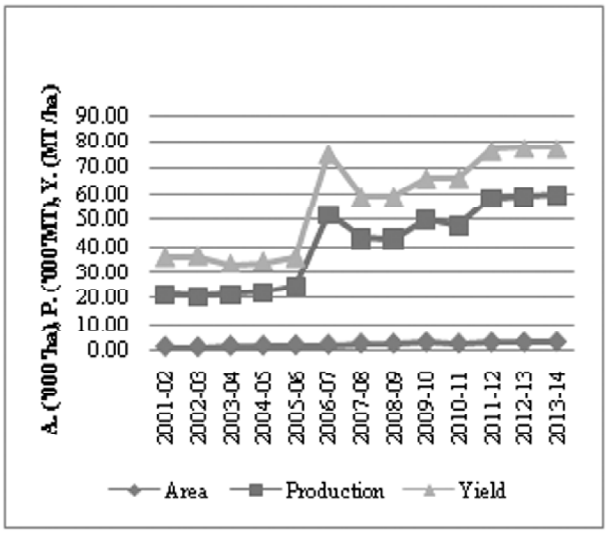

Figure 4(b): Trends of vegetables in district Chamba

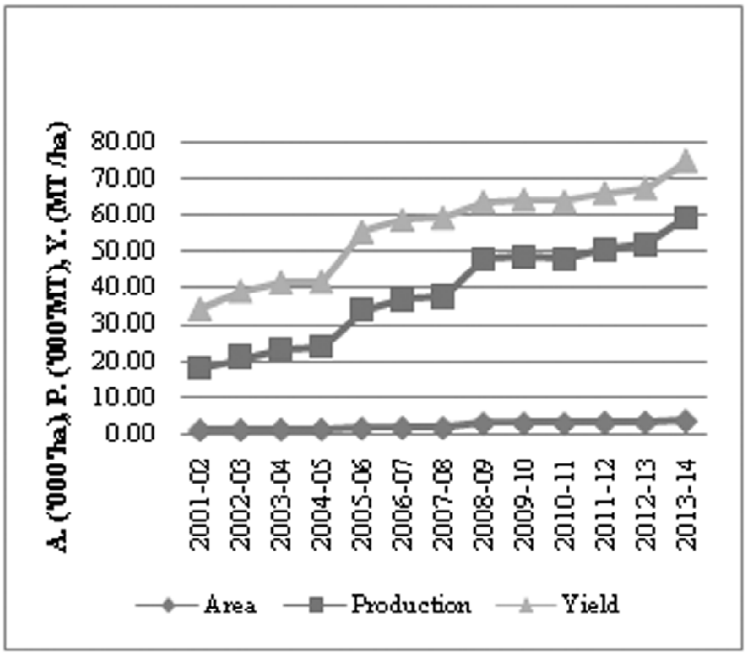

Figure 4(c): Trends of vegetables in district Hamirpur

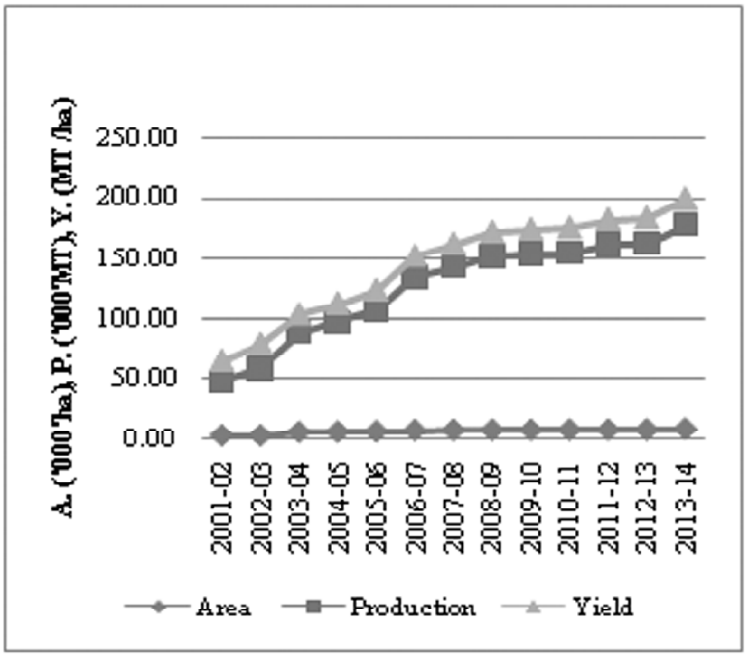

Figure 4(d): Trends of vegetables in district Kangra

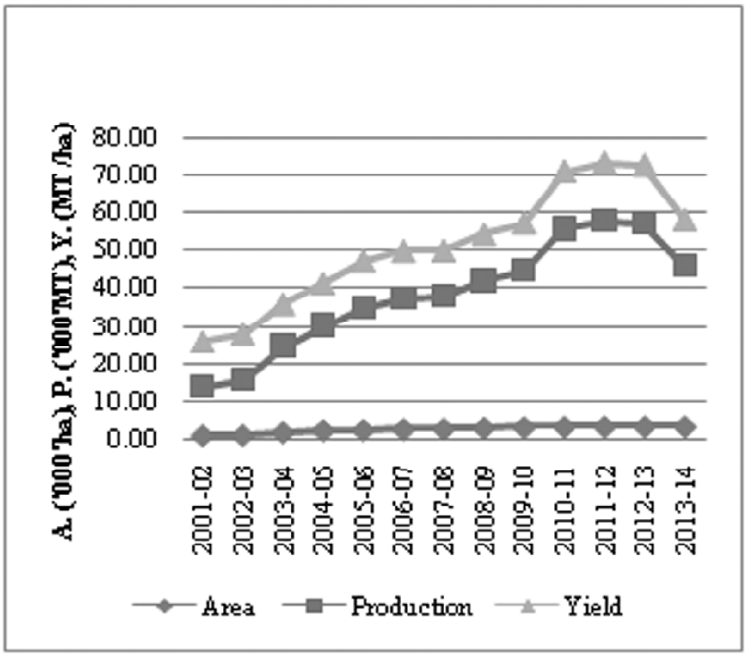

Figure 4(e): Trends of vegetables in district Kinnaur

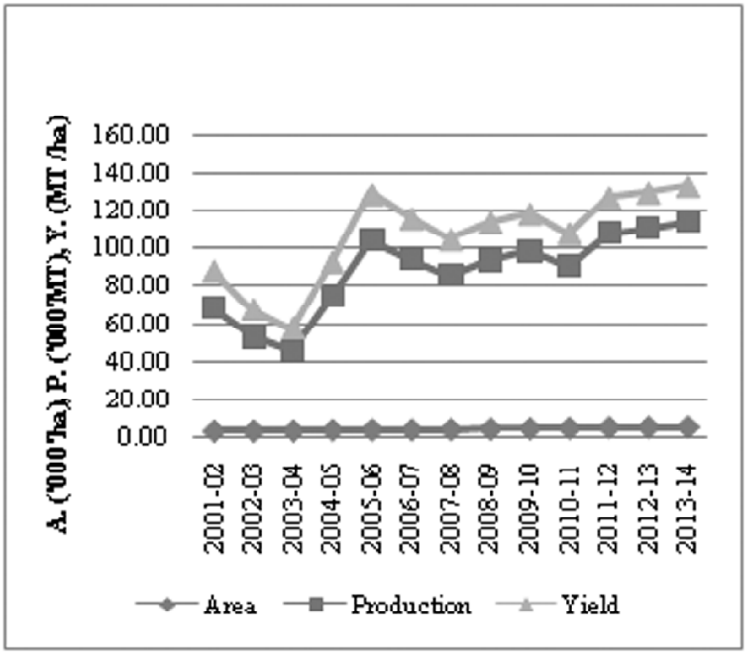

Figure 4(f): Trends of vegetables in district Kullu

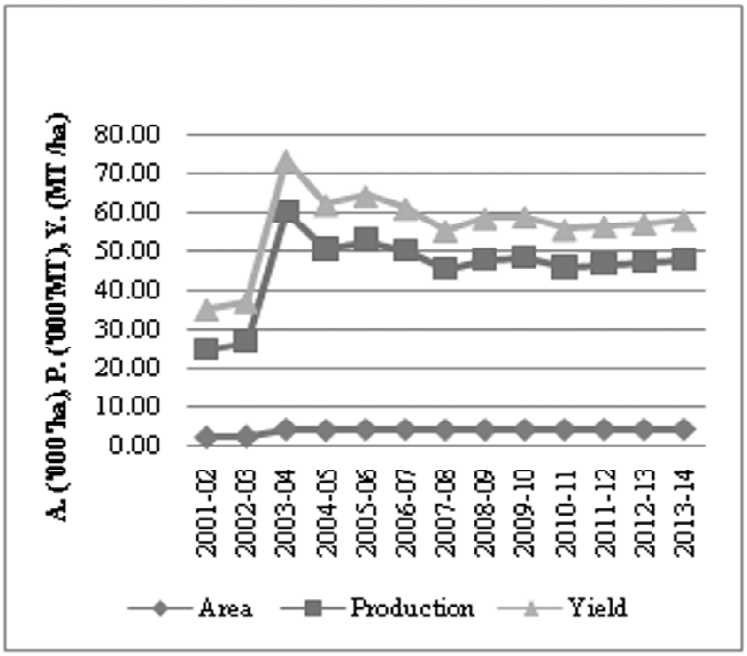

Figure 4(g): Trends of vegetables in district Lahaul & Spiti

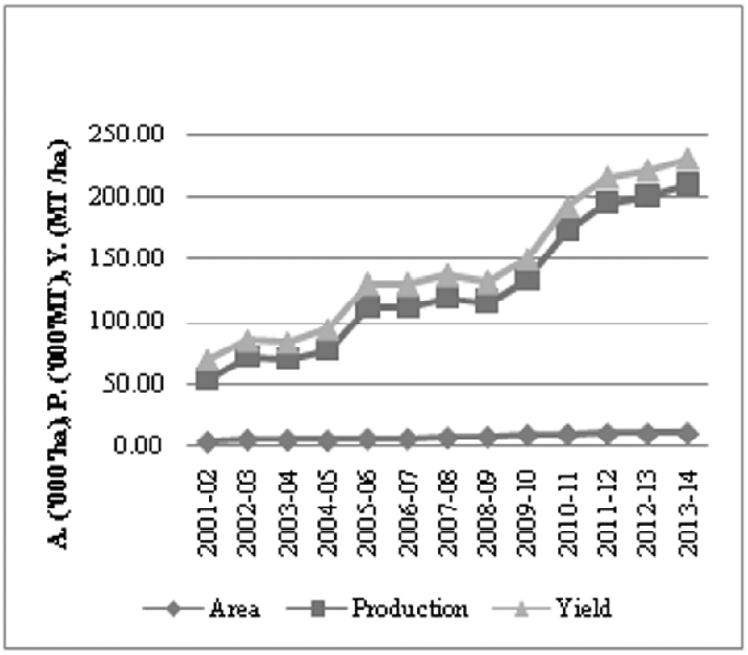

Figure 4(h): Trends of vegetables in district Mandi

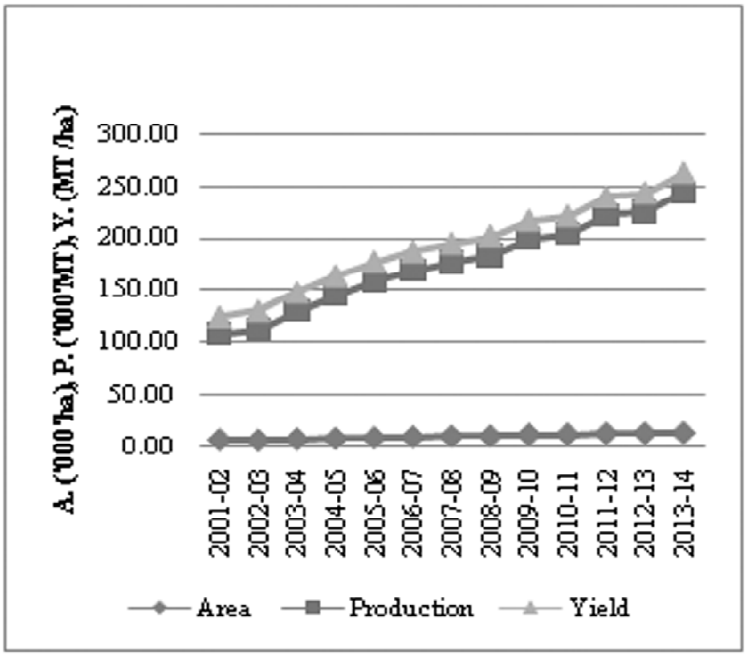

Figure 4(i): Trends of vegetables in district Shimla

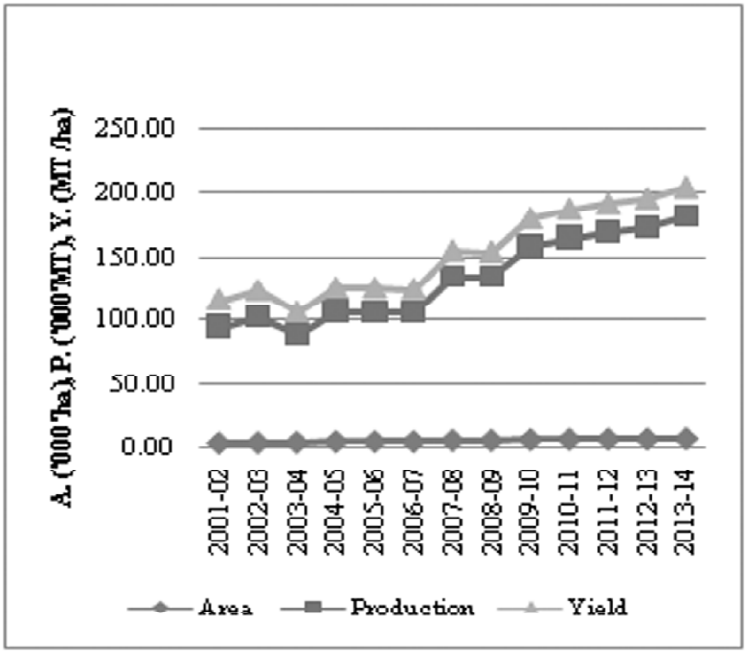

Figure 4(j): Trends of vegetables in district Sirmour

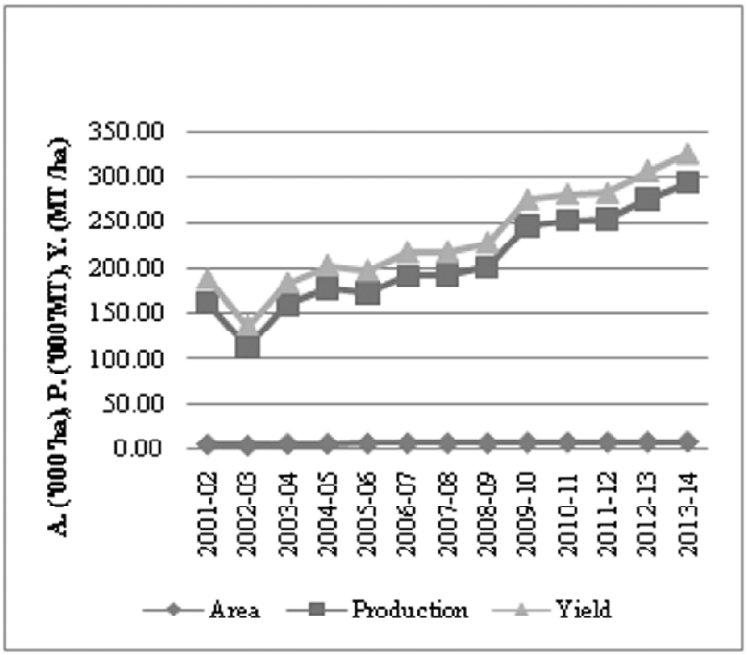

Figure 4(k): Trends of vegetables in district Solan

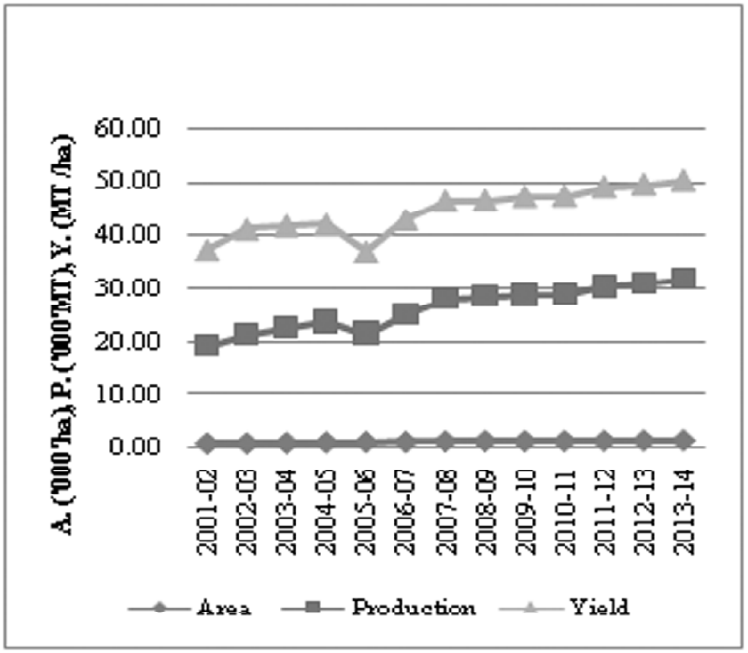

Figure 4(l): Trends of vegetables in district Una

Table 5
Cropping pattern on sample all organic farms in Himachal Pradesh

Kharif crops	*All organic farms*						*Rabi crops*						
	Area (Ha.)/ per farm		*Prod. (Qtls)/ per farm*		*Yield (Qtls/Ha.)*			*Area (Ha.)/ per farm*		*Prod. (Qtls)/ per farm*		*Yield (Qtls/Ha.)*	
	*IR**	*RF***	*IR**	*RF***	*IR**	*RF***		*IR**	*RF***	*IR**	*RF***	*IR**	*RF***
Maize	0.00 (0.00)	0.05 (6.67)	0.00	2.18	0.00	43.60	Wheat	0.00 (0.00)	0.05 (6.67)	0.00	1.46	0.00	29.20
Beans	0.005 (8.33)	0.07 (9.33)	0.56	7.03	112.00	100.43	Barley	0.00 (0.00)	0.02 (2.67)	0.00	0.32	0.00	16.00
Capsicum	0.014 (23.33)	0.07 (9.33)	2.06	9.79	147.14	139.86	Pulses	0.00 (0.00)	0.01 (1.33)	0.00	0.46	0.00	46.00
Tomato	0.02 (33.33)	0.06 (8.00)	6.40	15.69	320.00	261.50	Potato	0.00 (0.00)	0.02 (2.67)	0.00	1.74	0.00	87.00
Cabbage	0.00 (0.00)	0.01 (1.33)	0.00	2.81	0.00	281.00	Peas	0.007 (11.67)	0.05 (6.67)	0.42	2.81	60.00	56.20
Cauliflower	0.00 (0.00)	0.02 (2.67)	0.00	3.42	0.00	171.00	Beans	0.00 (0.00)	0.01 (1.33)	0.00	0.98	0.00	98.00
Other vegetables	0.004 (6.67)	0.04 (5.33)	0.44	4.35	110.00	108.75	Cab-bage	0.01 (16.67)	0.02 (2.67)	2.37	3.94	237.00	197.00
Pulses	0.00 (0.00)	0.02 (1.33)	0.00	0.52	0.00	26.00	Cauli-flower	0.00	0.01 (0.00)	0.00 (1.33)	1.69	0.00	169.00
Condiments & spices	0.00 (0.00)	0.02 (2.67)	0.00	1.05	0.00	52.5	Oil-seeds	0.00 (0.00)	0.02 (2.67)	0.00	0.41	0.00	20.50
Fodder crops	0.00 (1.33)	0.01 (0.00)	0.00	3.36	0.00	336.00	Con diments & spices	0.00 (0.00)	0.02 (2.67)	0.00	0.71	0.00	35.50
Flower@	0.00 (0.00)	0.01 (1.33)	0.00	0.00	0.00	0.00	Fodder crops	0.00	0.006 (0.00)	0.00 (0.80)	1.56	0.00	260.00
Orchard	0.00 (0.00)	0.07 (9.33)	0.00	3.97	0.00	56.71	Flower	0.00 (0.00)	0.01 (1.33)	0.00	0.00	0.00	0.00

(*contd*...)

(*Table 5 contd...*)

Kharif crops	*All organic farms*						*Rabi crops*	*All organic farms*					
	Area (Ha.)/ per farm		*Prod. (Qtls)/ per farm*		*Yield (Qtls/Ha.)*			*Area (Ha.)/ per farm*		*Prod. (Qtls)/ per farm*		*Yield (Qtls/Ha.)*	
	*IR**	*RF***	*IR**	*RF***	*IR**	*RF***		*IR**	*RF***	*IR**	*RF***	*IR**	*RF***
							Orc-hard	0.00 (0.00)	0.07 (9.33)	0.00	0.00	0.00	0.00

Source: Field survey for study, year 2011-12

Note: *Irrigated and **Rainfed, Figures in parenthesis are the percentage to gross cropped area, @Carnation and Guldavari flowers were raised by farmers, the production of flowers usually taken in sticks of flower produced by plant of flower in a year, and consolidated in rupees term, therefore only land area under flower cultivation is being taken here

Table 6
Composition of annual farm income on sample organic farms in Himachal Pradesh

(Rs./per farm)

Sources	*Organic farms*			
	Marginal farms	*Small farms*	*Other farms*	*All farms*
I. Food grains & other mis-cellaneous crops	6866.21 (3.06)	22605.50 (6.66)	28471.25 (6.48)	12174.58 (4.53)
II. Vegetables	98412.68 (43.91)	135895.00 (40.02)	157392.50 (35.82)	111807.13 (41.60)
III. Fruit crops	5017.86 (2.24)	15781.25 (4.65)	60875.00 (13.86)	12756.25 (4.75)
IV. Dairy & other Livestock	57341.43 (25.58)	76517.50 (22.54)	82620.00 (18.80)	63704.50 (23.71)
Total farm income (I+II+III+IV)	167638.18 (74.80)	250799.25 (73.86)	329358.75 (74.96)	200442.46 (74.59)
Non-farm income*	56485.71 (25.20)	88750.00 (26.14)	110000.00 (25.04)	68290.00 (25.41)
Total income	224123.89 (100.00)	339549.25 (100.00)	439358.75 (100.00)	268732.46 (100.00)
Per capita income	37941.17	53054.57	64139.96	43583.73

Source: Field survey for study, year 2011-12

Note: Figures in parenthesis are the percentage to total income; other miscellaneous crops include pulses, oilseeds, condiment & spices and fodder crops,
*Non-farm income includes income from non-farm employment activities such as; government job, private job, business, non-agriculture labour work & miscellaneous household works

On marginal organic farms lack of knowledge and unavailability of pop got equal response and tied together at first and second place. Lack of marketing facilities got third rank. Fear of decline of production and lack of organic substitutes of chemical fertilizers got equal responses at fourth and fifth place hence given tied rank. Other farmers are practicing conventional farming, and farmers are reluctant to form groups for group certification, got sixth and seventh rank. Organic seeds unavailability and local conditions are conducive for conventional farming got eight and ninth ranks, respectively.

On small organic farms lack of knowledge took first rank, followed by pop not available and fear of decline in production got equal ranks at second and third place. Lack of marketing facilities came at fourth place. No substitutes of chemical inputs came at fifth place. Farmers are reluctant to form groups for group certification got sixth rank. At seventh place was other farmers are doing conventional farming. Local conditions are conducive for conventional farming and organic seeds unavailability got eight and ninth places, respectively.

Table 7
Constraints behind in adoption of organic agriculture on sample organic farms in Himachal Pradesh

Sr. No.	Constraints	Marginal farms			Small farms			Other farms			All farms		
		SRS	Rank	RBQ	SRS	Rank	RBQ	SRS	Rank	RBQ	SRS	Rank	RBQ
1.	Lack of knowledge	0.92	1.5	87.02	0.90	1	90.00	0.85	3	66.11	0.91	2	80.89
2.	Package of practice not available	0.92	1.5	87.02	0.88	2.5	72.92	0.95	1	95.00	0.92	1	91.50
3.	Fear of decline in production	0.76	4.5	46.71	0.88	2.5	72.92	0.70	6.5	27.22	0.78	4	52.00
4.	Limited or non-availability of organic substitutes of chemical fertilizers and plant protection chemicals	0.76	4.5	46.71	0.75	5	41.67	0.75	5	41.67	0.76	5	42.22
5.	Local conditions are conducive for conventional farming	0.60	9	6.67	0.63	8	13.89	0.50	9	5.56	0.60	9	6.61
6.	Other farmers are practicing conventional farming	0.75	6	33.33	0.68	7	22.50	0.80	4	53.33	0.74	6	32.89
7.	Organic seeds unavailability	0.63	8	13.97	0.58	9	6.39	0.70	6.5	27.22	0.63	8	13.89
8.	Lack of marketing facilities	0.78	3	60.56	0.78	4	51.67	0.90	2	80.00	0.79	3	61.44
9.	Farmers are reluctant to form group for certification	0.69	7	23.10	0.73	6	32.22	0.60	8	13.33	0.69	7	23.00

Source: Field survey, year 2011-12

On other organic farms, pop not available got first rank, followed by lack of marketing facilities at second place. Lack of knowledge at third place, and other farmers are practicing conventional farming got fourth place. Substitutes of chemical inputs not available got fifth place. Fear of decline in production and organic seeds unavailability got equal response at sixth and seventh place hence given tied ranks. Farmers are reluctant to form groups for group certification and local conditions are conducive for conventional farming got eight and ninth ranks, respectively.

On all organic farms, pop not available, lack of knowledge, marketing problems, and fear of decline in production got first four ranks, respectively. While organic substitutes of chemical inputs and other farmers are practicing conventional farming got fifth and sixth ranks, respectively. Farmers are reluctant to form groups for group certification, organic seeds unavailability, and local conditions are conducive to do conventional farming got seventh, eight, and ninth rank, respectively.

The Kendall Coefficient of Concordance W

It can be concluded from the analysis of Kendall Coefficient of Concordance (Table 8) that there is good similarity among different size of organic farms in their ranking of important constraints behind the adoption of organic farming in the State. It was found that the lack of knowledge (CN1), lack of package of practice or unavailability of uniform practices for organic farming, being its location specific feature, which some time face hindrance in the wider application of any farm practice which is fruitful at one place may not be suitable to another place (CN 2), fear of decline in production (CN3), limited or non-availability of organic substitutions of chemical fertilizer and plant protection chemicals (CN4), other farmers are not showing interest to go for organic farming, and still practicing conventional farming (CN6), lack of marketing facilities (CN8), and reluctance of farmers due to many socio-economic reasons to form group to get benefits of group certification in organic farming (CN 9), are responded by farmers the most important constraints and local conditions are suitable for conventional farming (CN 5), and there is lack of organic seeds (CN7), are judged least important constrains behind the adoption of organic farming in the State. The significance of Kendall coefficient of concordance was testified by using Chi-square test. For that following hypothesis were taken initially into account:

Null hypothesis (H_0) = Different size of organic farms rating of constraints are unrelated

Alternative hypothesis (H_1) = Different size of organic farms rating of constraints are same, or there is good consensus among different size of organic farms concerning the constraints faced by them in the adoption of organic farming.

Table 8
Ranks assigned to constraints behind in adoption of organic farming by sample organic farmers

Raters	CN1	CN2	CN3	CN4	CN5	CN6	CN7	CN8	CN9
Marginal farms	1.5	1.5	4.5	4.5	9	6	8	3	7
Small farms	1	2.5	2.5	5	8	7	9	4	6
Other farms	3	1	6.5	5	9	4	6.5	2	8
All farms	2	1	4	5	9	6	8	3	7
R_i	7.5	6	17.5	19.5	35	23	31.5	12	28
	1.88	1.50	4.38	4.88	8.75	5.75	7.88	3.00	7.00

Note: CN= Constraints

Therefore, the result was:

$$\chi^2 = k\,(N - 1)\,W$$
$$= 4\,(9 - 1)\,(0.896)$$
$$= 28.672$$

Referring to the Chi-square table, it is found that the calculated value of χ^2 greater than the table value of χ^2, with d.f. = 8, and @ 1 per cent level of significance. So, null hypothesis is rejected and accept the alternative hypothesis that there is good consensus among different size of organic farms regarding the constraints faced by them in the adoption of organic farming in the state.

CONCLUSION

There has been a significant growth in tourists' arrival (Indian as well as foreigners) since last one decade. This positive growth trend should continue, because tourism has emerged as a significant sector in the economic development of Himachal Pradesh. Therefore, it is imperative to think out of the box to attract more tourists for long time. Recent years, has observed a visible shift towards vegetable production in Himachal Pradesh. There has found a significant increase in vegetables production in Himachal Pradesh. Sample organic farms have devoted higher percentage area to gross cropped area under vegetables in both kharif and rabi season. Maximum part of their annual income comes from vegetables production. For sustainable vegetable production, organic vegetable farming has emerged a vital option in the State. Promotion of organic farming is directly linked with the market for organic products. Promotion of organic tourism can provide ready market to organic vegetables. This will certainly enhance the income of organic vegetable growers, and will provide employment security, especially of the small and marginal farmers. Organic vegetable farming being a group activity at present in the State can give an opportunity to farmers to establish rural enterprise, wherein they can collectively take decisions

and collectively promote their organic produce. Promotion of organic tourism directly creates a niche market for organic vegetables. Let's take organic farming at supply side, here the idea is supply will create its own demand, but this cannot happen true, because unless this supply does not supported by the potential demand for organic produce. And this potential demand can further be supplemented with the influx of tourists who will demand organic products. Therefore, demand and supply will go simultaneously. But before that supply side needs many more efforts, so that the current constrains behind the adoption of organic farming could be reduced.

References

Annual Season and Crop Report for 2006-07, Directorate of Land Records, Himachal Pradesh, pp. xiii-xiv.

Economic Survey of Himachal Pradesh 2014-15, Department of Economics and Statistics, Government of Himachal Pradesh.

Kothari, CR 2007, *Research Methodology Methods & Techniques,* New Age International (P) Limited, Publishers, New Delhi, pp. 307-309.

Organic Farming Policy 2011, Department of Agriculture, Government of Himachal Pradesh.

Partap, T 2011, 'Organic Farming Potential for Green Productivity, Ecological Services, and Sustainable Rural Development' in *Organic Agriculture and Agribusiness Innovations and Fundamentals,* Asian Productivity Organization, Tokyo, Japan, pp. 21-27.

Report on Agriculture Census 2000-01, Directorate of Land Records, Himachal Pradesh, pp. 31-32.

Siegel, S & N John Castellan, Jr 1988, *Nonparametric Statistics for the Behavioral Sciences,* 2nd edn, McGraw-Hill Book Company, Singapore, pp. 262-266.

Singh, SR et.al. 2001, 'Organic Farming Technology for Sustainable Vegetable Production in Himachal Pradesh', *Himachal Journal of Agriculture Research,* Vol. 26, No. ½, pp. 69-73.

Status of Agriculture in Himachal Pradesh, Department of Agriculture, Government of Himachal Pradesh, pp. 1-3.

Tourism Policy 2005, Department of Tourism and Civil Aviation, Government of Himachal Pradesh, Available from: <http://www.tourism.gov.in/sites/default/files/himachal_pradesh.pdf>. [12 December 2015].

The Proposed Model

↓

Step 1: Base Line Survey

1. Identification of the area
2. Selection of vegetable clusters
3. Selection of farmer's group
4. Identification of individual farmer in group (vegetable grower)

↓

Step 2: Keep a continuous watch

1. Systematically keeping the record or agricultural activities and developing the farmer's and his farming practices history account.
2. Disseminating the organic farming production method among farmers through regular visits by concerned subject specialist
3. Providing the avenues of markets, and emphasizing the niche markets for organic produce
4. Emphasizing the development of organic input unit among farmer's group
5. Community policing so that nobody use chemical inputs in a group

↓

Step 3: Supportive initiatives

1. Linking organic farming practices with organic tourism
2. Organic food festivals or organic meet organized regularly
3. Promotion of organic farm home stay.
4. Formation of organic farm societies.

↓

Likely results:

1. The combination of step 1, 2 & 3 simultaneously will help in branding the area as an organic village, organic panchayat, organic block, organic district and ultimately an organic State.
2. This will give way to overall development of rural area and helpful in sustainable income and employment generation of small and marginal farmers.
3. Simultaneous positive incremental development in above all steps will be beneficial to vegetables' growers, and will develop a ground for organic tourism in the State also.

Annexure Table

Annexure Table A1 Utilization of gross cultivated land on sample organic farms in Himachal Pradesh

(Hectare per farm)

Particular	*Organic farms*			
	Marginal farms	*Small farms*	*Other farms*	*All farms*
Net area sown	0.38	0.86	1.3	0.57
IR*	0.03	0.06	0.10	0.04
RF**	0.35	0.80	1.20	0.53
Area sown more than once	0.2	0.29	0.39	0.24
IR*	0.02	0.03	0.04	0.02
RF* *	0.18	0.26	0.35	0.22
Current fallow	0.22	0.41	0.95	0.31
IR*	0.01	0.03	0.06	0.02
RF**	0.21	0.38	0.89	0.29
Gross cropped area	0.58	1.15	1.69	0.81
	(72.50)	(73.72)	(69.26)	(72.13)
IR*	0.05	0.09	0.14	0.06
	(83.33)	(75.00)	(70.00)	(75.00)
RF**	0.53	1.06	1.55	0.75
	(71.62)	(73.61)	(69.20)	(72.12)
Gross cultivated land	0.8	1.56	2.44	1.12
(Kharif & Rabi)	(100.00)	(100.00)	(100.00)	(100.00)
IR*	0.06	0.12	0.20	0.08
	(100.00)	(100.00)	(100.00)	(100.00)
RF**	0.74	1.44	2.24	1.04
	(100.00)	(100.00)	(100.00)	(100.00)
Cropping Intensity	148.72	133.72	130.00	142.11
IR*	166.67	150.00	140.00	150.00
RF**	151.43	132.50	129.17	141.51

Source: Field survey for study, year 2011-12