

## Growth in Area and Production of Apple in Himachal Pradesh

Dr. Kalim Deen\*

**ABSTRACT :** Fruits and vegetables play a unique role in developing countries like India both in economic and social spheres for improving income and nutritional status particularly of the rural masses. Establishment of orchards not only makes variety of fruits available for human but also help to maintain ecological balance and diversification of cropping pattern. In fruit cultivation, the grower has to plan for a longer period keeping in view his land, labour and capital resources. Though the initial cost of establishing an orchard is fairly high, the cost of maintenance during the fruiting period is almost the same as that for field crops. In many countries, the area under cultivation increased over a period of time still leaving large potential for extension of more area under plough. In India, while only about 47 per cent of the total area is under cultivation, the cultivable waste which constitutes only about five per cent of the total area, can at best be utilized for cultivation. In Western Himalayas, i.e., Jammu and Kashmir, U.P. hills and Himachal Pradesh, more emphasis is being made on the development of horticulture because of suitability of climate, more returns and it helps in maintaining eco-system, soil conservation and proper utilization of cultivable waste, etc. Relatively a larger proportion of the geographical area is devoted to fruit cultivation in Himachal Pradesh than elsewhere in the country. The main fruits grown in these hilly areas are apple, apricot, peach, plums, cherry, citrus, mango etc., amongst which apple occupies the significant position. Commercially too, apples are second to no other fruit grown in Himachal Pradesh. The apple alone accounts for more than 45 per cent of the total area under fruits and 90 per cent of production of all the fruits in the state.

**KEY WORDS:** Ecological balance, Diversification of Cropping Pattern, Labour and Capital Resources, Field Crops, Eco-System, Soil Conservation, Fruit Cultivation.

Lecturer in Economics, Govt. Sr. Sec. School, Saintari, Distt. Shimla(HP)

**INTRODUCTION :** Apple is the one of the most produced fruits in the world. China, USA and Turkey are the top three countries in the production of apple. According to USDA, China is the top most producer of apple with producing 43 million tonnes in the year 2015-16. Apple is mostly grown in colder areas, which suits the climate in these countries. The second largest contributor is United States. It produced 41 million tonnes of apple in the year 2013-14. In the same year, the yield of apple was 3,10,000 tonnes. The production is high in comparison to previous years. Nearly every state in the US produces apple. None the less around 70 per cent of apple is produced in the state of Washington. In the US, apple is the second most commonly consumed fruit. 2,500 varieties of apples are raised in the US including McIntosh, Rome, Gala, Red delicious and many more. These apples are also a huge source of income due to exports. On the 3rd position is Turkey. It produced 25 million tonnes of apple in the year 2015. The production was whopping high from the previous year. The yield for the year 2013-14 was 1,80,000 tonnes. Turkey produces one of the finest apples in the world. Due to better method of cultivation and storage, the country did well then the previous year, which was worst in last 10 years. The produced apples are exported throughout the world.

**WORLD SCENARIO IN AREA AND PRODUCTION OF APPLE :** The comparison of major apple producing countries in the world in the year 2002 and 2013 in production, area and yield wise has been presented in Table 1.1. Table reveals that in year 2002, the production of apple was highest in China i.e. 19.25 million tonnes, area and yield was 1.94 million hectares and 9.93 tonnes/hectare respectively, whereas, in the year 2013, the production, area and yield has been increased to 39.68 million tonnes, 2.41 million ha and 16.47 tonnes/hectare respectively.

United States of America holds 2nd position, the production of apple 3.87 million tonnes in year 2002. The area and yield was found 0.16 million hectares and 24.20 tonnes per hectare respectively followed by Turkey, Poland, Italy, India, France, Chile, Iran and Russian Federation with their share in production 2.20, 2.17, 2.20, 1.16, 2.43, 1.15, 2.33 and 1.95 million tonnes and the area under apple has been found to be 0.11, 0.17, 0.06, 0.24, 0.07, 0.03, 0.15 and 0.52 million hectares with the yield which was found 20.00, 12.87, 36.33, 4.83, 37.08, 32.98, 15.66 and 3.73 tonnes per hectare respectively. Whereas, in the year 2013, the production, area and yield has been increased. The pro-

duction in China, USA, Turkey, Poland, Italy, India, France, Chile, Iran and Russian Federation has been recorded 39.68, 4.08, 3.13, 3.09, 2.22, 1.92, 1.74, 1.71, 1.69 and 1.57 million tonnes respectively. The yield wise Chile ranked the 1st position with 45.53 tonnes/hectare followed by France, Italy, USA, Turkey, China, Poland, Iran, Russian Federation and India with their proportional share 43.98, 40.11, 31.11, 18.07, 16.47, 15.95, 13.05, 8.44 and 6.14 tonnes per hectare respectively. It is clear from the table that yield wise India ranked the 10th position in the world in production of apple. (Table 1.1)

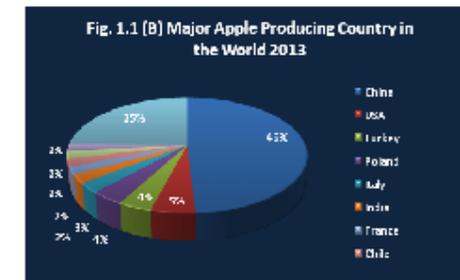
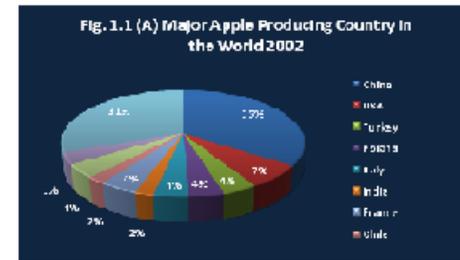
Figure 1.1 (A) shows the percentage wise share of major apple producing country in the world in the year 2002. The China has the highest 35 per cent share in production followed by USA, Turkey, Poland, Italy, France, Chile and India with their share 35 per cent, 7 per cent, 4 per cent, 4 per cent, 4 per cent, 4 per cent, 2 per cent and 2 per cent respectively. The rest of other countries has 31 per cent share in world fruit production. Whereas, in the year 2013, this production has been increased to 49 per cent, 5 per cent, 4 per cent, 4 per cent, 3 per cent, 2 per cent and 2 per cent in China, USA, Turkey, Poland, Italy, India, France and Chile respectively. The share of other countries in world wise production has been found 25 per cent. Figure 1.1 (B)

Table 1.1

Major Apple Producing Country in the World

Countries	Production (Million tonnes)	2002 Area (Million ha)	Yield (Tonnes/ha)	Production (Million tonnes)	2013 Area (Million ha)	Yield (Tonnes/ha)
China	19.25	1.94	9.93	39.68	2.41	16.47
USA	3.87	0.16	24.20	4.08	0.13	31.11
Turkey	2.20	0.11	20.00	3.13	0.17	18.07
Poland	2.17	0.17	12.87	3.09	0.19	15.95
Italy	2.20	0.06	36.33	2.22	0.06	40.11
India	1.16	0.24	4.83	1.92	0.31	6.14
France	2.43	0.07	37.08	1.74	0.04	43.98
Chile	1.15	0.03	32.98	1.71	0.04	45.53
Iran	2.33	0.15	15.66	1.69	0.13	13.05
Russian Federation	1.95	0.52	3.73	1.57	0.19	8.44
Others	17.04	1.56	10.92	20.00	1.55	12.90
World Total	55.75	5.01	11.13	80.82	5.22	15.48

Source: FAOSTAT Website (<http://faostat3.fao.org/home/E>, accessed on 2 July 2015).



**STATE WISE SCENARIO IN AREA AND PRODUCTION OF APPLE IN INDIA:** India produces all deciduous fruits including some fruits (apple and pear) and stone fruits (peach, plum, apricot and cherry) in considerable quantity. These are mainly grown in North-western Indian states of Jammu and Kashmir, Himachal Pradesh and hills of Uttar Pradesh. The North Eastern hill regions, comprising of the states of Arunachal Pradesh, Nagaland, Meghalaya, Manipur and Sikkim also grows some of the deciduous fruits on a limited scale. Due to introduction and adoption of low chilling cultivars of crops like peach, plum and pear, they are also now being grown commercially in certain areas of the north India's plains. Out of all deciduous fruits, apple is the most important in terms of production and extent. Jammu and Kashmir is ranked first for producing apple in the country and it recorded for 64.1 per cent of the total production of apple in the country in the year 2010-11. The state produces 1.85 million metric tonnes of apple from an area of 0.14 million hectare with productivity of 13.1 metric tonnes per hectare. The recommended variety of apple in the state are Iris Peach, Benoni, Star crimson, American mother, Razakwar, Janathan (P), Cox's orange, Pippin (P), Red gold (P), Queen's apple, Rome beauty, Scarlet Siberian, King Pippin, American Apironge, Kerry pippin, Sunhari Chamuri, Golden delicious (P), Red Delicious, Ambari Baldwin and Yellow Newton (P). The production of apple is concentrated in Srinagar,

Budgam, Pulwama, Anantnag, Baramullah and Kupwada regions of the state.

Himachal Pradesh is the second largest producer of apple after Jammu and Kashmir in the country and accounts for 30.9 per cent of the total production of apple in the country in the year 2010-11. The state produces 0.89 million metric tonnes apple from an area of 0.10 million hectare with productivity of 8.8 metric tonnes per hectare. The recommended varieties of apple in the state are Tydeman's Early, Michael Molies, Delicious Schlomit, Starling Delicious, Red Delicious, Richard, Vance Delicious, Top Red, Lord Lam, Red Chief, Organ Spur, Red spur, Red gold (P), Golden Delicious (P), Yellow Newton (P) and Winter Banana Granny Smith (P). The production of apple is concentrated in Shimla, Kullu, Sirmour, Mandi, Chamba, Kinnaur and Lahaul and Spiti regions of the state. Uttarakhand is ranked third in the production of apples in the country and accounts for 4.7 per cent of total production of apples in the country in the year 2010-11. The state produces 0.14 million metric tonnes of apples approximately from an area of 0.03 million hectare having productivity of 4.1 metric tonnes per hectare which is the second highest after Jammu and Kashmir. The recommended varieties of apples in the state are early Shanburry (P), Fenny Benoi, Charibattia Princess, Red Delicious, Starkling Delicious, Meintosh (P), Cortland, Golden Delicious (P), Rymer and Buckingham (P). The production of apples is concentrated in Amora, Nainital, Pithoragarh, Tehri Pauri, Chamoli and Uttarkashi region of the state.

Arunachal Pradesh produces about 0.3 per cent of the total production of Apples and is ranked fourth among apple producing states in the country in the year 2010-11. The production of apples is about 10,000 metric tonnes from an area of about 13,000 hectares having productivity of 0.8 metric tonnes per hectare forming about 9.27 per cent of the total production of fruits in the state. The major apple growing belts in the state are Tawang, West Kenneng and Lower Subansiri. State wise area and production of apple in India as depicted in year 2012-13, 2013-14 and 2014-15 has been described in the Table 1.2. This table reveals that Jammu and Kashmir has the highest area and production of apple in the year 2012-13. The area under apple was 50.49 per cent and production was 70.39 per cent of total in the year 2012-13. Whereas, in the year 2013-14 and 2014-15, the area and production has been increased. In the year 2013-14 the area and production of apple in Jammu and Kashmir was 51.39 per cent and 65.97 per cent of the total

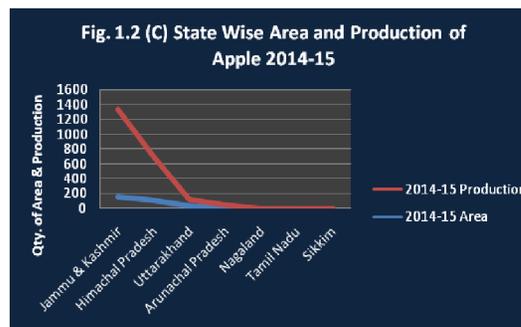
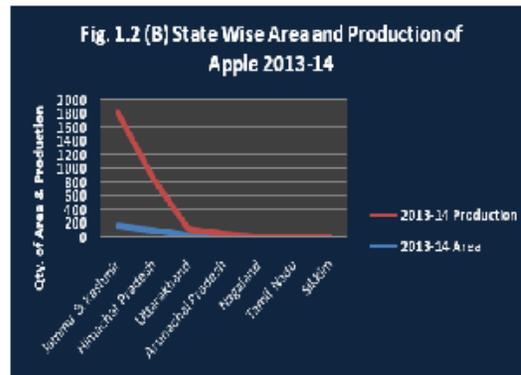
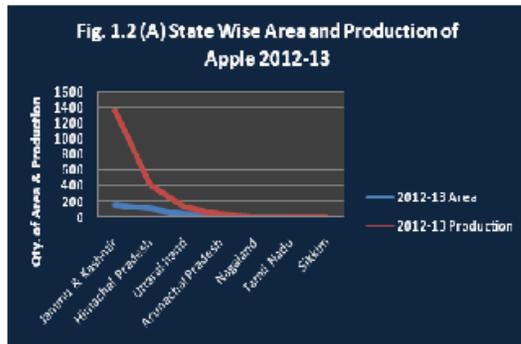
respectively. Himachal Pradesh has 2nd position in area and production of apple in the country with their proportional share 34.10 and 21.53 per cent respectively followed by Uttarakhand, Arunachal Pradesh, Nagaland, Tamil Nadu and Sikkim with their share in area was 10.84, 4.52, 0.03, 0.00 and 0.02 per cent and in production the percentage share was 6.43, 1.62, 0.03, 0.02 and 0.02 per cent respectively. Whereas, in the year 2013-14 and 2014-15 the area and production of Himachal Pradesh in the year 2013-14 the area was 34.40 and it has been decreased to 33.68 per cent in the year 2014-15. Whereas, the production in the year 2013-14 was 29.58 per cent and it increased to 31.25 per cent of total in the year 2014-15.

The area under other states like Uttarakhand, Arunachal Pradesh and Nagaland has been found to be 9.57, 4.56 and 0.07 per cent of total area respectively in the year 2013-14 and there was no area found under apple in Tamil Nadu and Sikkim state of the country. The production of apple has been found to be 3.10, 1.28, 0.08 per cent in Uttarakhand, Arunachal Pradesh and Nagaland in the year 2013-14 respectively, whereas, it has been increased to 4.85 and 1.70 per cent in the state of Uttarakhand and Arunachal Pradesh respectively and decreased to 0.01 per cent in Nagaland in the same year. Tamil Nadu and Sikkim has nil production of apple during the year 2014-15. (Table 1.2 and Figures 1.2 A, B and C).

**Table 1.2**  
State Wise Area and Production of Apple

Sl No.	State/Ut	2012-13		2013-14		2014-15	
		Area	Production	Area	Production	Area	Production
1	Jammu & Kashmir	157.28 (50.49)	1348.15 (70.39)	160.87 (51.39)	1647.69 (65.97)	163.43 (51.11)	1170.31 (62.09)
2	Himachal Pradesh	106.23 (34.10)	412.40 (21.53)	107.69 (34.40)	738.72 (29.58)	107.69 (33.68)	588.97 (31.25)
3	Uttarakhand	33.76 (10.84)	123.23 (6.43)	29.97 (9.57)	77.45 (3.10)	33.91 (10.60)	91.47 (4.85)
4	Arunachal Pradesh	14.07 (4.52)	30.95 (1.62)	14.28 (4.56)	31.87 (1.28)	14.50 (4.53)	32.00 (1.70)
5	Nagaland	0.10 (0.03)	0.60 (0.03)	0.21 (0.07)	1.89 (0.08)	0.21 (0.07)	1.89 (0.01)
6	Tamil Nadu	0.00 (0.00)	0.03 (0.02)	0.01 (0.00)	0.03 (0.00)	0.01 (0.00)	0.07 (0.00)
7	Sikkim	0.05 (0.02)	0.03 (0.02)	0.02 (0.00)	0.03 (0.00)	0.02 (0.00)	0.03 (0.00)
	<b>Total</b>	<b>311.50</b> (100.00)	<b>1915.38</b> (100.00)	<b>313.04</b> (100.00)	<b>2497.68</b> (100.00)	<b>319.77</b> (100.00)	<b>1884.73</b> (100.00)

**Source:** Government of India, Horticulture Statistics Division, Department of Agriculture, Corporation and Farmers Welfare, National Horticulture Board Gurgaon-122015.



**GROWTH IN AREA AND PRODUCTION :** Apple occupies an important place among all fruits due to highest per hectare returns. Apple alone accounted for about 46.00 per cent of the area and 82.00 per cent of the production of all fruits in 2014-15 in the state. Thus, apple is of great importance to the State economy. Further, with the development of apple industry in the State, some small-scale allied industries such as

saw mills, fruit processing units, etc. are coming up and which will ultimately provide employment to local people. The details of the area under apples in different districts have been presented in Table 1.3.

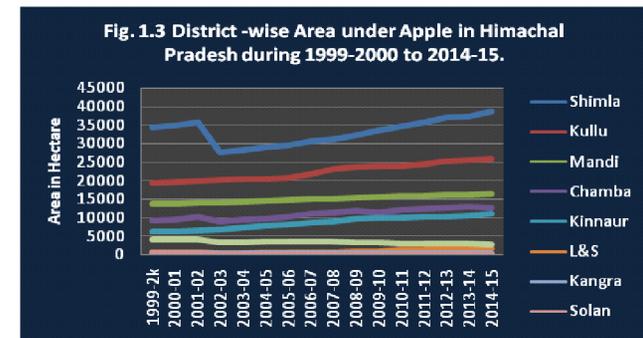
**Table 1.3**

District-wise Area under Apple in Himachal Pradesh during 1999-00 to 2014-15.

(Hectares)

Years	Shimla	Kullu	Mandi	Chamba	Kinnaur	L&S	Kangra	Solan	Sirmour	Total
1999-2k	34465	19383	13727	9207	6249	475	603	552	4008	88669
2000-01	35052	19756	13853	9554	6369	536	603	553	4067	90343
2001-02	35905	19886	14065	10465	6604	608	603	554	4106	92816
2002-03	27678	20116	13957	9020	6840	345	382	110	3178	81626
2003-04	28247	20383	14365	9451	7392	434	404	111	3321	84108
2004-05	29029	20524	14567	9853	7720	533	419	112	3441	86198
2005-06	29671	20821	14832	10441	8151	621	430	112	3477	88556
2006-07	30666	21824	14964	11023	8473	685	444	112	3609	91800
2007-08	31323	23179	15135	11473	8874	734	453	108	3443	94722
2008-09	32195	23663	15353	11842	9671	812	454	100	3344	97434
2009-10	33579	23870	15531	11490	9838	959	450	95	3248	99560
2010-11	34612	24002	15687	12196	9999	1320	431	87	3144	101478
2011-12	35778	24503	15842	12509	10100	1410	430	85	2980	103637
2012-13	37249	25372	16018	12766	10116	1473	420	71	2948	106433
2013-14	37542	25624	16077	12997	10487	1579	393	65	2912	107676
2014-15	38781	25813	16311	12818	10953	1653	396	60	2753	109538
Average	35452	23915	16019	11808	9189	945	488	192	3579	101640
ACGR%	0.74	1.81	1.08	2.09	3.57	8.11	-2.59	-12.95	-2.32	1.33

Source: Government of Himachal Pradesh, Directorate of Horticulture, H.P. Shimla, 1999-00 to 2014-15.



The table 1.3 and figure1.3 reveals that during the years1999-2000 to 2014-15, the area under apple in the state increased at the rate of 1.33 per cent per annum. The maximum area under apple is in Shimla district, followed by Kullu and Mandi districts. But, the rate of growth in area over the years is highest in Lahul and Spiti (8.11 per cent), followed

by Kinnaur (3.57 per cent) and Chamba district (2.09 per cent). From the point of view of absolute area, these districts have small proportion of total apple area of the state and therefore, do not affect the total picture significantly. However, this means that other districts have now also started paying more attention to this crop. The production of apple is too much dependent upon the weather conditions, elevation and age of the plant. Also, apple is an alternative-bearing crop; therefore, there can be large fluctuations in its production. Among the apple producing districts, the production of apple was highest i.e. 13.69 per cent per annum in Sirmour district during the year 2001 to 2016 (Table 1.3).

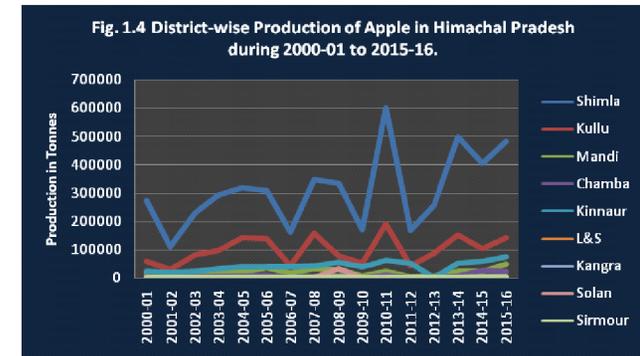
The production of apple in Himachal Pradesh during the periods (2000-01 to 2015-16) has increased significantly with annual compound growth rate of 4.63 per cent, but has shown decreasing trends for Solan district. This may be due to relatively new plantations, lower productivity and certain soil and climatic factors. Rest of the districts recorded higher growth in apple production, except Kangra district, as compared to the state as a whole. Shimla district alone accounts for 65 per cent of total production of the state and the same have increased at the rate of 3.60 per cent annum. However, the productivity of apple in the state is still much less as compared to the apple growing countries of the world. (Table 1.4 and figure 1.4)

**Table 1.4**

District-wise-Production of Apple in Himachal Pradesh during 2000-01 to 2015-16

Year:	Shimla	Kullu	Mandi	Chamba	Kinnaur	L & S	Kangra	Solan	Sirmour	Total
2000-01	274056	58926	16612	4480	21793	113	293	99	362	376736
2001-02	110857	30433	10905	8650	18808	112	300	61	402	180528
2002-03	229207	81489	10147	4238	22177	412	285	87	592	348263
2003-04	294402	98781	23261	8811	33074	135	593	66	367	459492
2004-05	318449	141844	20132	7564	38066	209	710	68	560	527601
2005-06	310252	140633	36421	10367	41101	193	650	59	650	540356
2006-07	163301	43730	16625	3533	40277	191	443	53	245	268398
2007-08	349262	160124+	32283	7744	41550	473	423	27	689	592569
2008-09	334753	77409	30300	8640	55169	577	502	34776	3745	510160
2009-10	171945	54385	8659	3962	40239	193	401	28	242	280104
2010-11	602684	191212	22315	10789	63781	194	425	38	673	892111
2011-12	168634	44619	4417	3074	53290	126	400	19	457	275056
2012-13	239779	87906	9015	2739	520	169	259	23	481	412393
2013-14	499422	152654	24229	7189	54044	200	322	18	644	738722
2014-15	407751	104589	24709	26054	59196	277	309	23	2290	625198
2015-16	482388	143475	48608	24018	75202	272	324	14	2821	777122
<b>Average</b>	<b>311196</b>	<b>100763</b>	<b>21165</b>	<b>8866</b>	<b>41146</b>	<b>217</b>	<b>415</b>	<b>45</b>	<b>768</b>	<b>487799</b>
<b>ACGR%</b>	<b>3.60</b>	<b>5.72</b>	<b>6.94</b>	<b>11.87</b>	<b>8.85</b>	<b>5.64</b>	<b>0.95</b>	<b>-8.48</b>	<b>13.69</b>	<b>4.63</b>

Source: Government of Himachal Pradesh, Directorate of Horticulture, H.P. Shimla, 2000-01 to 2015-16



**CONCLUSION :** Thus, it can be concluded from the above analysis that horticultural industry in the state has developed as a business proposition since long back and has been witnessing continuous rise in area and production. The area and production of fruits has increased by 3.00 per cent annually. The analysis reveals that among all fruits apple alone accounted for 48.00 per cent of area and 74.00 per cent of production of all fruits in the state. Further, study indicates that Shimla, Kullu and Kinnaur districts in terms of production, whereas, Shimla, Kullu and Mandi districts are the leading districts in terms of acreage under the apple. Shimla district alone accounts for 35.00 per cent of area and 65.00 per cent of total production of apple in the state. The share of Kinnaur district in total area and production of apple in the state during 2014-15 was 10.00 and 9.47 per cent respectively.

**REFERENCES:**

1. Agro Economic Research Centre, "Fruits Industry of Himachal Pradesh is Retrospect and Prospect", occasional paper no. 3, (Mimeo), Agro Economic Research Centre, Himachal Pradesh University, Shimla, 1985.
2. www.worldatlas.com/article/top
3. <https://www.statista.com>>----->Farming
4. Government of India, "Ministry of Agriculture of Food Processing Industry", Indian Horticulture Database, New Delhi, 2012, p.40
5. Government of Himachal Pradesh, "Statistical Outlines of Himachal Pradesh", Directorate of Economics and Statistics Department, Shimla, 2003-04, p.9.
6. Government of Himachal Pradesh, "Report on Agricultural Census", Directorate of Land Records, Shimla, 1996-97, p.5.
7. Government of Himachal Pradesh, "Statistical out lines of Himachal Pradesh", Directorate of Economics and Statistics Department, Shimla, 2003-04, pp.79-80
8. Government of Himachal Pradesh, "Report on Agricultural Census", Directorate of Land Records, Himachal Pradesh, Shimla, 2005-06, pp.21-22
9. Government of Himachal Pradesh, "Statistical Abstract of Himachal Pradesh", Department of Economics and Statistics, Shimla, 2015-16, pp.1-14

