



## TRENDS IN AREA AND PRODUCTION OF SUB-TROPICAL FRUITS IN HIMACHAL PRADESH

**Bandna Chauhan**

*Assistant Professor in Economics, Govt. PG College Mandi (HP).*

### **Abstract**

*Fruits cultivation plays an important role in the economy of the state. Besides nutritional advantages, the production of fruit crops is the only vocation through which higher income can be generated. Earlier emphasis was laid to the production of apple and stone fruits in the state, but now equal emphasis is being given on citrus and other sub-tropical fruits suited to mid-hills and low-hill areas of Himachal Pradesh. Thus, besides apple and stone fruits, citrus is of great importance to push up the per capita income and hence living standard of people of low-hill areas. Keeping in view the importance of citrus fruit state government started Market Intervention Scheme (MIS) so that citrus prices can be stabilized. After independence, India has experienced a sharp increase in agricultural and horticultural production. Most of the mountainous states including Himachal Pradesh have not been major beneficiary of Green Revolution. However, there have been considerable changes in the agricultural and allied activities scenario of the state particularly after its attainment of statehood in early 1980s. The present paper therefore aims at analysing the spatial variations and dynamics of horticultural acreage and production in Himachal Pradesh. The study is based on secondary data obtained from Directorates of Land Records, Horticulture and Agriculture. The study reveals that although the production of sub-tropical fruits has increased but the area under these fruits has decreased during the study period.*

**Key words:** *Spatial pattern, Dynamics, Acreage, Production, Horticultural Crops, Sub-Tropical fruits, Himachal Pradesh, India.*

### **Introduction**

The varied agro-climatic conditions of Himachal Pradesh are suitable for growing various fruit crops. With the effort of state department of horticulture, Himachal has become one of the leading states in India for the production of high-quality temperate fruit particularly apple, while the popularity of stone and sub-tropical fruit too has been increasing in lower and mid hill areas. Fruit crops play an important role in the economy of the state. Cereal cultivation except for some areas, does not offer good potential to sustain wellbeing of Himachal's people. Therefore, the best use of the land can only be made through cultivation of commercial field crop and horticultural crops. Besides nutritional advantages, the production of fruit crops is the only avocation through which higher income can be generated. It also helps in conserving soils and gives more employment opportunities as well. Earlier emphasis was given to the production of apple and stone fruits only but now equal emphasis is on citrus and other fruits suited to lower and mid-hill areas. However, the production and marketing facilities for citrus growers are not up to desired level and major part of the produce has to be disposed off, many times, at prices below the remunerative level resulting in lower returns to orchardists. This is one of the most important disincentives.

The unique locational and climate advantages enjoyed by the State make it an ideal region for growing almost all kinds of fruits: temperate sub-tropical and dry fruits. The temperate fruits are grown in upper region of the state, while sub-tropical fruits are popular at lower altitudes. The main objective of this



paper is to examine the trends in area and production of sub-tropical fruits in different districts of Himachal Pradesh. Data Base and Methods of study the present study is entirely based on secondary sources of data. The secondary data pertaining to area and production of Sub-tropical Fruits have been collected from Directorates of Land Records, Horticulture and Agriculture, Himachal Pradesh. The spatial-temporal variations in pattern of area and production have been shown with the help of tables and the trends in area and production have been analysed with the aid of CAGR.

### Area under different Fruits in Himachal Pradesh

The areas of different fruits are given in Table No-1. The table indicates that the apple occupied 48 to 74 per cent of the area under all fruits in the state during 2018-19. Area under apple increased from 80338 hectares in 1996-1997 to 113154 hectares in 2018-19 with compound annual growth rate of 1.50 per cent during this period. But the area under other temperate fruits has also decreased from 31196 hectares to 28386 hectares in the period studied. Similarly, the area under the nuts and dry fruits also decreased from 15478 hectares to 10194 hectares with negative growth rate.

The area under the citrus fruits decreased from 38369 hectares in the period 1996-1997 with negative annual growth rate (-1.87 percent). The area under other tropical fruits was 30831 hectares in the 1996-1997 which was increased 55536 hectares in the year 2018-19 with compound annual growth rate of 2.59 per cent during this period.

In general, the area under all fruit crops increased from 196212 hectares in 1996-1997 to 232139 hectares in 2018-19 which recorded a growth rate of 0.73 per cent during the period under reference.

**Area under different fruits in Himachal Pradesh (In hectare) Table no. 1**

Year	Apple	Other Temperate Fruits	Nuts & Dry Fruits	Citrus	OTHER Tropical Fruits	Sub. Total
1996-1997	80338	31196	15478	38369	30831	196212
1997-1998	83056	31768	15832	38635	33071	202362
1998-1999	85631	32051	16061	38711	34786	207240
1999-2000	88673	32557	16396	39138	36187	212951
2000-2001	90347	32996	16619	39627	37637	217226
2001-2002	92820	33385	16956	40174	39700	223035
2002-2003	81630	24271	10700	19784	39821	176206
2003-2004	84112	24885	10939	20261	42244	182441
2004-2005	86202	25235	11100	20402	43964	186903
2005-2006	88560	25533	11210	20729	45636	191668
2006-2007	91804	26086	11328	21118	47109	197445
2007-2008	94726	26341	11181	21373	46881	200502
2008-2009	97438	26547	11096	21588	47960	204629
2009-2010	99564	26876	11037	22050	48627	208154
2010-2011	101485	27092	11022	22305	49391	211295
2011-2012	103644	27473	11039	22396	50022	214574
2012-2013	106440	27638	10902	22809	50514	218303



2013-2014	107686	27793	10819	23110	51298	220706
2014-2015	109553	27900	10621	23704	52574	224352
2015-2016	110679	27908	10491	24063	53658	226799
2016-2017	111896	28135	10369	24475	54327	229202
2017-2018	112634	25571	10289	24649	57709	230852
2018-2019	113154	28386	10194	24869	55536	232139
<b>CAGR (%)</b>	<b>1.50</b>	<b>-0.41</b>	<b>-1.80</b>	<b>-1.87</b>	<b>2.57</b>	<b>0.731</b>

### Production of different fruits in Himachal Pradesh

Production of different fruits produced in the state has been presented in Table No.2. The data revealed that the production of apple increased from 288538 tonnes in 1996-97 to 368603 tonnes in 2018-19. The production of apple increased at compound growth rate of 1.07 per cent per annum. The production of other temperate fruits increased from 24793 tonnes in 1996-97 to 33848 tonnes in 2018-19 registering compound growth rate of 1.36 percent annually. Again, production of nuts and dry fruits increased from 3344 tonnes to 3649 tonnes with the compound growth rate of 0.38 percent annually during the period under reference. The production of citrus fruits increased from 13834 tonnes to 29344 tonnes with the growth rate of 3.32 percent during this study period. The production of other tropical fruits increased from 21116 tonnes to 59918 tonnes with the growth rate of 4.64 percent annually during the period under study. Overall, the total fruit production increased 1.50 percent annually in this time period.

**Production of different fruits in Himachal Pradesh (In Tonnes) Table No. -2**

Year	Apple	Other temperate Fruits	Nuts & Dry Fruits	Citrus	OTHER Tropical Fruits	Sub. Total
1996-1997	288538	24793	3344	13834	21116	351625
1997-1998	234253	25116	2456	11759	6109	279693
1998-1999	393653	17974	3075	13111	19871	447684
1999-2000	49129	17901	1895	9257	11233	89415
2000-2001	376736	20450	2755	11068	17040	428049
2001-2002	180528	29420	2911	20465	30122	263446
2002-2003	348263	63131	3256	16027	28946	459623
2003-2004	459492	40934	3570	28121	27860	559977
2004-2005	527601	60202	3726	28554	71928	692011
2005-2006	540356	48694	3274	29159	74034	695517
2006-2007	268402	35650	2912	12670	49469	369103
2007-2008	592576	53908	2920	24674	38765	712843
2008-2009	510161	39933	3548	26007	48427	628076
2009-2010	280105	37082	2811	28143	34096	382237
2010-2011	892112	61378	3620	28676	42035	1027821
2011-2012	275036	31181	2489	25037	39080	372823
2012-2013	412395	55024	2809	24316	61164	555708
2013-2014	738723	66133	3478	22273	35737	866344
2014-2015	625199	43611	2414	22165	58549	751938
2015-2016	777126	70259	3373	26624	51447	928829



2016-2017	468134	48689	2982	28051	64021	611877
2017-2018	446574	41910	3378	26853	46592	565307
2018-2019	368603	33848	3649	29344	59918	495362
<b>CAGR (%)</b>	<b>1.07</b>	<b>1.36</b>	<b>0.38</b>	<b>3.32</b>	<b>4.64</b>	<b>1.50</b>

The table also revealed that the apple accounted for about 74.41 per cent of total fruit production in the state during 2018-19. The share of other temperate fruits, nut & dry fruits, citrus, other tropical fruits was 25.59 per cent of total fruit production during the 2018-19.

### District wise Area under Citrus Fruits in Himachal Pradesh

Table No. 3 percent the district wise area under citrus fruits in Himachal Pradesh/State from 1996-97 to 2018-19. It may be seen Kangra district has the maximum area under citrus fruits. The percentages share of the area under citrus fruits of Kangra district to area of the State is 41.09 per cent. In the year 2018-19 followed by Mandi (17.26 percent), Sirmour (11.26 percent), Una (7.92 percent), Hamirpur (6.95 percent), Bilaspur (6.11 per cent), Chamba (2.97 percent), Shimla (2.75 percent) and Kullu (0.16%) and Solan (3.54) respectively. In Kinnaur and Lahul Spiti the area under citrus fruits was found nit. However, in Kangra district people also grow other fruits like mango, litchi etc. due to their high profit ability and lower risk involved. The area under citrus fruits has negative growth of 2.70 percent per annum. The negative growth is observed in all the districts of the state in the study period.

**istrict-Wise Area under Citrus fruits in Himachal Pradesh (In Hectare) Table No.-3**

Year	Shim la	Kull u	Man di	Cha mba	Kinn	Laha	Kang ra	Solan	Sirm aur	Una	Hami rpur	Bilas pur	Total
1996-1997	766	358	5116	1294			16579	3627	3132	2150	2419	2928	38369
1997-1998	768	361	5139	1321			16739	3634	3141	2172	2427	2933	38635
1998-1999	768	361	5147	1324			16783	3635	3143	2177	2429	2944	38711
1999-2000	771	361	5198	1342			17043	3642	3156	2209	2438	2978	39138
2000-2001	775	361	5246	1356			17369	3676	3180	2221	2451	2992	39627
2001-2002	795	368	5257	1384			17693	3719	3237	2252	2468	3001	40174
2002-2003	504	79	4179	603			8568	801	1555	1465	1169	861	19784
2003-2004	519	85	4225	611			8824	817	1600	1490	1212	878	20261
2004-2005	525	85	4232	613			8900	823	1617	1497	1228	882	20402
2005-2006	532	85	4247	631			9089	838	1624	1533	1254	896	20729
2006-2007	571	86	4267	644			9248	854	1658	1575	1300	915	21118
2007-2008	574	86	4257	654			9465	887	1436	1677	1422	915	21373
2008-2009	577	80	4317	659			9517	901	1460	1633	1489	955	21588
2009-2010	580	89	4397	670			9681	893	1496	1681	1561	1002	22050
2010-2011	577	86	4461	668			9751	911	1509	1651	1668	1023	22305
2011-2012	578	81	4503	657			9827	874	1555	1663	1668	990	22396
2012-2013	588	63	4529	662			9922	866	1643	1776	1720	1040	22809
2013-2014	587	68	4477	732			9974	879	1697	1860	1710	1126	23110
2014-2015	613	65	4531	760			10270	877	1704	1921	1750	1213	23704
2015-2016	640	56	4599	742			10317	858	1800	1950	1771	1330	24063



2016-2017	683	48	4632	740			10479	877	1841	1977	1781	1446	24504
2017-2018	693	45	4550	766			10581	886	1869	2020	1816	1423	24649
2018-2019	711	41	4466	768			10629	916	2912	2048	1798	1580	25869
<b>CAGR (%)</b>	<b>-0.32</b>	<b>-8.99</b>	<b>-0.59</b>	<b>-2.24</b>			<b>-1.91</b>	<b>-5.81</b>	<b>-0.32</b>	<b>0.21</b>	<b>1.28</b>	<b>2.65</b>	<b>-2.70</b>

### District wise Area under Kinnow/Santra in Himachal Pradesh

Among citrus fruits Kinnow, Santra ranked first in Himachal Pradesh. This is due to the fact that there are not separate orchards of lemon, galgal but there are interspersed with Kinnow/Santra orchards.

The area under Kinnow/Santra in Himachal Pradesh has been presented in Table No.-4 It is clear from the table that maximum area under Kinnow/Santra is in Kangra district. But the highest growth was observed in Una, Mandi and Shimla districts whereas all other districts show the negative compound annual growth rate. In Himachal Pradesh area under Kinnow/Santra decreased at rate of 2.88 percent during the period of the study. The area under Kinnow/Santra decreased from 13640 hectares in 1996-1997 to 8816 hectares in 2018-19.

District wise AREA of Kinnow/Orange in Himachal Pradesh During 1996-97 to 2018-2019(In Hectare)													
Table No.-4													
Year	Shimla	kullu	Mandi	Chamba	Kinnaur	Lahaul-Sipiti	Kangra	Solan	Sirmaur	Una	Hamirpur	Bilaspur	Total
1996-1997	33	86	675	40			10168	275	696	766	487	414	13640
1997-1998	33	87	685	40			10259	275	697	775	491	417	13759
1998-1999	33	87	685	41			10298	276	698	777	493	427	13815
1999-2000	33	87	696	42			10496	277	701	796	496	447	14071
2000-2001	33	87	717	44			10706	279	702	799	501	452	14320
2001-2002	34	87	724	45			10941	285	706	807	508	455	14592
2002-2003	32	22	699	21			5001	269	467	703	180	239	7633
2003-2004	33	23	707	21			5184	269	469	711	187	240	7844
2004-2005	33	23	708	21			5233	270	473	715	189	241	7906
2005-2006	33	23	714	21			5326	270	475	735	194	242	8033
2006-2007	36	23	722	21			5416	271	476	771	200	242	8178
2007-2008	37	23	731	21			5544	273	441	853	214	242	8379
2008-2009	37	21	745	21			5561	272	441	830	223	254	8405
2009-2010	37	26	753	21			5565	263	428	891	237	256	8477
2010-2011	34	25	769	20			5690	261	414	894	265	249	8621
2011-2012	34	22	773	20			5687	208	393	940	265	212	8554
2012-2013	34	21	775	20			5716	188	381	984	276	214	8609
2013-2014	33	21	748	20			5698	177	383	1017	271	226	8594



2014-2015	34	18	754	20			5764	175	383	1039	274	249	8710
2015-2016	34	14	753	16			5736	166	391	1055	283	276	8724
2016-2017	37	9	767	16			5766	168	388	1061	284	269	8765
2017-2018	34	9	748	13			5743	174	379	1069	288	252	8709
2018-2019	35	7	730	13			5728	176	380	1071	281	395	8816
CAGR(%)	0.26	10.33	0.34	-4.77			-2.46	-1.92	-2.60	1.47	-2.36	-0.20	-2.88

### District wise Area under Mango in Himachal Pradesh

Table No.-5 present the district wise area under Mango in Himachal Pradesh. Mango cultivation is concentrated in Kangra, Mandi, Bilaspur, Hamirpur, Sirmaur and parts of Una district. The Kangra district is the major growing district covering an area of 21392 hectares which is 50.63 percent of total area under mango cultivation in Himachal Pradesh. The area under Mango in Shimla, Kullu, Hamirpur, Bilaspur, Mandi, Una, Kangra, Sirmour and Solan was increasing at the rate of 6.58, 4.89, 3.85, 3.52, 2.84, 1.72, 1.29 and 0.61 per cent per annum respectively. Further the table shows that except Chamba all districts have positive growth in area under this fruit. The area under Mango, has increased from 26308 hectares to 42248 hectares during the period 1996-97 to 2018-19 at the growth rate of 2.08 percent per annum.

**District-Wise Area Under Mango in Himachal Pradesh During 1996-1997 to 2018-2019 (In Hectare) Table No.-5**

Year	Shimla	Kullu	Mandi	Chamba	Kinnaur	Lahaul- Spiti	kangra	Solan	sirmaur	Una	Hmirpu r	Bilaspur	Total
1996-1997	106	59	2607	570			14443	1477	2279	1377	1511	1879	26308
1997-1998	128	73	2695	583			15213	1542	2383	1485	1811	2386	28299
1998-1999	133	77	2795	591			15833	1572	2533	1585	2028	2686	29833
1999-2000	142	83	2931	603			16277	1637	2662	1680	2105	2813	30933
2000-2001	169	88	3035	619			16689	1705	2806	1698	2227	3001	32037
2001-2002	194	97	3165	662			17390	1804	2932	1839	2378	3223	33684
2002-2003	121	67	2841	366			18701	1547	2668	1652	2159	3258	33380
2003-2004	170	75	2987	398			19580	1638	2795	1756	2282	3463	35144
2004-2005	197	79	3184	424			19952	1663	2812	1787	2465	3652	36215
2005-2006	225	124	3231	437			20400	1838	2839	1888	2605	3821	37408
2006-2007	278	133	3545	452			20891	1845	2912	1888	2605	3821	38370
2007-2008	300	133	3807	469			21245	1873	2381	1814	2730	3088	37840
2008-2009	325	128	3997	476			21147	1864	2504	1758	2881	3364	38444
2009-2010	334	132	4187	488			21144	1572	2518	1815	3007	3484	38681
2010-2011	352	128	4349	490			21065	1629	2543	1881	3130	3627	39194
2011-2012	370	140	4483	502			21048	1598	2589	1986	3172	3680	39568



2012-2013	375	129	4573	526			20960	1655	2744	1915	3224	3727	39828
2013-2014	379	140	4680	537			20963	1732	2804	1916	3338	3809	40298
2014-2015	402	154	4769	525			21248	1761	2847	1990	3463	3946	41105
2015-2016	432	160	4862	523			21286	1670	2919	2066	3560	4045	41523
2016-2017	452	164	4940	522			21345	1645	2935	2120	3526	4116	41765
2017-2018	454	171	4962	526			21359	1680	2979	2165	3541	4152	41989
2018-2019	459	177	4964	531			21392	1698	3060	2203	3601	4163	42248
<b>CAGR(%)</b>	<b>6.58</b>	<b>4.89</b>	<b>2.84</b>	<b>-0.31</b>			<b>1.72</b>	<b>0.61</b>	<b>1.29</b>	<b>2.06</b>	<b>3.85</b>	<b>3.52</b>	<b>2.08</b>

### District wise Area under Litchi in Himachal Pradesh

The details of the area under Litchi in different districts have been presented in Table No.-6 The table revealed that during 1996-97 to 2018-19 the area under Litchi in the State increased at the rate of 4.92 percent per annum. The maximum area under Litchi in the state increased at the rate of 4.92 percent per annum.

The area under litchi in Kangra district was 70.59 percent in 1996-97 which decreased to 54.93 per cent in 2018-19. The area under litchi in Chamba, Sirmour and Una district was 4.07, 5.06 and 3.05 percent in 1996-1997 which also decreased to 3.62, 2.07 and 4.93 percent in 2018-19 respectively. In other districts the area under litchi in Shimla, Mandi, Solan, Hamirpur and Bilaspur was 0.30, 4.71, 0.95, 4.36 and 6.96 percent in 1996-1997 which increased to 0.73, 9.79, 1.01, 11.56 and 11.28 per cent in the 2018-19 respectively. In Kullu district the area under litchi was zero in 1996-1997 it was increased 0.08 percent in 2018-19. The maximum area under litchi was in Kangra district followed by Hamirpur, Bilaspur and Mandi. The rate of growth in area over the years was highest in Hamirpur (9.47 percent followed by Shimla (9.05 percent), Mandi (8.31 percent), Bilaspur (7.15%) and Una (7.15 percent districts respectively.

District-Wise Area Under Litchi in Himachal Pradesh During 1996-1997 to 2018-2019 (In Hectare) (Table No.-6)													
Year	Shimla	Kullu	Mandi	chamba	Kinnaur	Lahul- dhar	kangra	Solan	Sirmaur	Una	Hamir- pur	Bilaspur	Total
1996-1997	6	0	94	80			1409	19	101	61	87	139	1996
1997-1998	7	0	99	86			1490	19	111	66	90	163	2131
1998-1999	7	0	111	88			1576	20	116	67	92	163	2240
1999-2000	8	0	121	91			1642	24	123	76	99	188	2372
2000-2001	10	0	133	94			1726	28	127	77	114	209	2518
2001-2002	11	0	140	109			1841	29	135	83	126	241	2715
2002-2003	13	1	143	59			2132	19	117	79	95	187	2845
2003-2004	13	1	164	61			2302	24	121	87	127	207	3107
2004-2005	23	2	189	63			2418	37	125	97	177	231	3362
2005-2006	24	2	198	65			2507	43	125	108	208	259	3539
2006-2007	28	2	229	78			2629	45	125	126	238	259	3759



2007-2008	33	2	257	81			2712	47	102	146	261	259	3900
2008-2009	34	2	283	82			2757	44	104	148	295	311	4060
2009-2010	35	2	307	84			2806	48	105	188	326	371	4272
2010-2011	39	2	327	83			2818	49	95	196	356	415	4380
2011-2012	40	4	341	118			2912	42	87	218	364	446	4572
2012-2013	39	4	345	140			3002	44	94	235	376	463	4742
2013-2014	36	4	373	211			3025	48	101	258	411	505	4972
2014-2015	37	4	404	221			3142	54	103	261	472	533	5231
2015-2016	37	4	448	215			3142	55	105	264	552	587	5409
2016-2017	45	5	498	214			3231	52	106	270	609	643	5673
2017-2018	44	5	531	216			3303	53	113	286	663	661	5875
2018-2019	44	5	590	218			3311	61	125	297	697	680	6028
<b>CAGR(%)</b>	<b>9.05</b>	<b>9.93</b>	<b>8.31</b>	<b>4.45</b>			<b>3.78</b>	<b>5.20</b>	<b>0.93</b>	<b>7.12</b>	<b>9.47</b>	<b>7.15</b>	<b>4.92</b>

### District wise Production of Kinnow/Santra in Himachal Pradesh

The district wise production of Kinnow/Santra in Himachal Pradesh during 1996-97 to 2018-19 is given in Table No.-7. It may be seen from the table that the production of Kinnow/Santra has been increased from 8818 tonnes to 14978 tonnes during the study period at the annual growth rate of 2.33 percent. In Shimla, Kullu and Chamba districts very few production of kinnow/santra because the production of kinnow/santra because the production of mango dependent upon the climatic condition of the land. In production highest growth rate was observed in Mandi district (16.92 percent). The positive growth is also observed in Solan (13.39 percent) followed by Una (9.82 per cent) Kullu (3.06 percent) Bilaspur (2.36 percent), Kangra (1.28 percent) and Hamirpur 0.83 (percent) rest districts shown negative growth.

The table further revealed that the production of Kinnow/Santra maximum i.e. 87.90 percent in 1996-97 in Kangra district which was decreased to 69.20, percent in the year 2018-2019, whereas, it was lowest in Kinnaur and Lahaul-spiti districts i.e., zero percent in 1996-97 and remained same in the year 2018-19. In other districts the Chamba, Sirmaur, Hamirpur and Bilaspur, the production was 0.15, 5.23, 0.91 and 0.62 percent in 1996-97 and decreased to 0.05, 1.83, 0.44 and 0.63 percent in the year 2018-19 respectively. The remain other district i.e., Mandi, Solan and Una and show the increasing trend and the percentage share of these district production to total production was 0.08, 0.07 and 4.99 percent in the year 1996-99 whereas in the year 2018-19 this percentage becomes 1.70, 0.72 and 25.39 percent respectively. In Shimla district the production was 0.03 percent in the year 1996-97 and become zero in 2018-19 but in Kullu district the percentage share remained constant i.e., 0.01 percent in study period.





<b>District wise Production of Kinnow/Orange in Himachal Pradesh During 1996-97 to 2018-2019 (In Tonnes)</b>													
Year	Shimla	kullu	Mandi	Cham ba	Kinna	Lahau spiti	Kangr a	Solan	Sirma ur	Una	Hamir pur	Bilasp ur	Total
1996-1997	3	1	7	14			7751	6	461	440	80	55	8818
1997-1998	0	1	7	9			6947	9	343	329	10	50	7705
1998-1999	2	0	4	5			8473	16	206	191	45	42	8984
1999-2000	0	0	26	0			5549	14	104	567	86	43	6389
2000-2001	4	1	24	19			4049	99	737	679	193	284	6089
2001-2002	2	0	68	13			11450	8	65	1530	90	67	13293
2002-2003	7	0	35	11			6637	22	485	736	111	10	8054
2003-2004	7	0	45	0			12460	16	159	1406	114	35	14242
2004-2005	2	0	30	6			12659	8	153	735	99	10	13702
2005-2006	1	0	198	15			16789	36	154	1078	110	16	18397
2006-2007	1	0	172	9			3258	30	153	828	144	55	4650
2007-2008	2	3	265	7			13014	58	160	1680	132	42	15363
2008-2009	2	3	291	3			12935	64	171	1781	84	26	15360
2009-2010	2	11	175	14			15089	23	187	1882	21	53	17457
2010-2011	2	16	226	40			15283	32	203	1936	74	37	17849
2011-2012	12	5	202	26			11204	40	226	2035	95	44	13889
2012-2013	7	0	215	47			10345	71	371	2085	49	24	13214
2013-2014	2	0	215	26			6800	76	292	3525	48	26	11010
2014-2015	1	0	200	40			7818	64	285	2440	64	48	10960
2015-2016	8	0	235	4			9375	73	239	3010	56	28	13028
2016-2017	4	0	249	4			10430	61	232	3551	65	91	14687
2017-2018	0	0	253	9			9532	91	294	3808	62	49	14098
2018-2019	0	2	255	8			10379	108	274	3792	66	94	14978
<b>CAGR (%)</b>	-	<b>3.06</b>	<b>16.92</b>	<b>-2.40</b>			<b>1-28</b>	<b>13.39</b>	<b>-2.24</b>	<b>9.82</b>	<b>0.83</b>	<b>2.36</b>	<b>2.33</b>

### District wise Production of Mango in Himachal Pradesh

Table No.-8 present the district wise production of mango in Himachal Pradesh. The data revealed that the mango production in Himachal Pradesh during the period 1996-97 to 2018-19 has increased significantly with annual growth rate of 3.64 percent. In production highest growth rate was observed in district Solan (19.51 percent) followed by Mandi (15.09 percent) and Bilaspur (9.33 per cent) per annum respectively. In Kangra district the production of mango was 16846 tonnes in 2018-19 which was \_\_\_\_ percent of total production. Una district also a major district of mango production. In 2018-19 the mango production in Una district was 12261 which was\_\_ percent of total production in Himachal Pradesh. The table further shows that except Shimla and Chamba all districts have positive growth in production of mango.

The other districts like Shimla, Kullu, Mandi, Chamba, Solan, Sirmaur, Hamirpur and Bilaspur the percentage share of total Mango production was 0.03, 0.06, 7.39, 0.06, 4.71, 7.45, 2.88 and 10.54 percent in the year 2018-2019.



District wise Production of Mango in Himachal Pradesh During 1996-97 to 2018-2019 (in Tonnes)													
(Table No.-8)													
Year	shimla	Kullu	Mandi	Chamb a	kinnaur	Lahaul- Spiti	Kangra	Solan	Sirmau r	Una	Hamirp ur	Bilasp ur	Total
1996-1997	17	14	127	143			10236	34	744	6620	619	590	19144
1997-1998	8	10	168	108			2110	25	273	823	53	446	4024
1998-1999	10	16	311	124			8501	26	1696	3627	2040	541	16892
1999-2000	25	20	480	116			4040	103	1860	945	950	875	9414
2000-2001	4	6	173	25			7514	44	1366	2161	1209	596	13098
2001-2002	9	0	786	845			19567	466	561	2190	1050	1270	26744
2002-2003	52	12	609	546			13383	371	3250	3416	1441	2231	25311
2003-2004	35	0	470	92			15515	399	2934	754	611	1300	22110
2004-2005	44	0	610	77			46215	1161	3144	3952	941	3595	59739
2005-2006	51	4	870	361			49885	1027	2799	2725	2196	3173	63091
2006-2007	52	2	881	140			22840	1166	2520	5680	3954	2924	40159
2007-2008	44	3	829	349			18909	410	2196	3370	2006	1136	29252
2008-2009	44	7	3003	392			21028	422	2323	5750	2742	3040	38751
2009-2010	34	6	1456	205			13703	610	2098	2430	714	2906	24162
2010-2011	59	19	2312	94			14335	633	2701	7280	2452	1578	31463
2011-2012	30	12	1073	133			16345	369	1817	3950	1273	3970	28972
2012-2013	13	11	1791	129			22850	1155	4364	12000	3423	4265	50001
2013-2014	35	12	1843	163			12580	370	2587	4495	1598	1725	25408
2014-2015	12	11	1826	119			22533	2537	3148	8071	4205	5150	47612
2015-2016	9	15	1489	1604			24900	927	389	6095	1205	995	37628
2016-2017	10	33	3592	1572			20835	1967	2787	10098	2768	4579	48241
2017-2018	13	41	1850	86			13098	861	945	12788	986	685	31353
2018-2019	13	35	3219	27			16846	2049	3243	12261	1256	4591	43540
<b>CAGR(%)</b>	<b>-1.16</b>	<b>4.06</b>	<b>15.09</b>	<b>-6.99</b>			<b>2.19</b>	<b>19.51</b>	<b>6.61</b>	<b>2.72</b>	<b>3.12</b>	<b>9.33</b>	<b>3.64</b>

### District wise Production of Litchi in Himachal Pradesh

Table No.-9 percent the district wise production of litchi in Himachal Pradesh. It may be seen from the table the total production of litchi increased 134 tonnes to 5467 tonnes from 1996-97 to 2018-19, with the annual growth rate of 17.50 percent but the highest growth rate was observed Mandi district (27.24 percent) followed by Bilaspur (22.41 percent), Kangra (17.53 percent) Hamirpur (16.05 per cent), Sirmour (6.39 percent), Una (6.21 percent), Chamba (4.46 percent) and Solan (3.06 percent) rest district shown negative growth.

The maximum production of litchi was maximum i.e, 64.40 per cent in Kangra district during the year (1996-97 and it increased to 69.82 percent in 2018-19. Whereas, it was lowest in Kinnaur and Lahaul-Spiti i.e. zero in 1996-97 and remained same in 2018-19. But in the Shimla, Chamba, Solan the percentage share was zero percent in the year 1996-97 whereas it was increased 0.02, 0.09 and 0.71 percent in the year 2018-19.



In the remained district like Mandi, Hamirpur and Bilaspur the production of litchi was 1.34, and 4.48 percent in the year 1996-97, which increased 13.99, 1.68 and 11.49 percent in the year 2018-19 respectively and the others districts showed the decreasing trends during the study period.

District wise Production of Litchi in Himachal Pradesh During 1996-97 to 2018-2019(in Tonnes) (Table No.-9)													
Year	Shimla	kullu	Mandi	Chamba	Kinnaur	Lahaul-Sipiti	Kangra	Solan	Sirmaur	Una	Hamirpur	Bilaspur	Total
1996-1997	0	0	3	0			93	0	26	3	3	6	134
1997-1998	0	0	16	0			101	0	30	6	4	7	164
1998-1999	0	0	12	2			217	0	28	13	7	8	287
1999-2000	0	0	10	2			168	0	27	6	2	1	216
2000-2001	3	0	17	12			264	22	84	51	27	94	574
2001-2002	0	0	44	18			800	12	110	3	8	18	1013
2002-2003	6	0	96	26			908	23	504	12	53	57	1685
2003-2004	4	1	61	6			2044	11	148	4	54	21	2354
2004-2005	4	0	60	4			3099	12	160	3	64	150	3556
2005-2006	3	0	245	53			3021	52	170	4	89	65	3702
2006-2007	3	0	234	41			2013	31	310	4	131	84	2851
2007-2008	3	1	219	54			1752	37	202	4	151	43	2466
2008-2009	3	1	830	70			2044	38	203	4	121	49	3363
2009-2010	3	0	430	54			2239	38	195	4	241	181	3385
2010-2011	5	0	532	12			2022	53	208	8	170	37	3047
2011-2012	4	0	260	14			2051	43	155	6	76	371	2980
2012-2013	3	0	474	22			2105	48	60	10	94	243	3059
2013-2014	4	0	474	16			2486	55	88	13	92	47	3275
2014-2015	0	0	417	27			2499	43	112	12	102	282	3494
2015-2016	1	0	996	11			4120	48	576	10	87	222	6071
2016-2017	1	0	865	9			3622	47	181	14	108	622	5469
2017-2018	1	0	756	9			3292	53	71	14	116	293	4605
2018-2019	1	0	765	5			3817	39	108	12	92	628	5467
<b>CAGR(%)</b>	<b>-6.62</b>	<b>-</b>	<b>27.24</b>	<b>4.46</b>			<b>17.53</b>	<b>3.06</b>	<b>6.39</b>	<b>6.21</b>	<b>16.05</b>	<b>22.41</b>	<b>17.50</b>

## Conclusions

Horticulture in Himachal Pradesh has witnessed significant progress during the last 40 years and is steadily poised to move towards a multidimensional phase when the present heavy pressure on traditional farming will be reduced to a great extent this will not only liberate the state from economic inertia in the agriculture sector but will also supplement with the state's efforts to provide green cover to the hills promoting environmental conservation. it is expected that by the end of the century horticulture in Himachal Pradesh will develop into industry with turnover of five thousand million rupees per annum in the rural sector. it will be next only to the public sector power industry in total



investment and turnover and the biggest industry of the state in the private sector employment potential, Himachal Pradesh synonymous with Horticulture and power.

## **References**

1. Chahill, B S Dhatt and Ranvir Singh. 1988. Standardisation of Foliar sampling technique in Kinnow. Punjab horticulture journal 28(3-4):118-124.
2. Dhatt AS, 1989. Nutrient Management in Citrus with special reference to Kinnow. Proceedings citriculture in north western India, pp, 157-167, Punjab Agriculture University.
3. Mitra, S.K., Gurung, M.R. and Pathak, P.K. (2007). Guava production and improvement in India: an overview. Acta Horticulture 787, 59-68.
4. Mitra, S.K. and Dutta Ray, S.K. 2005. Advances in the production and research of lychee in India. Acta Horticulture 665, 47-52.
5. Bhargava, B.S. and Singh, Room.2001. Leaf nutrient norms in fruit crops. Indian J. Hort., 58 (1–2): 41–58.
6. Bose, T.K., Mitra, S. K. and Sanyal, D. 2001. Fruits: Tropical and Subtropical Vol. II, Pub. NayaUdyog, 206, Bidhan Sarani, Calcutta, India ,pp. 643–56.