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## SOCIO-ECONOMIC STATUS OF APPLE ORCHARDISTS – A CASE STUDY OF KULLU DISTRICT OF HIMACHAL PRADESH

HEENA PATHANIA , P K MAHAJAN

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**Abstract:** The present study was undertaken with an objective to study the socio- economic status of apple orchardists. The results of the study form the benchmark for the in-depth analysis of contribution of apple industry in uplifting the socio-economic status of the apple orchards in the study area. The study reveals that apple orchardists in Kullu district are facing a multiplicity of marketing problems which need to be addressed on priority.

**Keywords:** Multi-stage sampling, socio-economic variables, farm and non- farm income, cropping pattern.

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**Introduction:** The nature has endowed Himachal Pradesh with a wide range of agro climatic conditions that are suitable for almost all kind of fruits grown in the country. Apple is one of the most important fruit in Himachal Pradesh. District Kullu is an important apple growing district of the state with regards to average production, economic value and above all its popularity for quality apples. Fruit cultivation has catapulted Himachal Pradesh from the often termed poorly developed hilly state to a model hill state of the country. Apples constitute a major part of the economy of Himachal Pradesh, with a turnover of over Rs. 3000 crore and accounting for almost 10 percent of the gross domestic product. In the post-independence period, especially after the statehood in 1971, there has been a strong backing from the state for apple industry. Consequently the area under apple cultivation has increased substantially from a mere 400 hectares in 1950's to 114939 hectares in 2011-12. Of the total area under fruit production, apples make up for more than 48 percent and of the total fruit production, apple alone accounts for more than 74 percent.

**Material And Methods:** The Kullu district of Himachal Pradesh has been selected for the study as it is a prominent apple producing area in the state and not much economic investigations in this direction have been undertaken for this area. In the first instance, a complete listing of the development blocks in the apple growing areas of the district was done from the records of the concerned revenue office. The Banjar block was selected out of the 5 blocks (Kullu, Banjar, Naggar, Anni and Nirmand) to represent the whole district. Of the total of 46 panchayats of the block, 12 panchayats are apple growing panchayats. Of these 4 panchayats (Tung, Bahu, Kandidhar and Nohanda) were selected randomly for the selection of respondent apple growers. A total of 100 respondents (25 from each panchayat) were selected for the final field survey in the selected Banjar block. For the purpose of survey, a pre-tested questionnaire was used to collect socio-

economic and the related information on apple cultivation, focusing on area and production and associate problems faced by the apple growers. The respondents for the study were selected through a two-step approach as suggested by Stein (1945) and Cox (1952). In the first step, a preliminary sample of size  $n_1$  was selected through PPS sampling. Following the procedure to estimate various parameters by using observations made on the units selected in this sample, half width of the confidence interval was equated to the permissible error B. Then solving for n determined the final sample size.

**Results And Discussions:** The data obtained on different socio-economic variables; area and production of apple crop for the study area have been analyzed. At overall level the avg annual production is 60.05, 33.32, 28.92 qtls in 2010, 2011 and 2012 respectively. The results are presented in Tables 1 to 9.

**Age composition:** Socio-economic transformation and adoption of innovations are greatly influenced by the age, particularly that of the decision maker. The age of decision maker in the family has important role to play in responding to a change. Keeping this in view, the distribution of age of the respondents from the selected panchayats has been analyzed and the results are presented in Table 1. The perusal of the table shows that, at overall level in Banjar block, majority (46%) of the decision makers fall in the age group of above 55 years, followed by those in the age group of 35-55 years (34 %), the younger population constituted 16 per cent.

**Education:** The education is an important ingredient in the development process. This is true of farming as well. It is expected that the literate persons are better placed to perceive and adopt new technology than illiterates. Therefore, the study of educational status of the family gains importance. It was with this importance in mind the educational status of sampled orchardists was also analysed. The table shows that, on an average, nearly 86 per cent of family members are literates. Among the different

panchayats, the high percentage (20.16%) of illiterates is in Bahu panchayat. It is very important to note that none of the sampled family members were having higher education (i.e., graduates and postgraduates) while the persons with secondary education accounted for 12.80 per cent at overall level. The

members having matriculation and undermatric education accounted for 45.82 and 27.27 per cent respectively. There are more or less similar trends among other panchayats as far as level of education is concerned.

Sr. NO.	PARTICULARS	PANCHAYATS & RESPONDENTS (In %)				
		BAHU (25)	TUNG (25)	KANDIDHA R (25)	NOHANDA (25)	OVERALL (100)
<b>1. AGE</b>						
	YOUNG (Upto 35yrs)	16	12	24	12	16
	MIDDLE (35-55 Yrs)	28	52	36	20	34
	OLD (>55)	56	20	40	68	46
<b>2. EDUCATION</b>						
	ILLITERATE	20.16	10.62	10.6	15.48	14.1
	UNDER MATRIC	25.80	17.73	34.09	31.6	27.27
	MATRIC	38.7	53.19	46.212	44.36	45.82
	PLUS TWO	15.32	18.43	9.09	8.45	12.80
	GRADUATION	-	-	-	-	-
	PG	-	-	-	-	-
<b>3. FAMILY TYPE</b>						
	JOINT	40	24	24	44	33
	NUCLEAR	60	76	76	56	67
<b>4. FAMILY SIZE</b>						
	ABOVE 5 MEMBERS	40	80	56	48	56
	<5 MEMBERS	60	20	44	52	44

**Type and size of family:** The type and size of the family, work force and literacy among the apple growers are the essential components influencing the apple crop management, which happens to be family labour-based occupation at the village level. These factors ascertain the socio-economic prosperity of the family in particular and the area in general. It plays a critical part in the farm business activities. The type and size of sample family in the study area has also been presented in Table 1. The family size has been divided in two categories; one above 5 family members and the other is less than 5 members per family. Among the sampled farm families there were 67 per cent nuclear families and rest were joint families.

**Land holding & land use pattern:** Land is a basic resource in an agrarian economy. Size of land holding is an important variable which directly affects the income, consumption, saving and investment of land

owning households. Farm category wise distribution of land holding of apple growing sampled farmers of Banjar block suggests that average size of land holding in Banjar worked out to be just 1.20 hac. The holding size of apple orchardists was found to be in the range of 0.16 hac to 3.6 hac. Majority of orchardists (65%) are having land in the range of 0.4 to 1.2 hac. About 25 per cent of the orchardists are having land in the range of 1.2 to 2 hac and 9 per cent are having land holdings more than 2 hac. Of the total holding, at overall level, operational holding constituted 97.4 per cent, while the area under forest and grass lands comprised of 1.9 and 0.7 per cent of total holding respectively. Horticulture crops occupied the largest share of total land holding, comprising of 73.23 per cent of the total area. Cereals and vegetables occupied nearly 18.1 & 6.07 per cent of the total land holding and was found the second most important land use.

<b>Table 2. Land holding &amp; land use pattern</b>						
<b>SR. NO.</b>	<b>PARTICULARS</b>	<b>PANCHAYAT &amp; LAND HOLDING AND LAND USE</b>				
		<b>BAHU (25)</b>	<b>TUNG (25)</b>	<b>KANDIDHAR(25)</b>	<b>NOHANDA(25)</b>	<b>OVERALL(100)</b>
<b>LAND HOLDING (% of respondents)</b>						
1. <0.4 hac		-	-	4	-	1
2. 0.4-1.2 hac		68	60	60	72	65
3. 1.2-2 hac		16	36	32	16	25
4. ABOVE 2 hac		16	4	4	12	9
<b>AVG LAND HOLDING (in hac)</b>		1.34	1.09	1.10	1.26	1.20
<b>LAND USE PATTERN(%)</b>						
<b>1. OPERATIONAL LAND HOLDING</b>						
	IRRIGATED	5.02	6.76	3.79	7.90	5.90
	UNIRRIGATED	94.9	93.23	96.3	84.69	94.09
<b>2. CULTIVATED AREA</b>						
	CEREALS	15.9	18.5	19.23	19.91	18.1
	VEGETABLES	5.59	5.92	6.44	6.506	6.07
	HORTICULTURE	75.46	73.49	72.32	71.58	73.23
	<b>3. FOREST LAND(%)</b>	2.98	1.35	0.74	0.98	1.9
	<b>4. PASTURE/GHASNI/ BARREN LANDS(%)</b>	1.58	-	-	1.44	0.755

<b>Table3. Income pattern</b>						
<b>S.NO.</b>	<b>SOURCE OF INCOME</b>	<b>PANCHAYAT &amp; INCOME ( IN %)</b>				
		<b>BAHU (25)</b>	<b>TUNG (25)</b>	<b>KANDIDHAR (25)</b>	<b>NOHANDA (25)</b>	<b>OVERALL (100)</b>
<b>FARM INCOME</b>						
	CROPS	17.09	14.25	14.48	15.7	15.38
	DAIRY	1.18	1.07	0.85	0.86	0.99
	HORTICULTURE	75.14	81.35	80.67	79.44	79.15
<b>NON FARM INCOME</b>						
	SERVICE	1.43	1.96	2.86	1.11	1.84
	BUSINESS	1.19	1.73	3.79	1.41	2.03
	WAGE EMPLOYMENT	0.48	0.5	0.9	0.4	0.57
<b>INCOME CLASSES(lac)</b>						
	1 To 5 lac	12	36	20	4	18
	5 TO 10 lac	84	48	48	68	62
	10 TO 15 lac	4	8	20	16	12
	>15 lac	0	8	12	12	8

**Income pattern:** In order to highlight the relative importance of apple crop in the economy of selected households, source wise break- up of family income was worked out and the same is summarized in Table-3. It is interesting to note that on an average situation, cultivation of crops, dairy & horticulture contributed 15.38, 0.99 & 79.15 per cent respectively towards the family income of households of Banjar

block; thereby suggesting the importance of horticulture and mainly that of apple cultivation. Non farm activities contributed only 4 per cent at overall level. Business contributed 2.03 percent & the contribution of service sector is 1.84 percent while the least share is of wage employment only 0.57 percent. It seems wage labour is not very prominent in the study area, while business is more predominant. The

table explains that, minimum of 8 per cent farmers fall in greater than Rs15 lac income scale, and maximum of 62 per cent farmers fall in the Rs5-10 lac income. In income slab of Rs10-15 lac, 12 per cent farmer falls in that category. None of the farmers fall in less than Rs1 lac. 18 per cent farmers fall in Rs1-5 lac

income category. Income pattern of the family is very important in determining the economic status. It is noted from the table that agriculture is the main occupation of the people as more than 95 per cent of income is generated by it in the studied area

S. NO.	PARTICULARS	PANCHAYAT & AREA (%)				
		BAHU(25)	TUNG(25)	KANDIDHAR(25)	NOHANDA(25)	OVERALL(100)
<b>1.KHARIF CROPS</b>						
	MAIZE	15.9	18.19	17.48	16.63	17.05
	POTATO	2.95	4.59	2.79	2.35	3.17
	VEGETABLES	4.3	4.06	4.65	5.06	4.517
<b>2.RABI CROPS</b>						
	WHEAT	16.05	17.49	17.86	16.45	16.96
	PULSES	6.68	8.48	7.34	6.14	7.16
	VEGETABLES	4.3	4.06	4.65	5.06	4.52
<b>3.FRUIT</b>		49.6	43.1	45.2	48.2	46.52

**Cropping Pattern:** Cropping pattern in any region depends mainly on soil, altitude, micro-climate, availability of resources and management factors. A close scrutiny of the cropping pattern suggests the status of agriculture in the area. A look at the proportional share of a particular crop on the farm suggests the importance that the farmer attaches to a particular crop. Cropping pattern of sampled farms was examined and results are discussed in Table 4. It

is evidenced from the table that fruit crops are occupying the place of pride sharing 46.52 per cent of the gross cropped area in the Banjar block at an overall level. The next in importance is maize sharing 17.05 per cent area followed by wheat (16.96 %). Wheat is the important crop in the Rabi season and paddy, maize and Kharif pulses like rajmah beans, mash were found to be most important Kharif crops in this region.

S.NO.	LIVESTOCK	PANCHAYATS & AVERAGE NO. OF ANIMALS PER HH				
		BAHU(25)	TUNG(25)	KANDIDHAR(25)	NOHANDA(25)	OVERALL(100)
1	COWS LOCAL (IN MILK)	0.72	0.64	0.64	0.64	0.66
2	COWS IMPROVED (IN MILK)	0.56	0.52	0.76	0.6	0.61
3	COWS LOCAL (DRY)	0.4	0.28	0.28	0.2	0.29
4	COWS IMPROVED (DRY)	0.2	0.28	0.2	0.28	0.24
5	BULLOCKS	1.76	1.84	1.72	1.88	1.80
6	SHEEP	5.76	4.48	7.56	3.84	5.41
7	HORSES & MULES	0.2	0.32	0.08	0.52	0.28
<b>AVERAGE</b>		9.6	8.36	11.24	7.96	9.29

**Livestock:** Livestock rearing is an integral part of farming system in the hilly states. They are not only direct providers of milk, meat, wool and manures but also main source of energy for ploughing and transport. It is a good supplementary source of income for the farmers. The detailed view of different types of livestock being kept on different categories

of selected farms is presented by the data given in Table-5. The table reveals that, cows are most preferred farm animals in the state. On an average, the number of animals kept on the farm on the sampled farms in Banjar block is 9.29. Sheep form nearly 5.41 percent of the livestock population and it is followed by cows and bullocks (1.8 % for both).

PANCHAYAT	AVG AREA UNDER DIFFERENT FRUIT CROPS (hac)	AVG NUMBER OF TREES UNDER FRUIT CROPS B: bearing plants , NB: non-bearing plants							
		Apple		Pear		Plum		Kiwi	
		B	NB	B	NB	B	NB	B	NB
BAHU	0.112	210.2	63.2	12.2	10.72	15.4	6.8	0.92	0.68
TUNG	0.780	210.4	46.8	12.44	13.56	13.1	13.44	1	1.68
KANDIDHAR	0.778	266.4	87.84	11.88	13.64	11.3	12.16	1.04	1.28
NOHANDA	0.854	269.8	80.6	14.04	12.36	12.8	14.24	0.88	0.92
OVERALL	0.831	239.2	69.61	12.64	12.57	13.15	11.66	0.96	1.14

**Distribution of different fruit crops:** In Banjar block apple was found to be the most prominent fruit crop, followed by pear, plum and kiwi in almost all the panchayats of the block. The average number of

bearing and non-bearing plants of different fruit owned by orchardists is shown in Table-6. The avg area owned by fruit crops is 0.8312 hac.

PANCHAYATS AND VARIETIES	PROPORTION OF DIFFERENT VARIETIES IN TOTAL APPLE PLANTATION (%)	
VARIETY	NON-BEARING	BEARING
<b>1.BAHU</b>		
Red delicious	43.5	29.39
Royal delicious	32.6	40.6
Golden delicious	19.48	26.6
Red chief	4.2	3.28
<b>2.TUNG</b>		
Red delicious	32.57	20.26
Royal delicious	36.72	47.21
Golden delicious	11.78	30.29
Red chief	18.91	2.23
<b>3.KANDIDHAR</b>		
Red delicious	22.31	11.56
Royal delicious	64.20	61.41
Golden delicious	13.47	27.02
Red chief	-	-
<b>4.NOHANDA</b>		
Red delicious	43.6	16.01
Royal delicious	45.4	50.33
Golden delicious	10.91	33.6
Red chief	-	-
<b>OVERALL</b>		
Red delicious	35.49	19.30
Royal delicious	44.73	49.88
Golden delicious	13.91	29.37
Red chief	5.77	1.37

Amongst bearing plants, Red Delicious variety plants were 35.49 per cent, Royal Delicious 44.73 per cent,

Golden Delicious were 13.91 per cent and Red Chief constitutes least only 5.77 percent.

**Table 8. Average rates of different varieties received by orchardists.**

Variety	No. of plants (%)	Avg Rates/ box (in Rs)
Royal delicious	50.10	800
Red delicious	22.33	700
Golden delicious	25.53	500
Red chief	2.02	500

Major apple varieties grown are Royal Delicious which accounts for near about 50.1% of all the plants. And it fetches the maximum income for the orchardists as the rate per box for this variety is the highest as compare to other varieties

**Table 9. Marketing problems & their possible reasons**

PROBLEM FACED BY FARMER	Number of families facing this problem (%)
<b>GRADING &amp; PACKING MATERIAL</b>	
Shortage of skilled labour	29.7
Higher wages	65.3
Non availability	59.4
No problem faced	8.9
<b>FOR GETTING PACKING MATERIAL</b>	
Shortage of carton	59.4
Shortage of other package material	80.1
High prices	80.1
Not available on credit	59.4
not available in time	80.1
not available at desired place	59.4

<b>STORAGE FACILITY</b>	
No storage Facility	88.11
Inadequate storage facility	100
<b>TRANSPORTATION</b>	
Lack of vehicles	73.2
Vehicles not available in time	91.08
Vill not linked with metal roads	100
High transportation charges	100
<b>MARKET INTELLIGENCE</b>	
Late information	68.13
Information for local market only	100
Inadequate information	41.5
Misleading information	56

**Marketing problems:** Marketing of apple is as critical as production. The various marketing problems and constraints faced by the apple growers need to be tackled in order to boost up the growth of a reaunder apple. The returns from applied pen do n several factors like quality of fruit, care take nin grading and packaging, time take nin transportation, mode of transport used, time and type of storage, quantity and quality of packing material etc. Keeping all the sefacts in view, opinion of apple, growers with the problems of marketing were sought, and the same are presented in table 9.

**Shortage of grading and packaging labour:** Short age of skilled labour during grading and packing werereportedby29.7per cento for chardists in the study area a to over all level. 65.3per cento for chardists surveyed in Banjar block reported higher wage rate as one of the hindrances in the post harvest management. Non-availability of labour in required amount was reported to be a serious problem as intimated by more 59.4per cent surveyed orchard ists of the study region.

**Packing material and Storage:** Apple being fragile in nature needs good packaging which may ensure least damage to fruits during transportation. The in decent quality of fruits may result in to non-remunerative prices.80.1per cent orchardists in study area reported shortage of other packing material, high prices of packing material and non-availability in time as a problem. Nearly 59.4 percent complained shortage of carton, not available on credit and at desired place as their main problem. The inappropriate storage facility normally, increases the quantitative and qualitative losses. No storage end in adequate storage facilities were more severe problem sin sample dare a of study area. Nearly 88.11percent sample grower in study area reported about non-availability of storage facility. Inadequate storage was reported as the main problem by all the sample or chardists in the study area.

**Transportation problems:** Ananalysis of grower's transportation problems revealed that major concern is that high transport cost and the respondents the lack of all weather and metallic road. A few of the respondents felt the need of improved link roads in the producing areas. All the farmers reported that their villages are not linked with proper link roads and thus face high transport charge. In hilly terrain during rainy season landslides and road blockage, take place. Marketing season of apple is harmonized with monsoon rains. During the peak season of horticultural operations, there is a tendency to ask for higher wages performing the marketing operations.

**Market intelligence:** Market intelligence problems here relate to late information, limited information, misleading information or information available for limited markets.41.5per cent of the farms revealed that they were getting inadequate information to plan their marketingstrategy. Nearly36per cent respondents informed that they were getting misleading information. Thus, they were no tina position to plan their marketing in an efficient way. Nearly 24.3per cent respondents reported that information about prices was received late.

**Conclusions:** Horticulture development in Kullu is an economic necessity. Horticulture sector has made remarkable contributions in the upliftment of the socio- economic conditions of the farming community. Apple cultivation has high significance for raising the living standards of the apple orchardists in Kullu District. The account of apple farming systems shall highlight the socio-economic aspects, objectives, priorities, cultivation practices and problems encountered by the orchardists. It becomes clear from the above analysis that there is large scope of increasing the area of apple production as it is the main source of earning and accounts79.15% of total income.

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Mathematics and Statistics Section  
Dr. Y. S. Parmar University of Horticulture & Forestry, Solan 173 230, India  
E-mail: [pawan\\_uhf@yahoo.com](mailto:pawan_uhf@yahoo.com)

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