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Original Research Article

An analysis of Socio-personal characteristics of apple growers and their attitude towards apple cultivation in district Shopian of J&K

7 Abstract: The present study was conducted in district Shopian of Jammu and Kashmir with 8 sample size of 180 respondents. The district Shopian was purposively selected, because of the 9 potentiality for the development of horticulture, mainly because 90 per cent area of the 10 district was under apple plantation. The data was collected from the three different altitudes 11 viz- low, medium and high altitudes. Different socio-personal characteristics viz- age, 12 experience, education, family education, family type, family size, innovative proneness were 13 studied from different altitudes. Attitude of the apple growers was also studied and it has 14 been revealed that most of the apple growers from all the three altitudes were having neutral 15 attitude towards apple cultivation.

16 Keywords: Altitude, apple cultivation, attitude, Kashmir, Shopian.

17 Introduction:

18 Agricultural as well as horticultural sector is considered as one of the effective factor in 19 economic development of India. Achieving food and nutritional security is possible only by 20 making use of new technologies in farm land. Today in most parts of the world, due to 21 limited land and water resources, increase in production and quality food is hardly possible 22 unless need based effective techniques in production system are adopted by the farmers. In 23 the state of Jammu and Kashmir, Kashmir valley is endowed with congenial agro-climatic 24 conditions for a wide range of horticultural crops. The growth in area and production of 25 horticultural crops like peach, pear, plum, and apple, is quite impressive. Jammu and Kashmir 26 is rightly known as an apple state of India, contributing 4,200 crore to the state GDP 27 (Anonymous, 2013).

Apple is one of the most widely cultivated tree fruits. The apple is the fourth widely produced fruit in the world after banana, orange and grapes. India is ranked as the sixth largest world's apple producing country and second largest country in area (Deodhar *et al*, 2006). As far as apple production is considered, it accounts for 51 % of total area of 2.72 lac hectares under all temperate fruits grown in this state. The annual apple production in the state is 13.73 lac. Metric tonnes (Anonymous, 2009). Average yield of apple cultivars per

34 unit area of state is highest in the country ranging between 10-12 tonnes/ha, still the yield is 35 poor as compared to 20-30 tonnes/ha grown in horticulturally advanced countries of the 36 world. Climate and other agro-ecological factors of Kashmir are ideally suited to the 37 cultivation of many varieties. However it has been found that the socio-economic characters 38 of the farmers greatly affect the farming community and hence production and productivity. 39 Patalia (1991) conducted a study on mango cultivation in Parabhani district of Maharashtra 40 state and reported that, majority of the farmers (54.17 per cent) were cultivating mango since 41 last ten years whereas 28.67 per cent of farmers had ten to twenty years of farming 42 experience. Saravanakumar (1996) in his study revealed that majority (51.67%) of the mango 43 growers never contacted Assistant Agricultural Officer, whereas, 42.50 per cent of the 44 farmers had regular contact with village administrative officers and 50.83 per cent contacted 45 Agricultural Officers occasionally. Kumar (1998) in his study on knowledge, adoption and 46 economic performance of banana growers in Bangalore rural district revealed that 46 per cent 47 of banana growers possessed less than 12.63 acres of land, 27 per cent of them possessed 48 from 12.63 to 15.08 acres and 27 per cent possessed more than 15 acres of land. He further 49 reported that 40.00 per cent of the banana growers had low innovative proneness. 50 Nagoormeeran and Jayaseelan (1999) in their study in South Arcot district of Tamil Nadu 51 state on shrimp farmers found that majority of the farmers received education upto high 52 school (42.00%), followed by pre-university (22.00%) and middle school (16.00%). Angadi 53 (1999) in his study in Bagalkot district of Karnataka state reported that majority (65.00%) of 54 the pomegranate growers were in the middle age group (35 to 50 years). The farmers below 55 35 years of age were 18.75 per cent, while 16.25 per cent belonged to old age group. Birajdar 56 (1999) stated that almost three fourth of total grape growers (74.88%) belonged to middle age 57 category. Whereas, 14.37 and 11.25 per cent of farmers belonged to old age and young age 58 categories, respectively. Raut (2006) conducted a study in Nagpur district of Maharashtra and 59 indicated that more than half of the orange growers (53.33%) were middle aged, followed by 60 old (30.00%) and young age (16.67%) group. Gotyal (2007) inferred that 42.50 per cent of 61 the grape growers belonged to old age category, followed by middle age (39.00%) and young 62 age (18.50%) group. Patil (2008) conducted a study on constraints analysis of grape 63 exporting farmers of Nasik and Sangli districts in Maharashtra state and revealed that grape 64 growers had been spread in all the three age groups viz., young age (36.00%), middle age 65 (34.00%) and old age (30.00%) category. Hinge (2009) in his study stated that more than 66 60.00 per cent of wine grape growers belonged to middle age category. Whereas, 23.12 and 67 15.00 per cent belonged to old age and young age categories, respectively. Kiran (2003) in a

68 study on technological gap and constraints in adoption of recommended practices of mango 69 growers reported that nearly half (49.00%) of the respondents had medium experience in 70 mango cultivation while remaining 26.00 per cent and 25.00 per cent of the respondents had 71 low and high experience in the mango cultivation respectively. On an average the 72 respondents had 19.28 years of experience in mango cultivation. Ramanna et al. (2000) 73 revealed that 70.00 per cent of the farmers had medium level extension agency contact and 74 30.00 per cent of the farmers had high level extension agency contact. Lakshmisha (2000) in 75 his study on impact of cashew demonstrators on knowledge, adoption and yield levels of 76 farmers in Dakshina Kannada district revealed that 50 per cent of the cashew growers had 77 medium social participation, 35 per cent of the cashew growers had high social participation 78 and only 15 per cent of cashew growers had low social participation. Borkar et al. (2000) 79 conducted a study on characteristics of farmers influencing their knowledge about use of bio 80 fertilizers and observed that majority (58.67%) of the farmers had knowledge about the use of 81 bio fertilizers to a moderate level followed by 22.67 per cent of them had high level of 82 knowledge and 18.66 per cent of them had low level of knowledge. Palaniswamy and Sriram 83 (2001) in their study found that majority of the farmers (84.35%) had medium level of 84 extension agency contact, followed by 5.45 and 10.20 per cent of the farmers with low and 85 high level of extension agency contact, respectively. Babanna (2002) in his study on arecanut 86 growers in Shimoga district reported that 32.5 per cent of the arecanut growers had high 87 social participation followed by 40 per cent of the growers having medium level and only 88 27.5 per cent of the growers had low social participation level. Bhople and Borkar (2002) in 89 their study on biofertilizers farmer attitude and adoption observed that majority of the farmers 90 (84.00%) belonged to moderate level of knowledge about different kinds of bio-fertilizers 91 and their associated practices, about one tenth of them were adequately equipped with the 92 knowledge about bio fertilizers and appeared in high knowledge category. Vedamurthy 93 (2002) in his study on the management of areca gardens and marketing pattern preferred by 94 the arecanut farmers of Shimoga district in Karnataka reported that equal per cent (28.66%) of the arecanut growers are large and small arecanut farmers. twenty four per cent of the 95 96 respondents are medium land holding farmers and 18.66 per cent of the farmers are marginal 97 land holders. Sunilkumar (2004) revealed that 40.83 per cent of the farmers belonged to 98 medium extension contact category, followed by 30.00 and 29.16 per cent who belonged to 99 high and low categories of extension contact, in Belgaum district of Karnataka state, 100 respectively. Govinda and Narayana (2006) inferred that considerable percentage of 101 Thompson Seedless grape growers (46.00%) belonged to medium innovative proneness

102 category. While, a little more than 50.00 per cent of Bangalore Blue grape growers (52.00%) 103 belonged to high innovative proneness category. Saleem et al (2010) reported that the actual 104 yield of fruit produced at the farmers' fields is considerably less than that of potential yield of 105 the fruit. One of the major factors causing this huge yield gap was the lack of knowledge, 106 skill and attitude of fruit growers regarding the modern production technology. This 107 deficiency on the part of the fruit growers can be overcome by comprehensive training and 108 extension program for farmers concerning modern fruit production techniques. Ejolle et al. 109 (2010) stated training needs of farmers as skill, knowledge and attitude an individual requires 110 in order to overcome the problems as well as to avoid creating problem situation. It is clear 111 that training of the farmers is an essential resource, which will direct knowledge and skill 112 towards crop production.

113 Research Methodology:

114 The present study was conducted in the state of Jammu and Kashmir comprising 115 extreme sector of Himalaya's and occupies a central geographical location in the Asian 116 continent. A multistage sampling procedure was adopted for the selection of districts, tehsils, 117 villages and sample respondents. Kashmir valley consists of 10 districts namely Anantnag, 118 Kulgam, Pulwama, Shopian, Srinagar, Bandipora, Baramulla, Budgam, Ganderbal and 119 Kupwara. Among these, district Shopian was selected purposively. District Shopian was 120 purposively selected because of the potentiality for the development of horticulture, mainly 121 because 90 per cent area of the district was under apple plantation and prevailing agro 122 climatic situations were very good for cultivation of horticultural crops especially fruit crops 123 and apple in particular. The study was conducted in three types of altitudes viz. high altitude, 124 mid altitude and low altitude in the form of strata which were purposively selected. Each 125 strata consisted of three villages which were randomly selected. Accordingly a sample size of 126 twenty farmers from each village was selected randomly, thus making a sample size of sixty 127 respondents from each strata. A sample size of 180 respondents from all the three strata's was 128 included in the study based on the total respondents engaged with apple cultivation. The 129 mean and standard deviation of all the respondents' were computed for classifying them in 130 different categories.

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Socio-personal characters:

132 **1.** Age

The data presented in the table 1 reveals that in low altitude, 35 per cent of the apple growers were middle aged in the age group of 29-56 years, followed by 33.44 per cent, who were old (above 56 years) and 31.66 per cent of the apple growers were young, who belonged

136 to the age group of 18 to 28 years. It indicates that in the lower altitude, majority of the apple 137 growers (35%) were middle aged, in the age group of 29-56 years. While in mid altitude, 138 41.66 per cent of apple growers were middle aged, in the age group of 29-56, followed by 139 young (30 per cent) belonging to the age group of 18-28 years and 28.44 per cent of the old 140 aged apple growers (above 56 years). It indicates that in the mid altitude, majority of the 141 apple growers (41.66%) were middle aged in the age group of 29-56. In case of high altitude, 142 the data reveals that 50 per cent of the apple growers were middle aged in the age group of 143 29-56 years, followed by 26.66 per cent, who were old aged above 56 years and 23.44 per 144 cent of the apple growers were young in the age group of 18 to 28 years. So it is evident that 145 majority of the apple growers (50%) were middle aged in the age group of 29-56 years as 146 shown in (fig 3).

147 **2.** Experience

148 The data presented in the table 2 reveals that in low altitude, majority 43.44 per cent 149 of the apple growers were having low experience upto 10 years regarding apple cultivation, 150 followed by 31.66 per cent, who had high experience greater than 31 years and 25 per cent of 151 the apple growers were having medium experience in the range of 11-30 years. It indicates 152 that in the low altitude, majority of the apple growers (43.44%) were having low experience 153 regarding apple cultivation. While in case of mid altitude 40 per cent of the apple growers 154 were having low experience up to 10 years of apple cultivation, followed by 35 per cent, who 155 had medium level of experience in the range of 11-30 years and 25 per cent of the apple 156 growers, were having high experience more than 31 years. It indicates that in the mid altitude, 157 majority of the apple growers (40%) were having low experience regarding apple cultivation. 158 In high altitude 43.33 per cent of the apple growers were having low experience upto 10 159 years regarding apple cultivation, followed by 38.33 per cent, who had medium experience in 160 the range of 11-30 years and 18.33 per cent of the apple growers were having high experience 161 more than 31 years in apple cultivation. It indicates that in all the three altitudes, majority of 162 the apple growers were having low experience regarding apple cultivation as shown in (Fig 163 4).

164 **3.** Education

The data presented in the table 3 reveals that in low altitude majority of the apple growers 21.66 per cent were illiterate, followed by 16.66 per cent of apple growers, who had their education up to matric and graduate, 15 per cent of apple growers, had their education up to twelfth, 13.33 per cent of apple growers, had their education up to primary, 10 per cent of the apple growers, had their education up to middle, and 6.66 per cent of the apple growers

170 were above graduate. In mid altitude majority of the apple growers 31.66 per cent were 171 illiterate, followed by 16.66 per cent of the apple growers, had their education up to middle, 172 13.33 per cent of apple growers, had their education up to twelfth and graduate 11.66 per cent 173 of apple growers, had their education up to primary and matric, and 1.66 per cent of the apple 174 growers were above graduate. In case of high altitude majority of the apple growers 40 per 175 cent were illiterate, followed by 20 per cent of the apple growers, who had their education up 176 to middle, 16.66 per cent of apple growers, had their education up to matric, 15 per cent of 177 apple growers, had their education up to twelfth, 08.33 per cent of apple growers, who had 178 their education up to primary, however none of the apple grower was graduate as shown in 179 (fig 5).

180 4. Family Education

181 It is evident from the data presented in the table 4 that in low altitude majority of the 182 apple growers 40 per cent were having high level of family education, followed by 31.66 per 183 cent of apple growers, who were having medium level of family education and 28.44 per cent 184 of the apple growers were having low level of family education. Where as in case of mid 185 altitude, majority of the apple growers 41.66 per cent were having medium level of family 186 education, followed by 33.44 per cent of apple growers, who were having low level of family 187 education and 25 per cent of the apple growers were having high level of family education. In 188 high altitude majority 40 per cent of the apple growers were having low level of family 189 education, followed by 36.66 per cent of apple growers, who were having medium level of 190 family education and 23.44 per cent of the apple growers were having high level of family 191 education as shown in (fig 6).

192 **5.** Family type

193 The data presented in the table 5 reveals that in low altitude, maximum 61.66 per cent 194 of the apple growers belonged to nuclear family, followed by 28.44 per cent of the apple 195 growers, who belonged to joint family and minimum of 10 per cent of the apple growers 196 belonged to extended family. While as in case of mid altitude, 41.66 per cent of the apple 197 growers belonged to nuclear family, followed by 40 per cent of the apple growers, who 198 belonged to joint family and 11 per cent of the apple growers belonged to extended family. In 199 case of high altitude, 50 per cent of the apple growers belonged to joint family, followed by 200 26.66 per cent of the apple growers, who belonged to extended family and least 23.44 per 201 cent of the apple growers belonged to nuclear family.

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204 6. Family size

205 It is evident from the data presented in the table 6 that in low altitude, maximum 60 206 per cent of the apple growers were having small family size, upto 5 members, followed by 30 207 per cent of the apple growers, who were having medium family size of five-ten members and 208 minimum of 10 per cent of the apple growers were having large family size, of more than ten 209 members. In mid altitude, maximum 38.44 per cent of the apple growers were having small 210 family size, upto 5 members, followed by 35 per cent of the apple growers, who were having 211 medium family size, of five to ten members and minimum of 26.66 per cent of the apple 212 growers were having large family size, with family members above ten. In contrast to high 213 altitude, maximum 63.44 per cent of the apple growers were having medium family size, of 214 5-10 members, followed by 21.66 per cent of the apple growers, who were having small 215 family size, up to five members and minimum of 15 per cent of the apple growers were 216 having large family size, of more than ten members.

217 **7.** Land holding

218 The data presented in the table 7 reveals that in low altitude, 36.66 per cent of the 219 apple growers were marginal farmers having their land holdings below one hectare, followed 220 by 33.44 per cent of the apple growers, who were in small category, having their land 221 holdings above one hectare but less than two hectares, while as 30 per cent of the apple 222 growers belonged to medium category, having their land holdings above two hectares but less 223 than four hectares. In case of mid altitude, 45 per cent of the apple growers belonged to 224 marginal category having their land holdings below one hectare, followed by 36.66 per cent 225 of the apple growers, who belonged to small category, having their land holdings above one 226 hectare but less than two hectares, while as minimum of 18.44 per cent of the apple growers 227 belonged to medium category, having their land holdings above two hectare but less than four 228 hectares. While as in case of high altitude, 56.66 per cent of the apple growers were of 229 marginal category having their land holdings below one hectare, followed by 28.33 per cent 230 of the apple growers, who belonged to small family, having their land holdings above one 231 hectare but less than two hectares, while as minimum of 15 per cent of the apple growers 232 belonged to medium family, having their land holdings above two hectares but less than four 233 hectares.

234 8. Social participation

The data presented in the table 8 reveals that in low altitude, 81.66 per cent of the apple growers were members of no organization, followed by 18.44 per cent of the apple growers, who were member of one organization only. In case of mid altitude, 86.66 per cent

238 of the apple growers were members of no organization, followed by 13.44 per cent of the 239 apple growers, who were member of one organization. Where as in case of high altitude, 240 maximum of 96.66 per cent of the apple growers were members of no organization, followed 241 by 3.44 per cent of the apple growers, who were member of one organization.

242 9. Media exposure

243 The data presented in the table 9 reveals that in low altitude, 60 per cent of the apple 244 growers were having high level of media exposure, followed by 26.66 per cent of the apple 245 growers, who were having medium level of media exposure, and 13.44 per cent of the apple 246 growers, and were having high level of media exposure In case of mid altitude, 36.66 per cent 247 of the apple growers were having medium level of media exposure, followed by 33.44 per 248 cent of the apple growers, who were having low level of media exposure, and 30 per cent of 249 the apple growers, and were having high level of media exposure. Where as in case of high 250 altitude, 41.66 per cent of the apple growers were having low level of media exposure, 251 followed by 35 per cent of the apple growers, who were having medium level of media 252 exposure, and 23.44 per cent of the apple growers, and were having high level of media 253 exposure.

254 10.

Innovative proneness

255 It is evident from the data presented in the table 10 that in low altitude, 38.33 per cent 256 of the apple growers were having medium level of innovation proneness, followed by 33.33 257 per cent of the apple growers, who were having low level of innovation proneness and 28.44 258 per cent of the apple growers were having high level of innovation proneness. While in mid 259 altitude, 40 per cent of the apple growers were having low level of innovation proneness, 260 followed by 38.44 per cent of the apple growers, who were having medium level of 261 innovation proneness and 21.66 per cent of the apple growers were having high level of 262 innovation proneness. In case of high altitude, 65 per cent of the apple growers were having 263 low level of innovation proneness, followed by 28.44 per cent of the apple growers, who 264 were having medium level of innovation proneness and 06.66 per cent of the apple growers 265 were having high level of innovation proneness (fig. 7).

266

11. **Extension contact**

267 The data presented in the table 11 reveals that in low altitude, 60 per cent of the apple 268 growers were having low extension contact, followed by 25 per cent of the apple growers, 269 who were having high extension contact and 15 per cent of the apple growers were having 270 medium extension contact. Where as in case of mid altitude, 68.44 per cent of the apple 271 growers were having low extension contact, followed by 16.66 per cent of the apple growers,

who were having medium extension contact and 15 per cent of the apple growers were having high extension contact. In case of high altitude, 75 per cent of the apple growers were having low extension contact, followed by 18.44 per cent of the apple growers, who were having medium extension contact and 6.66 per cent of the apple growers were having high extension contact. It indicates that in all the three altitude areas farmers were having low level of extension contact which is indicative of big extension gap.

278

II. Attitude of farmers towards apple cultivation

279 The data presented in table 12 reveals that in lower altitude 50 per cent of apple 280 growers had neutral attitude towards apple cultivation, followed by 35 per cent of the apple 281 growers, who had favourable attitude towards apple cultivation and 15 per cent had less 282 favourable attitude towards apple cultivation Where as in case of middle altitude 41.66 per 283 cent of apple growers had neutral attitude towards apple cultivation, followed by 30 per cent 284 of the apple growers, who had less favourable attitude towards apple cultivation and 28.44 285 per cent had favourable attitude towards apple cultivation It is evident from the data that in 286 case of upper altitude 40 per cent of apple growers had neutral attitude towards apple 287 cultivation, followed by 33.44 per cent of the apple growers, who had less favourable attitude 288 towards apple cultivation and 26.66 per cent had favourable attitude towards apple 289 cultivation. It indicates that in all the three altitudes i.e. lower altitude, middle altitude and 290 higher altitude, majority of the farmers having neutral attitude towards apple cultivation.

291

			Altitu	ıde					
A go group	Lo	W	Mi	Mid High			Mid		igh
Age group	n_1 =	:60	<i>n</i> ₂ =	:60	<i>n</i> ₃ =60				
	No.	%	No. %		No.	%			
Young(18-28)	19	31.66	18	(30)	14	(23.44)			
Middle(29-56)	21	35	25	(41.66)	30	(50)			
Old(>56)	20	33.44	17	(28.44)	16	(26.66)			
Mean ± S.D	42.49 ± 13.90		44.81 ±	16.08	48.08 ± 15.98				
Observed range	18-	18-72 22-75		18-90					

Table - 1 Distribution of apple growers according to their age, (N=180)

Table - 2 Distribution of apple growers according to their experience, (N=180)

	Altitude								
Experience	Low n ₁ =60		Mid n ₂ =60		High n ₃ =60				
	No.	%	No.	%	No.	%			
Low (Upto 10 years)	26	43.44	24	40	26	43.44			
Medium (11-30 years)	15	25	21	35	23	38.33			

High(>30)	19	31.66	15	25	11	18.33
Mean ± S.D	20.1	± 10.13	21.30 ±	11.07	22.68	3 ± 10.79
Observed range	0′	7-40	05-	44	0	4-50

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Table - 3 Distribution of apple growers according to their education, (N=180)

			Altitude						
Education	Ι	LOW		Mid	High n ₃ =60				
Education	n	₁ =60	n	2 ₂ =60					
	No.	%	No.	%	No.	%			
Illiterate	13	21.66	19	31.66	24	40			
Primary	08	13.33	07	11.66	05	8.33			
Middle	06	10	10	16.66	12	20			
Matric	10	16.66	07	11.66	10	16.66			
10+2	09	15	08	13.33	09	15			
Graduate	10	16.66	08	13.33	00	00			
Above graduate	04	6.66	01	1.66	00	00			

297

298 Table - 4 Distribution of apple growers according to their family education, (N=180)

			Alt	itude							
Family education	Lo	W 60	M	id -60	High						
	$n_1 = $	00	n_2	=00 07.	$n_3 =$	00					
	INU.	-70	INU.	-70	INU.	-70					
Low	17	28.44	20	33.44	24	40					
Medium	19	31.66	25	41.66	22	36.66					
High	24	40	15	25	14	23.44					
Mean ± S.D	2.52 ± 1.02		2.25 ± 0.87		1.95±0.94						
Observed range	0.42-5.28		0.4-3.62		0.2-3.85						

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300

Table - 5 Distribution of apple growers according to their family type, (N=180)

			Altitu	ıde							
Family type	Lov	W	Mi	d	Hig	gh					
Family type	$n_1 =$	60	$n_2 =$	60	$n_3 =$	High n ₃ =60 No. % 14 (23.44) 30 (50)					
	No.	%	No.	%	No.	%					
Nuclear	37	(61.66)	25	(41.66)	14	(23.44)					
Joint	17	(28.44)	24	(40)	30	(50)					
Extended	06	10)	11	(18.44)	16	(26.66)					

302

Table - 6 Distribution of apple growers according to their family size, (N=180)

	Altitude							
Family size	Lo n ₁ =)w =60	Mid n ₂ =60		High n ₃ =60			
	No.	%	No.	%	No.	%		
Small (Upto 5 members)	36	60	23	38.44	13	21.66		
Medium (5-10 members)	18	30	21	35	38	63.44		
Large (More than 10 Members)	06	10	16	26.66	09	15		

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Table - 7 Distribution of apple growers according to their land holding, (N=180)

	Altitude							
Land holding	L n ₁	ow =60	Mid n ₂ =60		High n ₃ =60			
	No.	%	No.	%	No.	%		
Marginal (Less than 1 ha)	22	36.66	27	45	34	56.66		
Small (1-2 ha)	20	33.44	22	36.66	17	28.33		
Medium (2-4 ha)	18	30	11	18.44	09	15		

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Table - 8: Distribution of apple growers according to their social participation, (N=180)

	Altitude							
Social Participation	L n ₁	ow =60	$N n_2$	1id =60	High n ₃ =60			
	No.	%	No.	%	No.	%		
Member of no organization	49	81.66	52	86.66	58	96.66		
Member of one organization	11	18.44	08	13.44	02	3.44		
Member of more than one organization	00	00	00	00	00	00		
Organization office bearer	00	00	00	00	00	00		
Wide Public Leader	00	00	00	00	00	00		

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Table - 9 Distribution of apple growers according to their media exposure, (N=180)

Fritant of			Altit	ude		
Media exposure	Low n ₁ =6	7 0	Mid n ₂ =6	0	High n ₃ =60	
	No.	%	No.	%	No.	%
Low	8	13.44	20	33.44	25	41.66
Medium	16	26.66	22	36.66	21	35
High	36	60.00	18	30	14	23.44
Mean ± S.D	8.36±3.04		6.91±3.	.62	6.13±3.04	
Observed range	01-12		0-12		0-12	

311

312 Table- 10 Distribution of apple growers according to their innovative proneness,

313 (N=180)

			Altitu	de						
Extent of Innovative Proneness	Low n ₁ =60		Mid n ₂ =60		High n ₃ =60					
	No.	%	No.	%	No.	%				
Low	20	33.33	24	40	39	65				
Medium	23	38.33	23	38.44	17	28.44				
High	17	28.44	13	21.66	04	6.66				
Mean \pm S.D	8.06±4.76 7.48±4.27 4.56±4.01					.01				

Observed range	0.4-16	0.6-16	0.4-16
- e			

315 Table - 11 Distribution of apple growers according to their extension contact, (N=180)

	Altitude							
Level of Extension contact	Low $n_1=60$		$Mid n_{2} = 60$		High n ₂ =60			
	No.	%	<u>No.</u>	%	No.	%		
Low	36	60.00	41	68.44	45	75		
Medium	09	15.00	10	16.66	11	18.44		
High	15	25.00	09	15.00	04	6.66		
Mean ± S.D	7.11±5.08		6.41±5.51		5.15±4.86			
Observed range	0-16		0-16		0-16			

Table - 12: Attitude of farmers towards apple cultivation, (N=180)

	Altitude							
Category	Low n ₁ =60		Mid n ₂ =60		High			
					n ₃ =60			
	No.	%	No.	%	No.	%		
Favourable	21	35	17	28.33	16	26.66		
Neutral	30	50	25	41.66	24	40		
Less favourable	09	15	18	30	20	33.44		
Mean±S.D	39.85±21.76		39.41±19.55		38.36±17.36			





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Fig. 4 : Experience of the farmers in apple cultivation in selected altitudes in the study area.











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Fig. 7: Innovative Proneness of apple growers in the selected altitudes in the study area.

336 **Conclusion:**

338 As for as apple production is considered which is the principle fruit crop of Jammu 339 and Kashmir and also provides supplementary source of income. It is the backbone of the 340 district economy and state too as well. The farmers are responsive to new ideas and are 341 willing to take up improved practices. The main purpose of this study, therefore, was to 342 analyse the various socio-personal variables like age, experience, education level, family 343 education status, family type, family size, land holding and socio-psychological variables like 344 social participation, media exposure, innovation proneness and attitude of farmers towards 345 apple cultivation. It was seen that majority of the apple growers were having neutral, 346 followed by favourable and less favourable attitude towards apple cultivation.

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