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Profile of vegetable seed growers in Koppal district of Karnataka

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Abstract
The study was conducted in Koppal district during the year 2018-19 as it is a major seed production area in North East Karnataka with a sample size of 180. Considering the maximum area under hybrid vegetable seed production Koppal and Yelburga taluks were selected for the study. Ex-post facto research designs was used for the study. Higher percentage of the respondents (42.22%) belonged to middle age, followed by higher proportion of the respondents (24.44%) studied up to high school level, medium family size (46.11%). One third (33.33%) of the growers belonged to semi medium farmers category followed by medium farming experience (45.56%) and 42.22 percent of the respondents had medium seed production experience i.e. 8-12 years. All the seed growers had medium socio-economic status with respect to annual income (51.11%). Seed growers had medium cosmopoliteness (38.33%), high extension orientation (51.11%), high scientific orientation (40.56%) and high innovativeness (54.45%). With respect to change proneness 21.12 percent of the seed growers won awards as best producer and nearly sixty (57.22%) percent of the growers opined that they actively involved in social functions. The data collected was analysed by using appropriate statistical tools like mean, frequency and percentage.

Keywords: Vegetable seed production, Socio-economic profile, education, seed growers

Introduction
Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20 percent depending upon the crop and it can be further raised up to 45 percent with efficient management of other inputs. The developments in the seed industry in India, particularly in the last 30 years, are very significant. The profile of seeds in India has changed over the years. Earlier, it was the seeds saved from the previous crop that was used in Indian agriculture. Now it is the most advanced seeds that are developed by seed companies that dominate the farmers' fields. The phenomenon has roots in the changing dynamics of agriculture, not only in India but also world wide. The spectre of changing climate, the danger of depleting resources and the threat of burgeoning population has diminished the productivity of agriculture. Stagnant yields and yield loss have become quite persistent. Adding to the chaos, India has its own share of problems –lower penetration of technology, shrinking land holdings, marginal farmers, lack of mechanization, shortage of labour to name among a few. The growth of seed industry can be considered parallel to the growth of India's agri production. Today, the Indian seed industry is the fifth largest seed market in the world, accounting for 4.4% of global seed market after the U.S. (27%), China (20%), France (8%) and Brazil (6%). In terms of global trade, India is almost self-sufficient in flower, fruits and vegetables and field crops seeds. The private seed companies in seed production resort to contract farming mainly to have assured supply of genuine seed material in required quantity at the right time, which has been produced under their supervision. On the other hand, the farmers are interested to enter into seed production mainly to minimize the price risk of inputs, and also to reap higher profits out of this seed production activity over commercial production of crops. The present investigation is an integrated effort to study seed production of private agencies and also study socio -economic aspects of production of seeds and also to identify the constraints in its production with an overall view of exploring the possibility of bringing about required improvement.

Methodology

Koppal district was purposively selected for the study, as it is one of the important and major hybrid vegetable seed growing districts in Karnataka. Out of seven taluks in the district, Koppal and Yelburga taluks were selected for the study because hybrid vegetable seed production is highly concentrated in these two taluks of the district. After formal discussion with Permitted Seed Production Organizers (SPOs) the list of farmers was obtained and active seed growers were selected after validating with SPOs. Villages with highest number of active seed growers were selected based on the crops specified for the research study. Four villages from each taluk have been selected to maintain proportionality in the sampling. The study was planned to involve seed growers under private agencies as there was no participation of public sector in the vegetable seed production in the study area.

In discussion a few SPOs were identified and the list of active seed growers were obtained. Seed growers were selected based on the criteria that the farmers must be in seed production for minimum 3years and should grow any one of the specified vegetable seed crop in last 2 years. The respondents for the study were selected from the list using simple random sampling technique. Different number of sample from each village is drawn based on the number of seed growers fitting in the criteria. Total respondents selected for the study was 180. The data was analyzed, tabulated and the results were drawn with the help of appropriate statistical tools and methods.

Results and discussion

Profile of the vegetable seed growers

The data recorded in Table 1 depicted the results of the profile of seed growers which influenced on the perception and entrepreneurial behaviour of the vegetable seed growers engaged in vegetable seed production.

Age

An insight into Table 1 revealed that, 42.22 percent of the growers belonged to middle age followed by young age (35.00%) and old age category (22.78%). Usually growers of middle age are more enthusiastic and have more work efficiency. Middle aged persons have more physical vigour and owe more family responsibility than the young and old ones. This might be the reason to find majority of growers in middle age group. These results are in agreement with the findings observed by Khan *et al.* (2020) [4] and Gayathri and Sahana (2022) [2]

Education

It is clear from the results that, about 24.44 percent of the growers had high school education, followed by education up to pre-university, middle school, primary school, graduate and above with 20.00, 15.00, 11.67 and 12.78 percent respectively. Sixteen percent of growers were observed in case of illiterates.

The probable reason for majority of growers to be educated up to high school might be due to their medium socio-economic status, lack of facilities for college education in nearby villages, which forces them to travel to taluk headquarters if at all they want to pursue college education. Realization of importance of formal education both by growers and offsprings, due to increased contact with educated people like extension personnel might have motivated few of them to pursue higher education. The illiteracy of the growers might be due to ignorance and less contacts with other educated people in addition to their socio-economic status. These findings are in line with the study of Chithra *et al.* (2018) [1] and Khan *et al.* (2020) [4].

Family Size

The results pertaining to family size revealed that, 46.11 percent of the respondents had medium family size followed by large (32.22%) and small family size (21.67%). The probable reasons could be in rural area people do not usually separate with their family members. A son after marriage does not separate from the parents but continuous to stay with them under the same roof and holding property in common. It might be helpful in personal involvement of family members in different enterprises. The results are matching with the findings of Medhi *et al.* (2020) [8] and Shankar *et al.* (2022) [14].

Land holding

Growers were categorized into five groups based on their land holding. One third (33.33%) of the growers belonged to semi medium land holding category, followed by small, marginal and medium with 31.66, 24.46 and 7.22 percent respectively. Very less percent of growers (3.33%) were observed in big land holding category. Increase in family members results in fragmentation of ancestors land leading to semi-medium and small land holdings. These findings in are line with the results of Medhi *et al.* (2020) [8].

Farming experience

The results pertaining to general farming experience from Table 1 revealed that, 45.56 percent of the respondents had medium farming experience followed by high (28.89%) and low farming experience (25.56%). Majority of the respondents were middle aged and had high school education. After the formal schooling, they might have started practicing agriculture as their main occupation so the results show more number of growers under medium farming experience. This findings in are line with the outcomes of Medhi *et al.* (2020) [8]

Seed production experience

The results pertaining to seed production experience revealed that, 42.22 percent of the respondents had medium seed production experience i.e. 8-12 years followed by high i.e> 12 years (33.33%) and low i.e <8 years seed production experience (24.44%). Seed production is recent activity and many of the growers are now shifting from traditional agriculture to seed production activities. With the informal discussion with growers it was observed that the growers were introduced to seed production activities from past 20-25 years. So the experience of the growers is in the range of 8-12 years. The above result got support from the study conducted by Nagaraj *et al.* (2018) [10].

Annual income

It is apparent from the results recorded in Table 1 revealed that, half number (51.11%) of the growers had medium annual income, followed by high (27.77%) and low (21.12%) income respectively. The probable reason, which could be attributed for varied income categories of growers might be due to the size of the land holding and practicing of seed

production as a major source of income which is fixed for the growers. The results are in conformity with the findings of Medhi *et al.* (2020) [8] and Shankar *et al.* (2022) [14].

Cosmopoliteness

Results furnished in Table 2 indicated the personal profile of the seed growers. It is evident from the results that, more than one third (38.33%) of the growers had medium cosmopoliteness, followed by 35.00 and 26.67 percent of the growers having high and low level of cosmopoliteness, respectively.

Majority of farm youth had frequent contacts with individuals outside their social system. This would provide an opportunity for interpersonal communication with people outside their social system. Thus, they are more likely to get information regarding improved seed production technology. In the words of Merton (1968) [20], "the cosmopolitans have extra local interest, whereas the locals are more immediately concerned with direct interpersonal relations. On one end it is to read more about the great world outside, while the other to act on the little world inside". The results are in conformity with the findings of Gayathri and Sahana (2022) [2].

Extension orientation

In case of Extension orientation, 45.00 percent of the seed growers belonged to medium level extension orientation followed by high (36.67%) and low (18.33%) level of extension orientation.

The probable reason for medium to high level of extension orientation among growers might be due to the fact that majority of them had high level of education and participated in the extension activities organised by the Department of Agriculture and Agricultural University. The results obtained may be due to excitement of growers in solving their problems with extension personnel, also interest in extension activities to gather recent information and to learn about practical usefulness of the new technology of seed production from extension personnel. These results of the study are in conformity with the findings of Sharma *et al.* (2015) [16], Papnai *et al.* (2017) [12] and Kote (2019) [5].

Scientific orientation

The data presented in Table 2 revealed that, 40.56 percent of growers had high level of scientific orientation followed by 32.22 percent and 27.22 percent of the growers (30.38%) had medium and low level of scientific orientation.

This could be due to their level of education, and more use of mass media to educate themselves on new and emerging technologies. Besides even influential environment and broader mind set might have also motivated them to have high orientation to try new scientific technologies. The results are in line with the findings of Kumar and Tiwari (2021) [7] were farmer's possessed high scientific orientation.

Capacity building

The results of capacity building from Table 2 revealed that, more than one third (37.23%) of the growers under went 1-2 trainings while 32.77 and 21.12 percent of the growers underwent 3-4 trainings and >5 trainings, respectively. Only 8.88 percent of the growers had undergone no trainings regarding seed production.

Most of the respondents irrespective of their background have undergone training on seed production activities organized by private agencies and public institutions to acquire more knowledge as well as to learn skills in vegetable seed production. Trainings have helped the growers to adopt new improved seed production techniques. This might be the reason for the above trend. The finding of this study was supported by the results of study conducted by Panda (2021) [11].

Mass media utilisation

The finding from the Table 3 showed that, over two fifth (41.67%) of the growers belonged to medium mass media utilisation category. Whereas, 34.45 and 23.88 percent of growers belonged to high and low mass media utilisation categories, respectively. Medium to high level mass media utilization explains that they are very much dependent on mass media not only as a source of news and information, but also as a source of entertainment. In general the mass media enhances the knowledge among seed growers. Mass media helps to update the latest developments which are a good sign which speaks about the interest of the seed growers. The finding of this study was supported by the results of study conducted by Kowsalya (2017) [6].

The results pertaining to mass media utilization presented in Table 4 revealed that television was the most effective common media which was possessed by a large majority of the growers (83.33%). Increasing popularity and economic value of television has dominated in its use over the other mass media.

The television viewing, newspaper reading and radio listening were mainly for the purposes other than agricultural programmes. The less utility and lack of practicability of information and inconvenient timing of the agricultural programmes may be the reason that could be attributed.

With respect to ICT tools, majority (75.00%) of the respondents accessed ICT tools because most of the growers feel easy to handle ICT tools such as smart phones, computers etc.

The probable reason might be that, mass media are the proven channels for quick dissemination of information to a widely dispersed and large number of people in a shorter period. Mass media contact enhances the ability of growers to get more information about current affairs as well as information on recent agricultural technology or innovation and in turn widens the psychological horizon of the growers to accept and adopt the practices. Mass media also provides information on experiences of successful growers through various channels like television, radio, newspaper etc., which reinforces confidence in other growers to take up similar activities or try out new innovations. These results are in line with findings of Nagaraj *et al.* (2018) [10].

Change proneness

The results from Table 5 revealed change proneness of the seed growers with respect to socio-economic benefits. The growers who were involved in vegetable seed production opined that the technology had provided them a better opportunity change themselves in terms of social status, house hold income and family welfare. In case of change in social status, acquisition of membership in social institution has nearly doubled when compared to before and after the seed production followed by 21.12 percent of the seed growers won awards as best producer and nearly sixty (57.22%) percent of the growers opined that they actively involved in

social functions after getting into seed production.

With respect to change in household income, nearly two third (65.00%) of the growers expressed that they were able to purchase new household items after they received greater income from seed production while 53.33 percent of the growers accepted that there was increase in total income upto 25.00 percent from seed production.

Family welfare was important reason because of which the growers are continuing in vegetable seed production where in 71.12 percent of the growers expressed that they could afford to provide better education for their children and few growers also built new houses from the profit received.

The probable reason could be thethat commercial seed production was considered to be more stable income-generating activities in comparison to other farm production activities. Seed production adds substantially to the economic development of the farm families. The results are in line with the findings of Sudha *et al.* (2016) [17] Unmesh *et al.* (2021) [18].

Cropping pattern

The major cropping pattern of seed growers in the study area is presented in Table 6. It was observed from the table that in the study area, nearly sixty percent (57.84%) of gross cropped area was cultivated in the kharif season and 42.16 percent in the rabi season. Maize occupied major portion of the cropped area in kharif season, which worked out to be 18.75 percent of gross cropped area, followed by bajra, seed production vegetables, sunflower and other crops, which occupied 14.95, 9.07, 7.50, 2.88 and 4.67 percent of the gross cropped area in the presented order. During rabi season, chickpea occupied a major portion of the gross cropped area, which worked out to be 17.89 percent, while groundnut, vegetables, hybrid seed production and other crops, which occupied 11.89, 5.05, 1.45 percent and 5.88 percent of gross cropped area, respectively. The cropping intensity of the study area is 172 percent.

Cropping pattern followed by growers in a particular area depends upon rainfall condition, irrigation facilities and commercial importance of crops, food habit and climatic conditions of the area. It was found from the table that growers were found to diversify their cropping pattern mainly to minimize the risk of crop failures, since major proportion of their operational holdings was under dry land conditions. As they have taken up labour intensive and high investment oriented seed production activity on their farm, they were not in a position to include many varieties of crop enterprises, which require higher investment. As a result, the cropping pattern was mainly dominated by crops like maize, bajra and sunflower followed by some seasonal and year around income crops like vegetables. The results are in line with the findings of Mulimani (2015) [9] and Vinayak and Poddar (2019) [19].

Table 1: Distribution of the seed growers according to their profile

(n=180)

Sl. No.	Characteristics	Frequency	Percent
I. Age			
1	Young (<35 years)	63	35.00
2	Middle (35-55)	76	42.22
3	Old (>55)	41	22.78
II. Education			
1	Illiterate	29	16.11
2	Primary school	21	11.67
3	Middle school	27	15.00
4	High school	44	24.44
5	Pre university	36	20.00
6	Graduate and above	23	12.78
III. Family size			
	Small (1-3 members)	39	21.67
	Medium(4-6 members)	83	46.11
	Large (7 and above)	58	32.22
IV. Land holding			
1	Marginal (up to 2.5 acres)	44	24.46
2	Small (2.51-5.00 acres)	57	31.66
3	Semi medium (5.01-10 acres)	60	33.33
4	Medium (10.01-25 acres)	13	7.22
5	Large (>25 acres)	6	3.33
V. Farming experience (Years)			
A	**Farming experience**		
1	Less than 16 Years	46	25.55
2	In Between 17 to 28years	82	45.56
3	More than 28 Years	52	28.89
		Mean= 22.62	**S.D.= 14.26**
B	**Seed production experience**		
1	Low (<7 years)	60	33.33
2	Medium (7-12 years)	76	42.22
3	High (>12years)	44	24.44
		Mean=9.88	**S.D.=5.14**
VI. Annual income			
1	Low income group(<2.50Lakh)	38	21.12
2	Medium income group (Rs.2.51 to 5.00 Lakh)	92	51.11
3	High income group (>5.00Lakh)	50	27.77

Table 2: Distribution of vegetable seed growers according to their personal characteristics

n=180

Sl.no	Category	Response	
I	**Cosmopoliteness**	**Frequency**	**Percent**
1	Low (<4.47)	48	26.67
2	Medium(4.47-5.62)	69	38.33
3	High (>5.62)	63	35.00
		Mean =5.04	
		S.D.=1.35	
II	**Extension orientation**		
1	Low (<6.95)	33	18.33
2	Medium(6.95-10.90)	81	45.00
3	High (>10.90)	66	36.67
		Mean =8.92	
		S.D.=4.62	
III	**Scientific orientation**		
1	Low (<11.33)	49	27.22
2	Medium(11.33-12.58)	58	32.22
3	High (>12.58)	73	40.56
		Mean= 11.95	
		SD=1.46	
IV	**Capacity building**		
1	No trainings attended	16	8.88
2	1-2 trainings attended	67	37.23
3	3-4 trainings attended	59	32.77
4	>5 trainings attended	38	21.12

Table 3: Distribution of vegetable seed growers based on mass media utilization

n=180

Sl. No	Category	Respondents	
		Frequency	**Percentage**
1	Low (<8.75)	43	23.33
2	Medium (8.75-13.04)	75	41.67
3	High (>13.04)	62	34.45

Mean: 10.90 S.D.=5.04

Table 4: Distribution of vegetable seed growers according to extent of mass media utilization

(n=180)

Sl. No.	Source of mass media	Subscription/ Possession		Programmes	Frequency of use					
					Regular		Occasionally		Never	
		F	%		F	%	F	%	F	%
1	Radio	4	2.22	General	00	00.00	1	00.55	00	00.00
				Agriculture	00	00.00	3	1.66	00	00.00
2	Television	150	83.33	General	99	55.00	3	1.66	00	00.00
				Agriculture	75	41.66	3	1.66	00	00.00
3	Newspaper	120	66.66	General	57	31.66	30	16.66	48	26.66
				Agriculture	15	8.33	18	10.00	12	6.66
4	Farm magazine	84	46.66	General	6	3.33	4	2.22	25	13.88
				Agriculture	60	33.33	15	8.33	70	38.88
5	ICT tools	105	60.00	General	67	41.66	24	12.50	15	8.33
				Agriculture	53	33.33	15	8.33	6	3.33

Table 5: Distribution of vegetable seed growers based on change proneness in socio- economic status

(n=180)

Sl. No.	Particulars	Before seed production	After seed production
I	**Change in social status**		
1	Acquired membership in social institutions	48(26.67)	91(50.56)
2	Received best seed producer awards	2(1.12)	38(21.12)
3	Involved actively in social functions	54(30.00)	103(57.22)
II	**Change in household income**		
1	Increase in total income upto 25%	4(2.22)	96(53.33)
2	Able to build new house	12(6.67)	33(18.33)
3	Purchase of new house hold items	36(20.00)	117(65.00)
III	**Change in family welfare**		
1	Bought new lands	-	7(3.89)
2	Better education for children	73(40.56)	128(71.12)

Figures in parenthesis represents percentage

Table 6: Major cropping pattern followed in the study area

(n=180)

Sl. No.	Particulars	Average area	Percent
I. *Kharif* Crops			
a.	Maize	1.73	18.75
b.	Bajra	1.38	14.95
c.	Sunflower	0.27	2.88
d.	Vegetables	0.69	7.50
e.	Seed production	0.84	9.07
f.	Others	0.43	4.67
	Sub Total	5.35	57.84
II. *Rabi* Crops			
a.	Chickpea	1.66	17.89
b.	Groundnut	1.10	11.89
c.	Vegetables	0.47	5.05
d.	Seed production	0.13	1.45
e.	Others	0.54	5.88
	Sub Total	3.90	42.16
III.	Gross cropped area	1665	100.00
IV.	Net cropped area	963	--
V	Cropping intensity (%)	172	--

Conclusion

The results of the study revealed that higher percentage of the respondents (42.22%) belonged to middle age, followed by higher proportion of the respondents (24.44%) studied up to high school level, medium family size (46.11%). One third (33.33%) of the growers belonged to semi medium farmers category followed by medium farming experience (45.56%) and 42.22 percent of the respondents had medium seed production experience i.e. 8-12 years. All the seed growers had medium socio-economic status with respect to annual income (51.11%). In case of cropping pattern it was observed that 57.84 percent of gross cropped area was cultivated in the kharif season and 42.16 percent in the rabi season. Maize occupied major portion of the cropped area in kharif season and chickpea occupied a major portion of the gross cropped area in rabi season. Seed growers had medium cosmopoliteness (38.33%), high extension orientation (51.11%), high scientific orientation (40.56%) and high innovativeness (54.45%). The results of capacity building revealed that 37.23 percent of the growers under went 1-2 trainings. With respect to change proneness it was revealed that 21.12 percent of the seed growers won awards as best producer and nearly sixty (57.22%) percent of the growers opined that they actively involved in social functions after getting into seed production. Still, there is a lot of scope to expose the seed growers to new seed technologies and motivate them to adapt the new technologies through extension activities like adaptive trial, series of brain storming sessions, capacity building about ICT tools. Hence, both public and private sector must come together and emphasize on scaling these variables for their advantage in order to enhance knowledge and perception level of seed growers and also intensive training programs can be developed to improve socio-economic status of seed growers.

References

1. Chithra YD, Meti SK, Maraddi GN, Manjunatha BN. Entrepreneurial behaviour of pigeon pea seed growers: A Study in Raichur District of Karnataka India. Int. J Curr. Microbiol. App. Sci. 2018;7(6):1754-1762.
2. Gayathri GN, Sahana S. Socio economic profile of fruits and vegetable growers. Asian. J Agric. Ext. Econ. Sociol. 2022;40(11):175-184.
3. Ghosh MK, Islam MT, Islam MM, Arif T, Haidar MA. Socio-economic Status of Vegetable. EBAUB J. 2020;2:30-35.
4. Khan M, Sharad B, Gaurav M. Socio-Economic Profile of Vegetable Growers under Horticulture based Module of Farmer FIRST Project in Balaghat (M.P.), India. Int. J. Curr. Microbiol. App. Sci. 2020;9(3):3252-3257.
5. Kote P. A comprehensive analysis of integrated farming system under dryland and irrigated conditions in north eastern transition zone of Karnataka, Ph.D. Thesis (Unpub.), Univ. Agril. Sci., Raichur, Karnataka; c2019.
6. Kowsalya KS. Impact of Integrated Farming System Demonstration (IFSD) programme on livelihood and nutritional security of farmers of Mandya district. Ph. D (Agri.) Thesis (Unpub)., Univ. Agril. Sci., Bangalore, Karnataka; c2017.
7. Kumar A, Tiwari OK. Socio-economic profile of vegetables growers at different size group of farms in District Meerut western U.P. Bull. Env. Pharmacol. Life Sci. 2021;10(8):222-226.
8. Medhi S, Singha AK, Singh R, Singh RJ. Socio-Economic, Psychological Profile and Constraints Faced by the KVK Adopted Farmers for Improved Rice Cultivation in West Garo Hills District. Econ. Affairs. 2020;65(3):379-388.
9. Mulimani S. Analysis of contract farming in selected seed production crops in Haveri district. *M*.Sc. (Agri.) Thesis, (Unpub.), Uni. Agril. Sci., Bengaluru, Karnataka, 2015.
10. Nagaraj BK, Lakshminarayana MT, Nishitha K. Personal, socioeconomic, psychological and communication characteristics of the Paddy growers, Int. J Curr. Microbiol. App. Sci. 2018;7(1):4501-4510.
11. Panda A. Influence of profile characteristics of village agricultural workers on role performance in Odisha. Asian J Agric. Ext. Econ. Sociol. 2021;39(8):98-107.
12. Papnai G, Bhardwaj N, Kashyap SK, Sunetha S. Socio-personal, communication characteristics and information needs of vegetable growers of hill region of Uttarakhand. J Krishi Vigyan. 2017;6(1):191-196.

13. Preethi N. Perception of farm youth towards agriculture, Mysore J Agric. Sci. 2015;51(1):128-132.
14. Shankar D, Singh DK, Yadav RN, Singh LB, Satya P. Study on socio-economic profile of vegetable growers in Western Uttar Pradesh. J Pharma Innov. 2022;11(11):1766-177
15. Sharma. Round the year vegetable production inside low cost Poly house under mid hills of North – West Himalayas. Int. J Sci. Env. Technol. 2016;5(4):2205-2208.
16. Sharma K, Dhaliwal NS, Ajay Kumar. Analysis of adoption and constraints perceived by small paddy growers in rice production technologies in Muktsar district of Punjab State, India. Indian Res. J Ext. Edu. 2015;15(2):20-23.
17. Sudha M, Gajanana TM, Sreenivasamurthy D. Economic impact of commercial hybrid seed production in vegetables on farm income, employment and farm welfare – A case of tomato and okra in Karnataka. Agric. Econ. Res. Rev. 2016;19(1):251-268.
18. Unmesh P. Development interventions, adaptation decisions and farmers' well-being: evidence from drought-prone households in rural India. Clim. Dev. 2021;11(12):1-17.
19. Vinayak J, Poddar RS. An economic analysis of changing cropping pattern in Almatti command area of Karnataka. Int. J Curr. Microbiol. App. Sci. 2019;8(10):1052-1059.
20. Merton RK. Social theory and social structure. Simon and Schuster; c1968.