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Linking the perception and limitations in practicing agriculture: A case study from Uttara Kannada district

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Abstract
The present study envisaged on linking the perception, trends and drivers limiting practice of agriculture in Uttara Kannada district. Agriculture is an important engine for economic growth, which guarantees subsistence for food, income and livelihood without which growth is impossible. The results revealed that agriculture was affordable by majority farmers (90%) in current inflationary scenario and farmers were interested in farming. Farmers of Uttara Kannada district opined that awareness on various agricultural schemes at panchayat level (51.56%), fair and un-politically influenced supply of farming inputs (77.30%), standard market price for the agriculture produce (50.35%), road network & transport facility (46.81%), functioning APMC (20.57%), crop compensation caused due to natural hazards & animal attack (19.86%) and development of dairy (19.86%) would help agriculture to flourish in Uttara Kannada district.

Keywords: Perception, threat, agriculture, benefits, constraints

Introduction
The agriculture sector continues to play a crucial role for development especially in low and middle-income countries, where the sector is large, both in terms of aggregate income and total labour force. To meet the global food demand, agricultural production will need to enhance by 70 per cent using scientifically sound, environment friendly and socially acceptable technologies/practices by 2050 (Anon, 2009) [1]. Currently, two challenges related to agriculture are well known to the world *i.e.* a) need to increase food productivity and production in developing countries b) volatility of food prices. Agriculture has been the main source of livelihood for majority of farmers in India. Agriculture provides food, income and livelihood opportunities and hence acts as an engine of growth in agriculture based developing countries and an effective tool to reduce poverty in transforming the countries (Doddabasawa, 2017) [5]. Balancing agriculture and industry is an important-although-difficult-dimension of development policy. Recently, "agro-pessimist" views based on the observation that agriculture in developing countries is often the least productive sector had been voiced in the literature.

Agriculture is important for economic growth in the sense that it guarantees subsistence without which growth is not possible. With lower productivity in agriculture, wages will be higher in modern sector, which induces labour to move from agriculture to modern sector (Ashari *et al.* 2016) [3]. Today, India is observing a structural transformation with a share of agriculture sector in GDP declining and that of non-agriculture (industry and services) increasing rapidly. Despite a reported decline from 29 to 17.4 per cent in GDP, India continues to be predominantly an agrarian rural economy with around 69 per cent of its population living in rural areas and around 47 per cent of workforce engaged in agriculture (Anon, 2017) [2].

Given this huge dependency of farming community on agriculture, it is imperative to focus on growth in order to ensure food security and eliminate poverty in the country. Given the potential of agricultural practices to improve agricultural land use systems this study seeks to assess how farmers perceive agriculture practices, ascertain and identify the benefits received and threats hindering the growth of agriculture in Uttara Kannada district.

Materials and Methods
The study considered Uttara Kannada district of Western Ghats landscape into three bioclimatic zones based on Pascal's classification of Western Ghats (Pascal, 1984) [7]. The Uttara Kannada district was considered as a unit, in which three distinct bioclimatic zone *i.e.*, Coastal zone, Upghat and Eastern plain zone.

To understand the perception about practice of agriculture, two stage stratified random sampling was used to select with 10 per cent sampling intensity. Thus, a total of 22 panchayat across 11 taluks of Uttara Kannada district were surveyed and in each panchayat 09 farmers were randomly selected. The farmers were further categorized into small (<2 acres), Medium (2-5 ha) and large farm holding size (>5 ha). Thus, total sample size were 198 farmers, comprising 90 farmers in West Coast, 72 farmers in Sahaydri Interior and 36 in Eastern Plains were surveyed.

The analysis of perception and threats in practicing agriculture were documented using a semi-structured schedule framed with close and open-ended questions. The responses were documented and were developed into codes, which were then arranged into themes for analysis. The results were analyzed using SPSS software and were expressed as percentage of respondents indicating a factor.

Results and Discussion

Of the total surveyed 198 farmers practiced agroforestry practicing farmers in Uttara Kannada district, 141 farmers were reported to possess agriculture land and were assessed for the study. Despite reported declining profits in agriculture sector, majority of farmers in across three bioclimatic zone of Uttara Kannada district (90%) opined that agriculture was affordable in current situation. This was due to fact that practice of agriculture was only primary source of income for majority of surveyed farmers while only 08 per cent of farmers disagreed with agriculture affordability and 03 farmers refrained to express their opinion due to low profits incurring in agriculture (Table 2). A close-ended question was posed to understand if farmers are losing interest in farming under prevailing circumstances. Evidently, majority farmers (90%) disagreed quoting; there exist interest in farming even today. Only 4.26 per cent farmers reported for losing interest in farming (5% in Coast, 2% in Upghat and 5.71% in Plain zone) while 5.67 per cent people resorted to remain neutral in expressing their interest (Table 2). These results are in concurrence with findings of Varadaranganath and Madiwalar (2010) [8] Uttara Kannada district.

Thus, to diagnose the limitations of sluggish agriculture growth it was essential to understand the support / facilities / benefits farmers are receiving at the level of Panchayat from government. Out of total 198 farmer, 141 farmers who possessed agriculture land, Zero interest loan from co-operative society was received by 77.30 per cent farmers followed by receiving of fertilizer/seed subsidy (41.84%) and implements/machinery subsidy (34.75%) by sampled farmers in Uttara Kannada district. Only 11 per cent of farmers received subsidy for constructing water-harvesting structure at their farmland (Table 2).

Zero per cent interest loan for cropping was very popular scheme utilized by farmers of Upghat and Eastern Plain zone while only 47 per cent of farmers of Coast zone could avail this facility. 56.52 and 54.35 per cent of farmers of Upghat zone were availing the facility of Implements/ machinery subsidy and Fertilizer/Seed subsidy, respectively. A few farmers of Coastal zone and Plain zone reported to receive fertilizer/seed subsidy (36.67% and 34.29%) and implements/machinery subsidy (23.33% and 25.71%) respectively. Water harvesting structure facility was not a popular facility provided to farmers of Coast and Eastern plain zone (Table 2).

Table 1: Details of panchayat selected for documentation of agriculture practices and perception in Uttara Kannada

District	Bioclimatic Zone	Taluk
Uttara Kannada	Coastal Zone	Karwar
		Ankola
		Kumta
		Honnavar
		Bhatkal
	Upghat Zone	Joida
		Yellapur
		Sirsi
		Siddapur
	Plains	Mundgod
		Yellapur

Table 2: Perception towards practicing agriculture in Uttara Kannada district

1.	Is Agriculture affordable in present times?							
	Coast		Upghat		Plains		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Agree	54	90.00 (±0.30)	41	89.13 (±0.31)	32	91.43 (±0.28	127	90.07 (±0.30)
Disagree	06	10.00 (±0.30)	02	4.35 (±0.21)	03	8.57 (±0.28)	11	7.80 (±0.27)
Neutral	-	-	03	6.52 (±0.25)	-	-	03	2.13 (±0.14)
Total	60	-	46	-	35	-	141	-
2.	**Are farmers in your regions losing interest in Farming?**							
	West Coast		Sahyadri Interior		Eastern Plains		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Agree	03	5.00 (±0.22)	01	2.17 (±0.15)	02	5.71 (±0.24)	06	4.26 (±0.20)
Disagree	56	93.33 (±0.25)	45	97.83 (±0.15)	26	74.29 (±0.44)	127	90.07 (±0.30)
Neutral	01	1.67 (±0.13)	-	-	07	20.00 (±0.41)	08	5.67 (±0.23)
Total	60	-	46	-	35	-	141	-
3.	**Are you receiving any Government support/facility for Farming?**							
	Coast		Upghat		Plains		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Fertilizer /Seed subsidy	22	36.67 (±0.49)	25	54.35 (±0.50)	12	34.29 (±0.48)	59	41.84 (±0.50)
Implements/ Machinery subsidy	14	23.33 (±0.43)	26	56.52 (±0.50)	09	25.71 (±0.44)	49	34.75 (±0.48)
0% Loan	28	46.67 (±0.50)	46	100.00 (±0.00)	35	10.00 (±0.00)	109	77.30 (±0.42)
Water Structure subsidy	02	3.33 (±0.18)	11	23.91 ((±0.43)	02	5.71 (±0.24)	15	10.64 (±0.31)
Total	60	-	46	-	35	-	141	-

Constraints in practicing agriculture by farmers in Uttara Kannada district

The constraints/limitation in practice of agriculture varied across bioclimatic zones and were recorded based on the opinion of sampled farming community of Uttara Kannada district These responses were themed into 10 categories in descending order of responses by farmers. The major limitation in practicing agriculture were shortage of labour (92.20%), lower profits of agriculture produce (78.72%), threat of animal attack on farms (42.55%), non-availability of irrigation (34.75%), lack of transportation facility (30.50%), fluctuating rainfall (25.53%), absence of market for selling of produce (18.44%), crop failure due to disease/pest (16.31%), occurrence of flood (5.67%) and family fragmentation (2.13%) (Table 3).

The limitation across bioclimatic zones differed with respect to topography and resource availability. Farmers of the Coastal zone reported that practicing agriculture is becoming difficult each day due to major limitations such as low incurring profits from agriculture (85.00%), shortage of labour (78.33%), and non-availability of neutral pH water (53.33%), repeated occurrence of flood (40%), distant market for selling of produce (38.33%), and animal attack (33.33%) on agriculture land (Table 3).

Farmers of Upghat zone quoted the major constraints hindering the practice of agriculture were lower profits incurring from agriculture produce (100%), acute labour shortage (91.30%), wild animal attack (56.52%) and far situated market for selling of agriculture produce (19.57%). Unlike farmers of Coastal zone and Upghat, farmers of Plain zone had different vision on constraints such as lower profits of agriculture produce (94.29), non-availability of irrigation (80%), fluctuating rainfall during odd seasons (65.71%), labour shortage (62.86%), crop failure due to pest/disease (54.29%), absence of market (31.43%) and lack of transportation (25.71%) facility/road network (Table 3). These results are in conformity with findings of Fox *et al.* (2017) [6] who assessed the trends in agricultural landscape of Thrissur district in Kerala. Doddabasava (2017) [5] also reported similar constraints faced by farmers in practicing agroforestry in North Eastern parts of Karnataka.

Table 3: Constraint in agriculture farming in descending order across Uttara Kannada district

Farming Constraint	Coast		Upghat		Plains		Total	
	No. of Farmer	Percent	No. of Farmer	Percent	No. of Farmer	Per cent	No. of Farmer	Percent
Labour Shortage	47	78.33 (±0.42)	42	91.30 (±0.28)	22	62.86 (±0.24)	130	92.20 (±0.27)
Low Profits	51	85.00 (±0.36)	46	100.00 (±0.00)	33	94.29 (±0.49)	111	78.72 (±0.41)
Wildlife attack	20	33.33 (±0.48)	26	56.52 (±0.50)	03	8.57 (±0.41)	60	42.55 (±0.50)
Irrigation non available	32	53.33 (±0.50)	-	-	28	80.00 (±0.28)	49	34.75 (±0.48)
Transportation	16	26.67 (±0.45)	05	10.87 (±0.31)	09	25.71 (±0.47)	43	30.50 (±0.46)
Fluctuating rainfall	-	-	-	-	23	65.71 (±0.51)	36	25.53 (±0.44)
Market	23	38.33 (±0.49)	09	19.57 (±0.40)	11	31.43 (±0.24)	26	18.44 (±0.39)
Crop failure	17	28.33 (±0.45)	-	-	19	54.29 (±0.48)	23	16.31 (±0.37)
Flood	24	40.00 (±0.49)	-	-	02	5.71 (±0.24)	08	05.67 (±0.23)
Fragmentation	05	08.33 (±0.28)	01	2.17 (±0.15)	02	5.71 (±0.28)	03	02.13 (±0.14)
Total	60	-	46	-	35	-	141	-

Opinion of farming community regarding the support required from government for better practice of agriculture in Uttara Kannada district

Majority farmers opined that practice of agriculture could be improved if farmers are given awareness of various agriculture schemes *via* audio/visual aid at the panchayat level (81.56%) followed by fair and un-politically influenced supply of farming inputs (77.30%) and standard market price for the produce (50.35%). Well-connected road network & transport facility (46.81%), functioning APMC (20.57%), crop compensation due to natural hazards & animal attack (19.86%) and development of dairy (19.86%) at panchayat/taluka level were also suggested by sampled farmers in Uttara Kannada district (Table 4).

Sampled farmers of Eastern plain zone pointed that there is an urgent requirement of awareness on schemes (100%), unbiased input supply (100%) and standard market price (91.43%) while considerable farmers of Coastal zone and Upghat zone expressed lacuna in input supply, scheme awareness and market price. Road network and transport facility was the call of more than 40 per cent of farmers across three bioclimatic zone, while coastal zone farmers suffered great loss due to climatic hazard (26.67%) and opined that government should help in providing crop compensation to farmers. Diary development was requested by 30.43%, 16.67% & 11.43%) farmers in Upghat, Coast and Eastern plain zone (Table 4).

Table 4: Required support from Government by Farmers of Uttara Kannada district

	What Support do you need from Government for Farming?							
	Coast		Upghat		Plains		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Awareness on Schemes	44	73.33 (±0.45)	36	78.26 (±0.42)	36	100.00 (±0.00)	115	81.56 (±0.39)
Subsidized Input Supply	48	80.00 (±0.39)	26	56.52 (±0.50)	26	100.00 (±0.00)	109	77.30 (±0.42)
Standard Market Price	23	38.33 (±0.49)	16	34.78 (±0.48)	16	91.43 (±0.28)	71	50.35 (±0.50)
Road & transport	25	41.67 (±0.50)	30	65.22 (±0.48)	30	31.43 (0.47)	66	46.81 (±0.50)
Functioning APMC	10	16.67 (±0.38)	05	10.87 (±0.31)	05	40.00 (±0.50)	29	20.57 (±0.41)
Crop Compensation	16	26.67 (±0.45)	04	8.70 (±0.28)	04	22.86 (±0.43)	28	19.86 (±0.40)
Diary Development	10	16.67 (±0.38)	14	30.43 (±0.47)	14	11.43 (±0.32)	28	19.86 (±0.40)
Total	60	-	46	-	35	-	141	-

Conclusion

The present study revealed that despite sluggish growth in current inflationary decade, agriculture is affordable and noble occupation practiced by majority farmers in Uttara Kannada district. The limitations hindering agriculture could be alleviated by creating awareness of various agriculture schemes *via* audio/visual aid followed by fair and un-politically influenced supply of farming inputs by responsible authorities standard market price for the agriculture produce. Well-connected road network & transport facility, functioning APMC, crop compensation due to natural hazards & animal attack and development of dairy at panchayat/taluka level were the suggestions farming community insisted from government for better agriculture growth in Uttara Kannada district.

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