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Study on Socio Economic Factors and Production of Bangalore red rose onion in Chikkaballapura district of Karnataka

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Abstract
The present study was conducted to document socio-economic factors and to examine the costs and returns in production, price spread in different marketing channels of Bangalore red rose onion. The study was conducted by using a random sample of sixty cultivatorsfrom all taluks of Chikkaballapura district. The primary data was collected by personal interview method with help of pretested and structured schedule during 2019-20 crop season. The major findings of the study revealed that cost of cultivation per acre and cost of production per tonne of Bangalore red rose onion was Rs. 70,847 and Rs. 4,167.47 respectively. The average yield per acre was 17 tonnes with a gross return of Rs. 2,72,000 per acre and net returns of Rs. 2,01,153. The return per rupee of investment was Rs. 2.83.With the above figures, growing of this crop is profitable to the farmers.

Keywords: socio-economic factors, Bangalore red rose onion, Chikkaballapura, cost and returns

1. Introduction
Indian agriculture is undergoing gradual change, particularly in the cropping system, land use system, input utilization, marketing, and, most importantly, monetary returns. On one hand, due to urbanization, the amount of land accessible for agriculture is shrinking, while need for increased in productivity and returns from cultivable land is fast increasing. All of these variables have combined to create excellent conditions for substantial diversification trends, with horticultural crops such as fruits, vegetables, spices, plantation crops, and ornamental crops dominating.

India has a vast range of soil types and agro-climatic conditions, allowing it to cultivate both horticultural and non-horticultural crops. Vegetables are the sources of vitamins and minerals, proteins, dietary fibers, micronutrients, antioxidants, and phytonutrients, all of which are important in our daily diet. The country's vegetable production has risen substantially throughout the years, especially after the green revolution. The thorough study of improved vegetable varieties/hybrids, combined with farmer acceptance and government developmental programmes resulted in the tremendous increase in vegetable acreage, production, and productivity. Increased per capita income, health consciousness, urbanization, farmers switching to high-value vegetables due to increased income, a favorable income elasticity of demand, and an annual growth rate for domestic demand are all factors in ensuring vegetable growth in the country.

After China, India is the world's second largest producer of onions, followed by Egypt, the United States, Iran, Turkey, Russia, Pakistan, Bangladesh, Brazil, Mexico, and Sudan. Maharashtra is the leading onion producer in India, followed by Karnataka, Madhya Pradesh, Bihar, Gujarat, Rajasthan, Haryana, Andhra Pradesh, Telangana, and Uttar Pradesh.

In Karnataka Chikkaballapura districtis well-known for its fruits and vegetables production. Most common crops in the areawere the Tomatoes and potatoes, followed by beetroot, Bangalore red rose onion, and beans. Farmers in the district are forward-thinking, imaginative, and quick to introduce new kinds, hybrids, and technology because the soil is good for producing a variety of vegetables, and the soil is great for growing a variety of vegetables.

Bangalore red rose onion
This type is commonly known as a local variety. The staggered blossoming of branch tubers is a distinguishing trait of this onion variety; quality is low, and there will be differences in color

and size. This onion variety produces 17-20 tonnes per hectare.

Bangalore red rose onion got the Geographical Indication tag in the year 2015. This allowed the Bangalore red rose Onion Grower's Association to headquarter in Chikkaballapura district to get patent rights to cultivation of this variety. These areas have deep fertile mekkalu soil (alluvial soil) and sand mix of red soil with good drainage and pH ranges between 6.5 to 7, an atmospheric humidity of 70 to 75 percent and temperatures ranging from 25℃ to 35℃ which is ideally suited for growing of Bangalore red rose onion. Undoubtedly, the climatic factors and soil conditions defines the distinctive quality, pungency, taste and physical characteristics of this onion from other varieties. The growth period is from 110-120 days and yields about 17-20 tonnes per hectare with annual production of 60,000 tonnes and 90 percent of production is exporting.

This variety's unique feature is its high pungency as compared to other types, which makes it quite popular in global markets. It is a pickling variety with flattish circular bulbs that are deep crimson red in color and range in size from 2.5cm to 3.5cm diameter. Because of their spicy flavor, these onions are excellent for pickling. It has a high export potential, which is the ultimate goal for farmers. This cultivar is rarely consumed on the domestic market (maximum 10 percent of the production) While the Rabi season accounts for 70 percent of production, the Kharif season accounts for 10 percent and the summer crop accounts for the remaining 20 percent. This variety is currently exported to Southeast Asian nations such as Singapore, Malaysia, Bangladesh, Bahrain, Sri Lanka, Maldives, Indonesia, UAE, Thailand, Singapore, and Taiwan, where it is used in seasoning, pickling, and as a dehydrated powder.

Materials and Methods

The study incorporated data from both primary and secondary sources. Six taluks in the Chikkaballapura district of Karnataka were chosen for research based on high value

Crop and area under production, and the important primary data was acquired from 60 Bangalore red rose onion farming farmers. In addition, constraints regarding production and marketing, these farmers samples were also taken. and marketed intermediaries. For gathering data on trend aspects contacted district horticulture department. The primary data of the year 2019-20 was gathered from the respondents who had been chosen and market intermediaries through a personal interview using a pre-tested structured schedule intended for the study purpose.

Secondary data such as general information about the Chikkaballapura district, land use patterns, rainfall, and area under Bangalore red rose onion were collected from the district official website and by visiting Karnataka state Dept. of Horticulture, Chikkaballapura district at a glance 2018.

Results and Discussion

The average age of Bangalore red rose onion growers in area of the study was 36 to 50 years old (60.00%), with majority of the farmers families consisting of less than four individuals (48.33%) and agriculture as their primary occupation. It was also compiled from the responses of a small group of onion growers (65.00 %) were literates, with educational levels spanning from primary to post-secondary. (Table:1)

Farmers in the research field had an average land holding of 2.6 acres per farmer (0.9 acre rainfed and 1.9 acre irrigated) (Table: 2)

The status of farm inventory of Bangalore rose onion cultivators is presented in Table3. The table demonstrates that 38.33 per cent of cultivators had farm house, all the respondents had pump set and drip irrigation (100 %), followed by (86.66%) hand spray/ power sprays, (26.67%) tractor, (30%) of farmers have bullock cart, respectively. The majority of respondents owned a bore well, irrigation pump set, sprayer, and drip system when it comes to non-land fixed assets. It is concluded that ground water is exploited because most of the farmers' crops are irrigated. (Table 3)

The detail of livestock with the respondents is presented in Table. The table indicates that the total sample (60 farmers) maintainedsheep (98), followed by (87) cows, goats (40), bullock pair (36) and Buffaloes (9). Chikkaballapura is one of the dry districts in the state Karnataka, most of the farmers dependent on livestock as a source of sustainable income. The number of livestock maintained by respondents is partly depended on the quantity of fodder required and family labour availability. Most of the farmers maintained milch animals and few farmers with sheep, bullock pair and buffalo. (Table: 4)

The average value of different inputs used and their values per acre of sample respondents are presented in the Table: 5.

It was observed that the cost of cultivation of Bangalore rose onion per acre was Rs. 70,847/- out of this, 82.68 per cent was variable cost. The major variable cost whereof human labour i.e., Rs. 15,050/- (21.46%)followed by farm yard manure (FYM) cost Rs.11,750/- (16.58%),interest on working capital Rs. 8,625/- (12.17%), seedlings Rs. 4,250/-(5.60%), marketing cost Rs. 4,200/- (5.92%), machine labour Rs. 4,050/-(5.71%), fertilizers Rs. 4,050/- (5.71%),plant protection chemicalsRs. 1,800/- (2.76%), Irrigation cost Rs. 3,500/- (4.94%) and bullock labour Rs.1,300/- (1.83%). (Table: 5)

Results indicated that the share of variable cost to the total cost was high. This may be the attributed to use of more labour by the respondents. Balaet al. (2011) In their study on cost and returns organized for the production of major off-season vegetables in kullu, concluded that vegetables were labour-intensive crops with a high cost of labour. (Table: 5)

The other major components of variable cost are the marketing cost, pesticides and fertilizers. It was due to the long distance between the point of production and the point of sale, the high commission fee, and the fact that different markets have different Bangalore rose onion packaging specifications. (Table 5)

Cost of the farm yard manure (FYM) was another component of variable cost which was 16.58 per cent to the total cost. The farmers in the study area apply well processed pathogen specific free FYM before sowing the crop. Due to lack of availability this FYM which incur high cost for transportation and labour charges for broadcasting the FYM to soil equally to all parts of the land used for cultivation. (Table 5)

The average yield, gross and net returns per acre of Bangalore red rose onion among the sample farmers are presented in Table 6.

The average yield of Bangalore red rose onion was 17 tonnesper acre. Total cost (which includes TVC+TFC) of Bangalore rose onion production was Rs. 70,847 per acre. The net returns were Rs. 2, 01,153 due to higher yield and better management practices.

The analysis of costs and returns indicated that the net return per rupee of expenditure in Bangalore rose onion production was Rs. 2.83. As the ratio is above unity, the cost of cultivation could be considered as a profitable

Conclusions

1. It was revealed that Bangalore red rose onion cultivation is profitable, as evidenced by its cultivation. Farmers in Bangalore should receive training on good agricultural practises in rose onion cultivation to address the issues of labour scarcity, limited technical knowledge and information about crop cultivation, and the scarcity of FYM.
2. According to the study, Bangalore red rose onion farmers can invest in farm mechanisation to reduce labour intensity and costs while increasing output. As a result, their operating costs would be reduced, resulting in a higher return on investment.

Table 1: Socio Economic characteristics of sample farmers (n=60)

Sl. No.	Particulars	Number	Percentage
I	**Age of farmers**		
1.	Young age (< 36 years)	9	15.00
2.	Middle age (36 – 50 years)	36	60.00
3.	Old age (> 50 years)	15	25.00
	Total	**60**	**100**
II	**Family size (No./household)**		
1.	Less than four members	29	48.33
2.	Five to eight members	26	43.33
3.	More than eight members	5	8.33
	Total	**60**	**100**
III	**Educational status (Percentage to total)**		
1.	Illiterate	21	35.00
2.	Primary	8	13.33
3.	Secondary	9	15.00
4.	SSLC	14	23.33
5.	PUC	5	8.33
6.	Graduation and above	2	3.34
7.	Post-graduation	1	1.67
	Total	**60**	**100**
IV	**Occupation**		
1.	Agriculture as the main occupation	53	88.33
2.	Agriculture as a subsidiary occupation	7	11.67
	Total	**60**	**100**

Table 2: Landholding and sources of irrigation of sample farmers (n=60)

Sl. No.	Particulars		Total area	Percentage
1.	**Landholding (acre/farmer)**	Rain fed	0.7	26.92
		Irrigated	1.9	73.08
		Total	2.6	100.00
2.	**Source of irrigation (number of respondents)**	Open well	4	6.66
		Borewell	60	100.00

Table 3: Status of farm inventory of sample farmers (n=60)

Sl. No.	Particulars	Number of respondents	Percentage of total
1.	Farmhouse	23	38.33
2.	Pump set	60	100.00
3.	Drip/sprinkler irrigation set	60	100.00
4.	Tractor	16	26.67
5.	Hand spray/power sprayers	52	86.66
6.	Bullock cart	18	30.00

Table 4: Livestock assets of sample farmers (n=60)

Sl. No.	Particulars	Number of households	Number
1.	Bullock (pair)	26	36
2.	Cow	53	87
3.	Buffaloes	4	9
4.	Sheep	10	98
5.	Goat	8	40

Table 5: Cost of cultivation of Bangalore red rose onion in Chikkaballapura district of Karnataka (n=60) (Rs. / acre)

Sl. No.	Costs	Value (in Rs.)	Percentage
I	**Variable cost**		
	FYM	11,750	16.58
	Seedlings	4,250	5.60
	Fertilizer	4,050	5.71
	PPC	1,800	2.76
	Human labour	15,050	21.46
	Bullock labour	1,300	1.83
	Marketing cost	4200	5.92
	Machine labour	4,050	5.71
	Interest on working capital @ 7.00 %	8,625	12.17
	Irrigation cost	3,500	4.94
	Total variable cost (TVC)	**58,575**	**82.68**
II	**Fixed Cost**		
	Depreciation	412	0.58
	land revenue	20	0.03
	Interest on fixed capital @ 9.5%	11,840	16.71
	Total fixed cost (TFC)	**12,272**	**17.32**
III	**Total cost of cultivation**	**70,847**	100.00

Table 6: Average yield and returns from Bangalore red rose onion cultivation (n=60)

Sl. No.	Particulars	Values
1.	Yield (tons /acre)	17.00
2.	Price (Rs. /ton)	16,000
3.	Gross returns (Rs.)	2,72,000
4.	Total cost (Rs.)	70,847
5.	Net returns (Rs.)	2,01,153
6.	Production cost/quintal (Rs.)	416.74
7.	Benefit cost ratio	2.83

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