Int.J.Curr.Microbiol.App.Sci (2018) *7*(4): 1393-1396

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 7 Number 04 (2018)**
Journal homepage: http://www.ijcmas.com

Original Research Article https://doi.org/10.20546/ijcmas.2018.704.156

Study on Economic Analysis of the Different Pumpkin Cultivars under Coastal A.P. Conditions

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Keywords

Economic analysis, Pumpkin cultivars, Gross returns

Article Info

Accepted:
12 March 2018
Available Online:
10 April 2018

A B S T R A C T

Present investigation was carried out carried out at College of Horticulture, Venkataramannagudem, Dr.Y.S.R Horticultural University, West Godavari district of Andhra Pradesh during *kharif*, 2016-2017. The experimental material comprised of 14 cultivars of (*Cucurbita moschata* Duch. ex Poir) pumpkin collected from different part of India. Maximum gross returns, net returns and Benefit: cost ratios were observed in the cultivar Narendra Amrit and hence it can be concluded as the best cultivar among all the other cultivars. As economics is concerned, it is the need of farmers while taking decision regarding the adoption of technology, the cultivars Narendra Amrit, Punjab Samrat, Kashi Harit and Chandana can be recommended for cultivation under local agro-climatic conditions with reasonably high magnitude of benefits.

Introduction

Pumpkin is the most widely grown species of *Cucurbita* genus and this species is cross compatible with *C. maxima, C. pepo and C. mixta*. In spite of its high carotene content in fruits, its capacity as a potential supplier of carotene has not been exploited till now (Rajan and Markose, 2013). It may contribute to improve the nutritional status of the people, particularly the vulnerable groups with respect to vitamin-A requirement. Great range of variation exists in the plant and yield characters among the cultivars grown all over the country. The present investigation was undertaken to gather information on economic variability of various agronomic characters with fruit yield in pumpkin. Among the quantitative characters, yield is a complex character, which is dependent on a number of yield contributing characters. The knowledge of the association of yield components and their relative contribution shown by economic analysis has practical significance in selection. The study of the cost of cultivation, gross income, net income between pumpkin cultivars provides basis for further cultivation practices with high profits. Therefore, the present studies were aimed at to study economic analysis among 14 cultivars of pumpkin.

Materials and Methods

Pumpkin cultivars of 14 numbers were procured from different sources. Out of 14

cultivars 13 cultivars were procured from NBPGR (National Bureau of Plant Genetic Resources), New Delhi and one cultivar *i.e.*, check from local region Andhra Pradesh. The experiment was laid out in Randomized Complete Block Design (RCBD) with two replications. The distance between plant to plant was 1 m and row to row was 1.5 m. The experimental bed was 5.18 m x 3.80 m in size. Manure and fertilizers were applied in the experimental plot for pumpkin cultivation. Costs are divided into fixed and variable costs. Variable costs are important in determining whether to produce or not. Fixed costs are important in making decisions on different practices and different amounts of production. The benefit-cost ratio discriminates against projects with relatively high gross returns and operating costs, even though these may be shown to have a greater wealth generating capacity than that of alternatives with a higher benefit-cost ratio.

Cost of cultivation (₹. per ha)

The cost of inputs and input services that were prevailing at the time of their use was taken into consideration to work out the cost of cultivation in rupees per hectare. After taking into consideration all the variable inputs as well as fixed inputs and their corresponding prices, the costs incurred on each cultivar was worked out.

Gross income (₹.)

Gross income was calculated based on the prevailing market price for the produce, by multiplying the yield obtained with price of the product.

Net income (₹.)

The net income per hectare was calculated by subtracting total costs from gross income per hectare as indicated below

Net income = Gross income – Total costs.

Benefit Cost ratio

The benefit cost ratio was worked out by using the following formula

$$\text{B: C ratio} = \frac{\text{Gross returns (₹. /ha)}}{\text{Total costs (₹. /ha)}}$$

Results and Discussion

The results of the experiment have been presented and interpreted under the following headings.

Economic analysis was carried out for all the pumpkin cultivars under study in terms of cost of cultivation, gross returns, net returns and benefit: cost ratio and results are presented in Table 1.

Cost of cultivation per (₹ per ha)

Costs incurred on various inputs and input services were considered for calculating cost of cultivation of pumpkin cultivars under study.

The total costs included both fixed costs and variable costs incurred. As similar package of practices are followed for all the pumpkin cultivars, cost of cultivation was same for all the cultivars, which was ₹ 69,515 (Table 2).

Gross returns (₹ per ha)

Maximum gross returns were realized from the cultivation of Narendra Amrit (Rs. 1,74,700 per ha) followed by Punjab Samrat (Rs. 1,66,100 per ha), Kashi Harit (Rs. 1,65,900 per ha), Chandana (Rs. 1,63,700per ha) and the minimum was recorded in VRPK - 11- 02(Rs. 109800 per ha).

Table.1 Economic analysis of different pumpkin cultivars

S. No	Genotypes	Fruit yield (t ha^{-1})	Gross returns per ha (Rs.)	Cost of cultivation per ha (Rs.)	Net returns per ha (Rs.)	B:C Ratio
1	Arunachal Pradesh - 2	14.76	147600	69515	78085	2.12:1
2	Arka Chandan	15.49	154900	69515	85385	2.23:1
3	Lemukumunyo Local - 2	15.92	159200	69515	89685	2.29:1
4	Pandibari Local - 1	12.68	126800	69515	57285	1.82:1
5	Savernet V- 3	12.85	128500	69515	58985	1.85:1
6	Savernet V- 4	12.42	124200	69515	54685	1.79:1
7	Narendra Amrit	17.47	174700	69515	105185	2.51:1
8	VRPK -11- 02	10.98	109800	69515	40285	1.58:1
9	Narikndu Local	11.14	111400	69515	41885	1.60:1
10	Kashi Harit	16.59	165900	69515	96385	2.39:1
11	Thangmeiband Local - 2	15.37	153700	69515	84185	2.21:1
12	Chakri	13.69	136900	69515	67385	1.97:1
13	Punjab Samrat	16.61	166100	69515	96585	2.39:1
14	Chandana (Check)	16.37	163700	69515	94185	2.35:1

Note: The market price of fruit per kg was taken as Rs. 10/-

Table.2 Cost of cultivation of pumpkin per hectare

S. No	Cost Particulars	Qty	Unit Price (Rs.)	Total (Rs.)
A. Labour Costs				
1	Tractor ploughing	4 Hrs	500/-	2000/-
2	Cleaning of field and bunds preparation	10 MD	200/-	2000/-
3	Lay out and pit making	10 MD	200/-	2000/-
4	Pit filling with compost and basal fertilizers	8MD	200/-	1600/-
5	Sowing	15 MD	150/-	2250/-
8	Irrigation(need based)	15 MD	200/-	3000/-
9	Application of fertilizers	8 MD	200/-	1600/-
10	Application of plant protection chemicals	8MD	200/-	1600/-
11	Harvesting and post harvest handling	15 MD	150/-	2250/-
			SUB TOTAL	18300/-
B. Input Costs				
1	Cost of seed	6 kg	750/-	4500/-
2	Manure or compost	10MT	1000/-	10000/-
4	Fertilizers			
	Urea	217 kg	6 / kg	1302/-
	SSP	100kg	16 / kg	1600/-
	MOP	375kg	7.50/kg	2813/-
5	Plant protection chemicals			3000/-
6	Irrigation charges			3000/-
			SUB TOTAL	26215/-
C. Fixed costs				
1	Rental value of land	20000/-		
2	Depreciation	2000/-		
D. Miscellaneous		3000/-		
		TOTAL		**69515/-**

Net returns (₹ per ha)

Maximum net returns were recorded in Narendra Amrit (Rs. 105185 per ha) followed by Punjab Samrat (Rs. 96585 per ha), Kashi Harit (Rs. 96385 per ha), Chandana (Rs. 94185 per ha) and the minimum net returns were recorded in VRPK -11- 02 (Rs. 40285 per ha).

Benefit: cost ratio

Maximum benefit: cost ratio was recorded in Narendra Amrit (2.51:1) followed by Punjab Samrat (2.39), Kashi Harit (2.39), Chandana (2.35) and the minimum (1.58) was recorded in VRPK -11- 02. Ghosal (2012) and Patel *et al.,* (2013)

Maximum gross returns, net returns and Benefit: cost ratios were observed in the cultivar Narendra Amrit and hence it can be concluded as the best cultivar among all the other cultivars.

As economic analysis is the need of farmers while taking decision regarding the adoption of technology, the cultivars Narendra Amrit, Punjab Samrat, Kashi Harit and Chandana can be recommended for cultivation under local agro-climatic conditions with reasonably high magnitude of benefits.

Acknowledgements

The authors are grateful for the completion of research and, Dr. Y.S.R Horticultural University, College of Horticulture Venkataramannagudem West Godavari District, Andhra Pradesh.

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How to cite this article:

Arun Kumar, P., T. Suseela, R.V. Sujatha and Dorajeerao, A.V.D. 2018. Study on Economic Analysis of the Different Pumpkin Cultivars under Coastal A.P. Conditions. *Int.J.Curr.Microbiol.App.Sci.* 7(04): 1393-1396. doi: https://doi.org/10.20546/ijcmas.2018.704.156