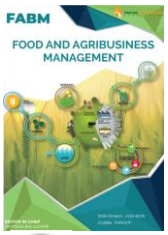
ZIBELINE INTERNATIONAL PUBLISHING

ISSN: 2716-6678 (Online)
CODEN: FAMOCP

Food & Agribusiness Management (FABM)

DOI: http://doi.org/10.26480/fabm.02.2020.92.93



RESEARCH ARTICLE

ECONOMICS OF SACK CULTIVATION OF OKRA (ABELMOSCHUS ESCULENTUS) IN DANG DISTRICT OF NEPAL

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ARTICLE DETAILS

Article History:

Received 03 July 2020
Accepted 06 August 2020
Available online 21 August 2020

ABSTRACT

This research was done to determine the cost and benefits of cultivation of okra in sack. This was done in the collage field Lamahi, Dang. Altogether 50 sacks culture of okra was done. Various parameter was studied during this research for the effectiveness of research. All data were collected and analysis was done by using excel. Significant different result was found in sack culture than in field. The B/C ratio was found 1.54 which means there is about 54% profit in sack culture of okra. Market demand should be quantified and analyzed against production and set-up costs in order to establish the optimal scale of production. Further research is required to establish the validity of the sack culture against the conventional methods. In recent condition, sack culture will be best for production of green vegetable for increasing population. This research will help further researcher for better result in sack culture.

KEYWORDS

Okra, sack cultivation, benefit, cost, Nepal.

1. INTRODUCTION

Sack cultivation is a simple, low-cost, technology for those who have very limited or no space for vegetable production. Generally shallow rooted plants are preferred to grow on such media filled sacks. It allows the disadvantaged and people living in unfavorable ecosystems (such as char or basin areas) to grow vegetables, providing greater diversity and nutrition to their diets. Sack farming involves filling a series of bags with soil, manure, and pebbles for drainage, and growing plants on the top and in holes in the sides. The sacks allow people to grow food in places with limited access to arable land and water. Roof culture on other words 'roof top gardening' is one of the rising technologies as peri-urban agriculture. In this methodology house and building roofs are used to grow the different plants generally the ornamental or the vegetable crops as per need (Karasov, 2001). In this technique plants are grown on the different pots or the sacs filled with growing medium.

This type of gardening has many advantages: Improved air quality, effective use of rainwater, decreased waste, urban agriculture, less noise, sustain his/her family. The most important factor is that it contributes for the food security through fresh vegetables and ornamental values. The urban population in the world will double in 30 years, leading to the challenges for the mankind to meet food and nutritional security, besides the problems of environment. The urban population will increase more in developing countries as a result of the immigration from rural areas. People living in urban area will be more than 40% by 2030 and shall be more than 65 % by 2050 (Pascal and Mwende, 2003). In this context, horticulture in urban and peri-urban area becomes vital to address the challenges emerging owing to rapid urbanization of cities. Vegetable demand and production in Nepal is increasing as a result of growing population rapid urbanization, and the export potential of vegetable and vegetable seeds, and people's awareness of the nutritional value of vegetables. Vegetables are now considered as a high value crop and vegetable growing is becoming a sustainable source of income for farmers. However, per capita consumption is far behind than requirement i.e. consumption of fresh vegetables is only just over 56gm per person per day, which is far below the recommended level of 300 g (AVRDC, 2000)

2. METHODOLOGY

2.1 Experimental location

The experiment was conducted in research plot of the Prithu Technical College, Lamahi municipality, ward No. 2 of Dang district during April-July (Chaitra to Ashar), 2017Province No. 5 of Nepal. The research was conducted in Lamahi, Deukhuri Valley Dang, Nepal. The Area is located at 27.8771° N latitude and 82.5727° E longitude with an elevation of 269 masl/ 884 ft above sea level. (Source: Google map)

Figure 1: Map of experimental site

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	Website: www.fabm.org.my	**DOI:** 10.26480/fabm.02.2020.92.93

2.2 Selection of variety

The seed was having 65% minimum germination and 95% purity. The seeds were dressed with fungicides (Thiram). Kaveri 54 variety was selected for sack culture.

2.3 Sack Preparation

Initially good condition 30 cm diameter sacks were selected. 2-4 pores were made on each side to ensure drainage. Mixture of FYM and Soil at the ratio of 1:2 was prepared and filled. This mixture was filled on sack up to 40 cm height. Then the sack was maintained in decorative design in field to start the cultivation. By this method 50 sacks were filled and kept for cultivation.

2.4 Priming of Seed and Sowing

Seed were subjected to hydro priming for 24 hours. After 24 hours those seeds were dried on shade for few hours and sown on date 2073\12\25 at the rate of 4 seeds per sack. Then sack was irrigated with water.

2.5 Intercultural Operation

After germination only two seedlings per sack were kept and other were removed. Sacks were irrigated every evening for initial 7 days and further irrigation was done on 3 days interval. Few weeds were seen on the sacks. These weeds were removed after 20 days after sowing. Leaf minor infestation was observed. Cypermethrin 50.E.C @ 1 ml\Liter of water was sprayed at 3 days interval for 3 times. Loosening of upper soil in sack was done time and again & was done by using thick stick.

2.6 Following data was collected

Plant height, Number of leaves per plants, Reproductive parameters, days to first harvest, days to 50% flowering, average fruit length, average fruit weight and yield on sack.

2.7 Data processing and analysis

Data was collected and data was entered in Microsoft excel. Analysis was done with the help of Excel.

2.8 Observation Table and Calculations

2.8.1 Height and Number of leaves during crop growth period

Table 1: Height and Number of leafs on different period

15DAS					
sack number	1	2	3	4	5
Avg. Height (cm)	4	4	3.5	3	3
Number of leaf	1	1	1	0	1
21DAS					
Plant number	1	2	3	4	5
Avg. Height (cm)	8	8	5	6	8
Number of leaf	3	3	2	3	3
28DAS					
Plant number	1	2	3	4	5
Height (cm)	17	24	15	10	15
Number of leaf	4	5	4	3	3
35DAS					
Plant number	1	2	3	4	5
Height (cm)	32	40	28	16	29
Number of leaf	7	7	6	4	6
42DAS					
Plant number	1	2	3	4	5
Height (cm)	44	48	38	24	40
Number of leaf	12	11	8	7	10

2.8.2 Date of Flowering

sack number	Avg. day to 50% flowering
1	42
2	42
3	43
4	46
5	40

2.8.3 Harvesting dates and yield

Table 2: Yield at different time.

No of harvest		Yield(kg)/harvest
	DAS	
1	48	2.00
2	52	1.53
3	56	2.21
4	62	3.82
5	66	4.12
6	72	4.80
7	76	3.20
8	81	3.56
Total		25.24

Yield per sack: 25.54/50 =0.511 kg = 511 gram/sack

2.8.4 Average fruit length and fruit weight

sack no	1	2	3	4	5
Average Weight of fruit (g)	13.4	13.11	15.48	16.1	12.07
Average length (cm)	4.3	5.1	4.6	4.4	4.8

Market value = 25.24*60 =RS.1514.40

2.8.5 Cost of Cultivation

SN	Particulars	Rate/Unit Rs	Number of item	Amount(Rs)
1	Sack	5	50	250
2	Seed			150
3	FYM		100	500
4	Pesticides			70
			Total	970

B\C analysis: $\frac{Benefit}{Cost}$ = 1.56

Here B\C ratio was 1.56. Therefore the sack cultivation is economically profitable.

3. Conclusion

An experiment was conducted at Institute of Agriculture and Animal Science, Dang (269masl; sub-tropical humid condition), during late Chaitra to study the cultivation of okra in sack and its yield of a commercial cultivars of okra. The Kaveri-54 cultivar was sown. The yield per sack was found to be 511 gram. Average height of Kaveri 54 variety in sack cultivation was found to be about 45 cm. Sack cultivation is easy, cheap, and better avenue among cultivation practices for yield increment in Spring-Summer Okra production under inner Terai condition of Nepal. The earliness in Spring-summer season okra production showed by sack culture could be exploited for off-season (early season) production when farmer fetches higher market price. For earlier and more production through use of sack culture research efforts is to be directed on earlier off-season production through earlier use (January-February) roof and barren land can be easily utilized. Unproductive area can be replaced in cultivable by placement of soil filled sack. This result will help in further research work.

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