Asian Journal of Agriculture and Rural Development

journal homepage: http://aessweb.com/journal-detail.php?id=5005

Economics of Garlic Production in Baran District of Rajasthan; Break Even Analysis

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Abstract

The study focuses on economic analysis of garlic production in the Baran District of Rajasthan. The study is carried out to determine break even analysis and constraints of garlic production in the study area. Break even analysis is carried out to arrive at that minimum level at which optimum conditions of cost and returns is equated that is no profit no loss point. In this study selected small, medium and large farmers will not be at loss even if their actual yield of garlic is decline by 56.22, 54.27 and 54.18 quintals per hectare respectively and selected small, medium and large farmers will not be at loss even if their actual price of garlic is decline by 986.96, 1005.55 and 1014.77 ₹/quintals respectively. Break even yield and price were increased with increased size of holding of farmers. The most serious constraints as perceived by the farmers in garlic production were the high price of garlic seed at time of sowing, high cost of garlic cultivation, Unfavourable product price and High cost of irrigation etc.

Keywords: Garlic, production, constraints, break even analysis

Introduction

Garlic (*Allium sativum* L.) is a bulb belonging to the family Alliaceae. It is the second most widely cultivated crop in the family after onion (*Allium cepa*), as reported by (Purse glove 1972). Garlic originated from Central Asia about 3000 years and later spread to the Mediterranean regions (Tindal, 1986).

The crop when fully grown is between 40 and 60 cm in height. It consists of an underground bulb and above ground vegetative part, which also consist of a flat as well as slender leaves. Rooting system is fibrous, while the bulb comprises small bulblets called cloves (Amans, 1989; Wadjito *et al.*, 1988).

There is no definite area of origin but it probably originated in Central Asia and spread to the Mediterranean region where its virtue is till cherished perhaps more than any part of the world. It is therefore mostly cultivated in the Mediterranean countries where it is highly valued.

Garlic was probably carried to the western world by the Spanish, Portuguese and French (Jourdain and Lavigne 1987). The average yield of garlic was about 4505 kg/ha.

Introducing the improve varieties of garlic to the farmers field, yield has been increasing from 2002-2003.

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The total cost of production was Tk[2] 212389/ha in which 84.28 and 15.72 percent variable and fixed cost respectively. Garlic grower received on an average Tk 179997/ha as net return.The benefit cost ratio (1.85) indicated that garlic cultivation was profitable (Hasan *et al.,* 2012).

The constraints in garlic production and marketing in the Indore district of Madhya Pradesh are identified, and measures for improvement are suggested (Verma, 2004)**.**

Growth and instability in area, production and yield of spice crops such as coriander, cumin, fenugreek, fennel, garlic and chilli in Rajasthan vis-a-vis India indicated that almost all the spices registered significant growth rates in their production in Rajasthan as well as in India during the entire study period mainly due to significant increases in the same during post-Technology Mission on Oilseeds (TMO) period (from 1986/87 to 2000/01) (Kumawat and Meena, 2005) Rajasthan is also leading in garlic production and Area but there is low productivity than other states.

Like Gujarat Maharashtra and Orissa. Average yield is 4.535 tones / hectare. In Rajasthan MPUAT (Maharana Pratap University of Agriculture and Technology) Area (W-E) is leading in garlic production.

It include 12 districts out of 12 districts Kota zone is leading zone and Baran district included in Kota zone which include highest area of 7476 hectare in Rabi 2011-2012. Out of total 20840 hectares garlic area in Rabi 2011-2012. Garlic cultivation requires a high level of working capital and human labour.

The major constraints in the production of the garlic were the fluctuations in the market price, the lack of storage facilities and the transportation. Also the lack of processing industries is one of the limiting factors in the production of garlic. The present investigation was carried out to workout break-even analysis and to identify the constraints in production and marketing of garlic.

Research methodology

This study was conducted in Baran district of Rajasthan; India and Multi-stage sampling technique was used for this study.

The Baran district comprises eight blocks *viz,* Anta, Mangrole, Atru, Chapra, Chipabarod, Kishangang, Shahabad and Baran Among these blocks; Anta occupied maximum area and production under Garlic in the Baran District Thus, Anta block was selected purposively to fulfill the objectives of the present study.

The villages of this block, growing garlic were enlisted from the record of RAEO/panchayat secretary. Five villages were selected randomly. These were Lisari, Badwa, Akedi, Molkhi, and Khajurna-kala. Out of 5 villages, 12 farmers were selected from each village making sample of 60 farmers for study.

Selection of respondents according to size

From the selected villages the cultivators grown garlic were recorded which was further classified in to three size group based on size of holdings viz. small (up to 2 ha), medium (2.01 to 4 ha) and large (above 4/ha). From each size group, 20 farmers were selected by simple random sampling method, which totaled to 60 in number.

Table 1: Respondents from sample farms according to size group

Size group	Total No. of garlic growers	No. of farmers selected	Percentage of farmers selected
Small	83	20	24.09
Medium	68	20	29.41
Large	65	20	30.76
Total	216	60	27.77

Note: Tk is currency of Bangladesh i.e. "Taka"

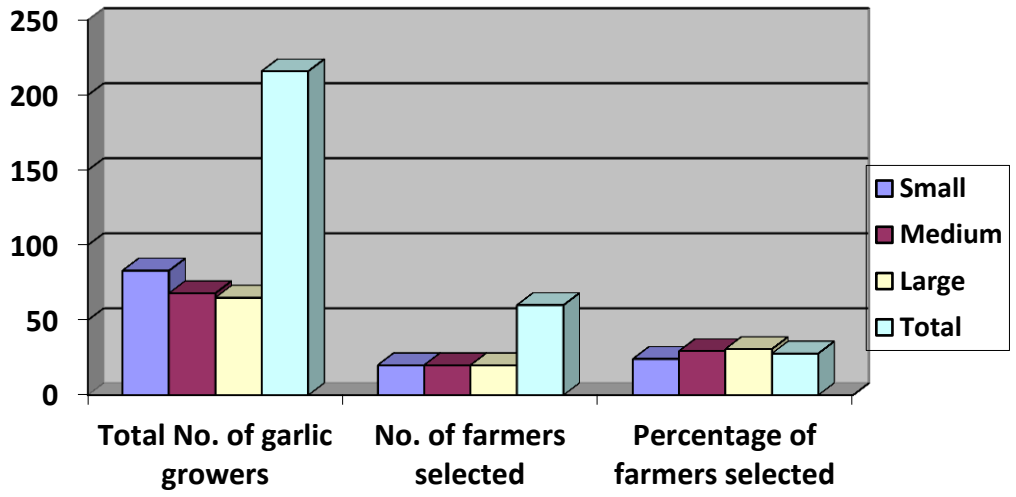

Figure1: Respondents from sample farms according to size group

Results

Break-even analysis - Break even analysis is carried out to arrive at that minimum level at which optimum conditions of cost and returns is equated that is no profit no loss point.

Table 2: Break even yield (quintal/ha) and price ((₹/quintal) of garlic on sample farm

Particulars	Size of groups			
	Small	Large	Medium	Overall
I. Yield (quintal/ha)				
(i) Break even	83.92	84.93	86.82	85.22
II. Actual	140.14	139.2	141	140.11
III. Gap	56.22	54.27	54.18	54.89
I. Price ((₹/quintal)				
(i) Break even	986.96	1005.55	1014.77	1002.42
II. Actual	1648	1648	1648	1648
III. Gap ((₹/ ha)	661	642.45	633.23	645.56

The Table 2 reveals that selected small farmers will not be at loss even if their actual yield of garlic is decreased by 56.22 quintals per hectare. Similarly in case of medium farm a yield lessened by 54.27 quintal/per hectare of the actual yield will be able to cover the total cost of cultivation per hectare.

The garlic growers on large farms is at no profit no loss position if yield level on these farms is 54.18 qt/ha. At the overall level garlic yield would remain in no profit and no loss if actual yield declined by 54.89 qt/ha. Thus, the existing cost of cultivation and physical output of crop yielded sufficient profit to the farmers.

Similarly actual market price of garlic obtained by sample farmers is 1648 which is higher than breakeven price ranged between 59.88 to 61.57 per cent in different size farms.

Thus, sample farmers are in profitable position in existing yield and price obtained in the study area.

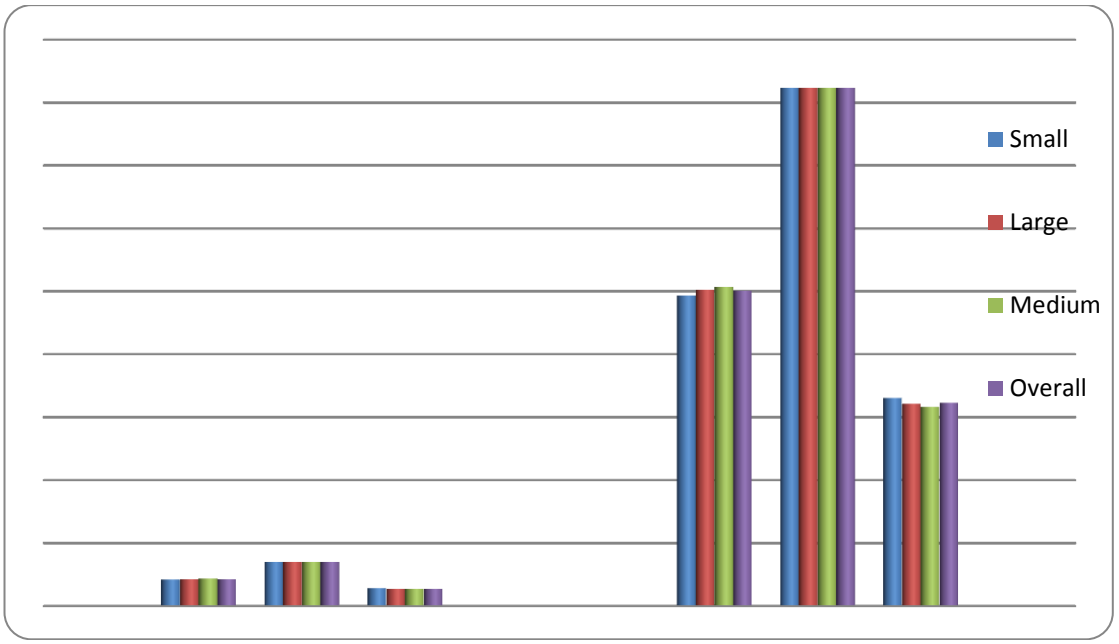

Figure 2: Break even yield (quintal/ha) and price (₹/quintal) of garlic on sample farm

Constraints

The Table 3 shows that 86 per cent of the sample farmers purchased inputs viz. seed, fertilizers, plant protection chemical not allow them to use these inputs in recommended doses. The analysis clearly reveals that most of the farmers, irrespective of size groups could not apply purchased inputs due to unsatisfactory recommendation.

About 86 per cent of the 52 respondents gave High price of seed was reported as a main constraint in garlic production irrespective of the size of holdings. About 70 per cent of the 42 respondents told high cost of cultivation as a major constraint. About 68 per cent of the respondents were of view unfavorable product price cultivation as a third main constraint.

Attack of insect, pests and diseases also restrict the farmer to adopt garlic production technology. The farmers know the importance of plant protection measures but farmers showed the financial constraint for partial adoption of plant protections due to their rigidity.

This tendency needs to be broken through proper training. These identified constraints need to be minimized for increasing the adoption of improved production technology for increasing production of garlic on sample farmers.

Conclusion

Under this study break even analysis and constraint of garlic was discussed. The result of this study indicates that the most serious constraints as perceived by the farmers in garlic production were the high price of garlic seed at time of sowing, high cost of garlic cultivation, Unfavourable product price and High cost of irrigation.

Selected small, medium and large farmers will not be at loss even if their actual yield of garlic is decline by 56.22, 54.27 and 54.18 quintals per hectare respectively and selected small, medium and large farmers will not be at loss even if their actual price of garlic is decline by 986.96, 1005.55 and 1014.77 ₹/quintals respectively.

Break even yield and price were increased with increased size of holding of farmers. Garlic growing is expensive but also found to give high return to farmers but in this year there is bumper production because of it farmer could not get good return of garlic.

Table 3: Production constraints in garlic production

S.N.	Production Constraints	Small	Medium	Large	Overall	Ranking
	Total No of Respondent	20(100)	20(100)	20(100)	60(100)	_
1	Seed variety, seed rate, seed treatment	16 (80)	14 (70)	10 (50)	40 (67)	5th
2	Non availability of new variety seed	12 (60)	11 (55)	12 (60)	35 (58)	8th
3	Preferred home produce seed	14 (70)	12 (60)	8 (40)	34 (53)	9th
4	Non awareness of NPK dosage	10 (50)	10 (50)	10 (50)	30 (50)	12th
5	Unfavourable product price	7 (35)	10 (50)	24 (60)	41 (68)	3rd
6	Unfavourable climate condition	4 (20)	10 (50)	12 (60)	26 (43)	15th
7	Lack of capital	10 (50)	8 (40)	5 (24)	23 (38)	16th
8	Attack of disease and pest	7 (35)	14 (70)	8 (40)	29 (48)	13th
9	High price of Seed	19 (90)	17 (85)	16 (80)	52 (86)	1st
10	Shortage of labour	14 (70)	10 (50)	8 (40)	32 (53)	10th
11	High cost of Irrigation	15 (25)	14 (70)	10 (50)	39 (65)	4th
12	Lack of human labour	12 (60)	11 (55)	14 (60)	37 (61)	7th
13	Transfer of technology	9 (45)	9 (45)	9 (45)	27 (45)	14th
14	Availing the facilities of credit	12 (25)	11 (55)	12 (60)	38 (63)	6th
15	Lack of Grading	12 (60)	10 (50)	9 (45)	31 (51)	11th
16	Higher cost of cultivation	17 (85)	15 (75)	10 (50)	42 (70)	2nd

Note: Parenthesis shows the percentage of the total

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