



Constraints in the Production and Marketing of Cabbage in Khandwa District of Madhya Pradesh

B. S. Rathod¹, R. K. Narvariya^{2*} and A. Shrivastava³

¹Young Professionals-II, ICAR-Indian Institute of Soybean Research, Indore (MP), India.

²Department of Agricultural Economics and Farm Management, College of Agriculture, Powarkheda, JNKVV, Jabalpur (MP), India.

³Department of Agricultural Economics and Farm Management, College of Agriculture, Jabalpur, JNKVV, Jabalpur (MP), India.

Authors' contributions

This work was carried out in collaboration among all authors. Author BSR designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RKN and AS managed the analyses of the study. Author AS managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Cabbage is one of the most popular winter vegetables grown in India. It is cultivated in 0.245 million hectares with the total production of 5.617 million metric tonnes and average productivity of 22.9 metric tonnes/hectare. Cabbage is used as salad, boiled vegetable and dehydrated vegetable as well as in cooked curries and pickles. A multi-stage random sampling technique was adopted for data collection. The study was conducted in block Pandhana district of Khandwa (M.P.) where cabbage is an important cash crop. observed constraints in production of cabbage, High cost of quality seed (86.66%), Lack of labour (78.33%), Costly and irregular supply of electricity (75%), Costly irrigation due to higher electricity charges (73.33%), Lack of knowledge about insect, pest and diseases (63.33%), Lack of capital (60%), Costly equipments (51.67%), Lack of knowledge about seed treatment (41.66%) and High wages of labour charge (30%) were the major constraints reported and the proper correction, amendment or allocation requires to be observed as indicated in resource use productivity analysis, per hectare higher returns of cabbage as well as higher return ratio over per rupee invested cost shows better prospect for area expansion and production of cabbage cultivation.

*Corresponding author: E-mail: reeta689@gmail.com;

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1. INTRODUCTION

The vegetable production in India has touched a new height in recent years, placing it as the second largest producer of vegetables with 169.478 million metric tonnes in the world (14.0% of the total world production of vegetables). The area under cultivation of vegetables is 9.542 million hectares. The ever increasing population and the improving economic status in the country have increased vegetables consumption across the region and the income groups. Cabbage (*Brassica oleracea*) is one of the most popular winter vegetables grown in India. It is cultivated in 0.245 million hectares with the total production of 5.617 million metric tonnes and average productivity of 22.9 metric tonnes/hectare. Cabbage is used as salad, boiled vegetable and dehydrated vegetable as well as in cooked curries and pickles. Cabbage is rich in minerals and vitamins A, B1, B2 and C. In MP cabbage production acquires about 6 percent share in overall vegetable production. In the state the total growing area under cabbage cultivation is 20450 hectares with 6060 tonnes of production and the productivity is noted about 29.63 quintal/hectare during the same period. Khandwa district is one of the major vegetable growing district in MP. The major vegetables grown in Khandwa district are Onion, Arvi, Potato, Tomato, Okra, Brinjal, Cauliflower, Ridge Gourd, Bottle Gourd, Radish, Cabbage and Palak. Cabbage is one of the major vegetable which occupied 299 hectare area in Khandwa district during the year 2014-15.

2. MATERIALS AND METHODS

A multi-stage random sampling technique was adopted for data collection. The study was conducted in block Pandhana district of Khandwa (M.P.) where cabbage is an important cash crop. Stratified random sample procedure was adopted for the selection of villages and farmers. Sample of 3 villages of this block was selected randomly. A sample of 60 farmers in the ratio of 20:20:20 was selected randomly. The farmers were classified into three groups viz., small (<2.00 hectares), medium (up to 2.00- 4.00 hectares) and large (>4.0 hectares) farms. The sample cabbage producers for cabbage cultivation disposal of their produce opted independent channels as per convenience. Yield, returns and marketing costs and constraints of production and marketing data were collected from the

sample farmer as well as from different market functionaries through the pre-tested schedule for the year 2016-17.

Primary data were collected from sample cabbage growers and traders. The primary data were recorded regarding general information of the cabbage growers, cropping pattern, farm resource structure and resource use pattern in cabbage cultivation etc. The specific and detail information on cost incurred and returns obtained in the cultivation of cabbage were also collected from the sample respondents. The primary data were also collected from wholesalers, retailers and other channels of cabbage marketing prevailing in the area.

3. RESULTS AND DISCUSSION

In the Table 1 constraints faced by the sample farmers in the production of cabbage were clubbed in respective types of problems as per the incidence of their severity commonly faced by all the respondents as an independent unit. Within the observed constraints in production of cabbage, High cost of quality seed (86.66%), Lack of labour (78.33%), Costly and irregular supply of electricity (75%), Costly irrigation due to higher electricity charges (73.33%), Lack of knowledge about insect, pest and diseases (63.33%), Lack of capital (60%), Costly equipments (51.67%), Lack of knowledge about seed treatment (41.66%) and High wages of labour charge (30%) were the major constraints reported by this farmer. And Table 2 shows that the observed constraints by selected respondents in the marketing of cabbage, Price fluctuation (86.67%), Lack of price information & market news (83.33%), Lack of storage facilities (73.33%), Higher marketing charges (70%), Lack of transportation (43.33%), Lack of good infrastructure (30%), malpractices adopted by traders (26.66%) and other severe problems ranked in the descending order viewed seriously which may be verified the given information furnished. Constraints related to inputs use had varying degree and influenced the cabbage productivity and returns per hectare. The proper correction, amendment or allocation requires to be observed as indicated in resource use productivity analysis, per hectare higher returns of cabbage as well as higher return ratio over per rupee invested cost shows better prospect for area expansion and production of cabbage

cultivation. Verma et al. [1] on an average, the cost of cultivation per hectare of onion over cost A1, cost B1, cost B2, cost C1, cost C2 and cost C3 were worked to Rs. 17048.45, Rs. 17389.41, Rs. 19580.43, Rs. 18656.22, Rs. 20847.24 and 22931.96, respectively. Cost of cultivation per hectare of onion showed an increasing trend with the increase in the size of farms. Among various components of operational costs, hired human labour accounted for 20.47 per cent of total cost followed by expenditure on manures and fertilizers 16.63 per cent, seed 14.42 per cent, bullock labour 5.72 per cent, irrigation charges 5.48 per cent, plant protection chemicals 5.09 per cent and machine power 4.74 per cent. A size group-wise comparison showed that large farms have made higher investment per hectare than small farms. It was due to their investment capacity for different inputs. It varied from Rs. 22331.09 per hectare on large farms to Rs. 22214.25 on small farms. Constraints: reveals that the high price of seed, fertilizers, pesticides and fungicides were the main problem expressed by 77.50 per cent of the sampled onion farmers in production followed by non-availability of funds from institutional sources 68.75 per cent, high wage rate of labour 66.25 per cent, non-availability of good quality of seed 65.00 per cent and ignorance of severe infestation of insect-pest disease control 51.25 per cent. Pandey et al. [2] conducted survey of 129 farmers from 9 villages in Theog, Rohru and Tikkar blocks of Shimla district showed direct relationship of farm size with investment of fixed capital, being Rs. 3889/- on marginal farm and Rs. 94947/- on large farm. Analysis of technology adoption indicated that maximum technology adoption was in fertilizer use (57.23 per cent) followed by seed (55.52 per cent) and plant protection (46.51 per cent) which revealed scope for transfer and subsequent adoption of these technologies. In the study area, the farmers earned net return of Rs. 7,940/ha while not considering the imputed value of family labour and output input ratio was 1.22 during 1998-99. The major constraints identified for low yield of potato were unavailability of good quality and quantity of healthy seed, lack of knowledge about the fertilizer and plant protection technologies. Patel et al. [3] revealed that nearly 99.59 percent of cabbage and 99.41 percent of cauliflower routed in the market from producer to consumer through wholesaler cum commission agent and retailer. Total marketing costs were Rs. 113.67 and 116.98 per quintal for cabbage and cauliflower respectively. Commission charges were major cost component of total

marketing costs. Overall cabbage grower received 55.24 percent and cauliflower received 50.80 percent share in consumer's rupee. Marketing efficiency was 1.23 and 1.03 in cabbage and cauliflower market respectively. Lack of storage facilities, delay in payment, high cold storage charges, monopoly of few middleman and need for timely disposal of perishable product etc. were the major problems faced by the cabbage and cauliflower growers. Suggested Gupta and Rathore [4] studied the share in vegetable marketing of different Categories of farmers in Raipur District, Chhattisgarh, India; the disposal pattern for different vegetables; the cost of vegetable marketing; and the various constraints in production and marketing of vegetables. 60 vegetable producers, classified in 4 categories (marginal, small, medium, and large), were interviewed in 1995-96. The share in vegetable marketing was found to be about 60 per cent in the case of large farmers. However, the price received with respect to all vegetables was observed maximum in the case of small and medium farmers. The sale of vegetables to consumers directly was most popular among marginal farmer. While large farmers had chosen commission and transportation charges were found to be higher in vegetable marketing, which constituted about 85-88 per cent of total marketing cost. Regulation and the establishment of vegetable marketing cooperative societies are suggested to address constraints in production and marketing of vegetables. Takele and Daugovish, [5] revealed that production costs and profitability evaluations have been the fundamental tools for growers and investors to do investment analyses and make decisions, conduct business transactions, and develop risk management strategies. The study provided up to date benchmark costs and profitability indicators for evaluating the viability and sustainability of cabbage production. It was based on assumptions of cabbage production practices including fees for regulatory requirements in the county and suggested that growers use the model as a guide to estimate costs and evaluate their profitability. Pandey [6] found that "marketing constraints", the important constrains was "fluctuations in the prices" confronted by higher percentage of farmers (88.89%) followed by "low price for the produce" reported by (83.33%), "lack of marketing facilities at local level" reported by (75.00%), "lack of exclusive markets" reported by (66.67%) Mishra et al. [7], "lack of storage facilities" reported

Table 1. Constraints in the production of cabbage faced by selected respondents

S. No.	Constraints relating to	Size group				Ranking
		Small (N= 20)	Medium (N= 20)	Large (N= 20)	Total (N= 60)	
1.	High cost of quality seed	19(95)	18(90)	15(75)	52(86.66)	I
2.	Lack of labour	17(85)	13(65)	17(85)	47(78.33)	II
3.	Costly and irregular supply of electricity	19(95)	13(65)	13(65)	45(75.00)	III
4.	Costly irrigation due to the higher electricity charges	19(95)	10(50)	15(75)	44(73.33)	IV
5.	Lack of knowledge about insect, pest and diseases	16(80)	12(60)	10(50)	38(63.33)	V
6.	Lack of capital	17(85)	11(55)	08(40)	36(60.00)	VI
7.	Costly equipments	05(25)	14(70)	12(60)	31(51.67)	VII
8.	Lack of knowledge about seed treatment	11(55)	09(45)	05(25)	25(41.66)	VIII
9.	High wages of labour charge	06(30)	05(25)	07(35)	18(30.00)	IX

Table 2. Constraints in the marketing of cabbage faced by selected respondents

S. No.	Constraints relating to	Size group				Ranking
		Small (N= 20)	Medium (N= 20)	Large (N= 20)	Total (N= 60)	
1.	Price fluctuation	20(100)	17(85)	15(75)	52(86.67)	I
2.	Lack of price information & Market news	17(85)	16(80)	17(85)	50(83.33)	II
3.	Lack of storage facilities	13(65)	13(65)	18(90)	44(73.33)	III
4.	Higher marketing charges	10(50)	14(70)	18(90)	42(70.00)	IV
5.	Lack of transportation	12(60)	09(45)	05(25)	26(43.33)	V
6.	Lack of good infrastructure	08(40)	05(25)	05(25)	18(30.00)	VI
7.	Malpractices adopted by traders	03(15)	07(35)	06(30)	16(26.66)	VII

by (55.56%), "problem of transportation" reported by (41.67%), "untimely payment for the produce" reported by (33.33%) and "exploitation by the middleman" reported by (27.78%) respectively.

4. CONCLUSION

This research study concludes that the investment on human labour manures followed by fertilizer and irrigation should highly be considered. To minimize the cost of cultivation of cabbage crop in small size farm cost involved on human labour use to be decreased but this avenue is opened for larger size farms. Efficient marketing should be followed for securing higher share of producers in consumer's paid price. Problems observed during the study should accordingly be handled to minimize their incidence. Proper borrowing facility and marketing information should also be followed which influence the return of this crop. Creation

of demand and searching of export oriented substances should be extended to the best level of state and commercial agencies for further increase the prospect of cabbage crop. Farmers in regard of sound farming practices based on scientific recommendation should be acquainted with the researcher and extension agencies for narrowing the gap between potential and actual yield. Regulated market or amendment in marketing practices should be observed which unnecessarily expand the gap between producer's price and price paid by ultimate consumer. Market intermediaries reap more profit in indirect marketing channel. Timely and adequate supply of inputs like, fertilizers, chemicals, quality seed should be and must be ensured. Training of farmers in the areas of production technology, grading, standardization of produce, quality control and modern method of marketing will prove to be a viable move. The government should establish adequate storages

at village level for the purpose of orderly marketing of cabbage to benefit both consumers and producers. Export oriented plans for cabbage should also be considered for better price. Provision of proper marketing information to producers as well as consumers at marketing level should be ensured. To discourage delay payment of cabbage selling amount to growers should strictly be checked through the administrative involvement of state government and corporate bodies. In the study area, cabbage is the important crop in the vegetable and also reveals its suitability as well as profitability in the study area. So its requires to convince farmers for enhancing the area under cabbage crop. The processing is the foremost important requisite for better and regular earnings of the farmers at the same time this will ensure the minimum losses of the farmers produce. Government should come forward to eliminate intermediaries which are getting more profit. Local and state agencies should involve in the marketing management in study area, therefore, both the cabbage growers and ultimate consumers may get incentive price and justified payment without exploitation and permissible number of intermediaries may be involved.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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