

# Economic Viability of Cucumber Cultivation in Greenhouses

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**ABSTRACT: Background/Objectives:** With the help of the present study an endeavor has been recuperate to analyze the cost and return structure of cucumber cultivation in greenhouses in Haryana. The study has been conducted with the objective to evaluate the benefit cost ratio and to analyze the major constraints faced by the farmers during cucumber cultivation in greenhouses.

**Methods/Statistical Analysis:** For conducting the present study multi-stage sampling technique was used in which among the first stage Sonipat district while in the second stage Gohana and Kharkhoda blocks were selected purposively. The sample for the study constitutes 50 farmers, 25 farmers from each block.

**Findings:** The outcomes of the present study unveil that 1.43 is the benefit cost ratio for cucumber cultivation by farmers under greenhouse condition. Higher initial investment (86.17 %), lack of technical guidance (81.95 %) and high cost of pesticides and fertilizers (78.23 %) were the major production related problems faced by the respondent farmers.

## 1. INTRODUCTION

Cucumber having the scientific name of *Cucumis sativus* L. is also known as Khira in Hindi is one among the most important vegetable that has been grown commonly throughout the nation. The cucumber is used in pickle and as salad and sometimes it is also used as cooked food. Cucumber has an extensive cooling effect as it prevents constipation and has numerous other uses like it helps in jaundice, it is used as beauty product and the seeds of cucumber have various ayurvedic uses. It is generally a warm season crop as it does not withstand even light frost. The most suited temperature for cucumber is from 18°C to 24°C. Southern Asia is the place where originally cucumber was grown but it has been grown in almost all of the nations. Haryana is basically an agrain economy. The crop of cucumber was grown in Haryana almost throughout the year in greenhouses. In greenhouses condition 300 per cent is the cropping intensity of cucumber. The crop of cucumber is of short duration which usually varies from 90-100 days. Three crops of cucumber can be taken up in an year as the first crop of cucumber was planted in the month of August which last up to the month of November, the second crop of cucumber was planted in the month of December which prolonged up to the month of March while the third crop of cucumber was planted in the month of April which last up to the month of June.

From sandy to heavy soil, cucumber can be grown in all types of soil while for getting higher yields clay loam, loam and silt loam soils are considered as best. In greenhouses Multistar and Hiltan varieties of cucumber were grown (Parveen Kumar). The demand for the cucumber grown in protected cultivation is increasing day by day because of which there is an increase in the interest of the farmers for cultivating cucumber during off season under greenhouse condition as cucumber grown under greenhouse condition has quantitative and qualitative advantage over the traditional cultivation. With regard to these aspects, present study made an attempt to analyze the economic viability of cucumber cultivation in greenhouses in Haryana. The specific objectives of the study are: to evaluate

the benefit cost ratio and to analyze the constraints in cucumber production under greenhouse condition.

### 1.1 Material and Methods

For conducting the study, multi-stage sampling technique was used. In the first stage Sonipat district was selected purposively while in the second stage Gohana and Kharkhoda blocks were selected. Thereafter, from each block 25 farmers were selected randomly thus making a total sample of 50 respondents. Well structured and pre tested interview schedule was used to collect the information from the respondent farmers. To compile the return and cost structure in the present study, tabular presentation method was used. To meet out the purpose of the present study, simple statistical tools like average, ratio and percentage was used to interpret the results.

In the present study the cost and return structure was calculated on per acre basis and the total returns were divided by the total cost for calculating the benefit cost ratio of a unit. By conducting an opinion survey regarding the major problems related to the production and marketing of cucumber from the sample respondent farmers, major problems have been selected.

### 1.2 Results and Discussion

In order to analyze the benefit cost ratio from the cucumber cultivation in greenhouse condition, the cost and return structure was calculated on per acre basis. As it could be observed from the table 1 that the total cost of cucumber cultivation in greenhouse was worked out to be ₹281092.16. among the cost structure that has been calculated in the table 1 it is clearly visible that the highest amount of the variable cost was spend on seed which was 24.47 per cent of the total cost which was followed by harvesting as amount spent on harvesting was 12.13 of the total cost followed by fertilizers and FYM having an percentage of 5.49, bed preparation with a percentage of 3.19, plant protection with percentage of 3.66, field preparation with percentage of 2.04, weeding having an percentage of 1.52 and irrigation with percentage of 1.26.

Table 1. Economic analysis of cucumber cultivation in greenhouse condition (₹/acre)

Sr. No.	Particulars	Amount
1	Field preparation	5744 (2.04)
2	Bed preparation	8989.23 (3.19)
3	Seed	68808.69 (24.47)
4	Fertilizer & FYM	15449.57 (5.49)
5	Irrigation	3553.71 (1.26)
6	Plant Protection	10312.68 (3.66)
7	Weeding	4283.14 (1.52)
8	Harvesting	34114.17 (12.13)
9	Subtotal ( 1 to 8 )	151255.19 (53.80)
10	Interest on working capital	13603.52 (4.83)
11	Variable cost (9+10)	164859.11 (58.64)
12	Marketing cost	14860.32 (5.28)
13	Management charges	16832.39 (5.98)
14	Risk factor	18731.27 (6.66)
15	Depreciation and interest on fixed capital	50842.16 (18.08)
16	Rental value of land	14966.91 (5.32)
17	Total cost (11 to 16)	281092.16 (100)
<b>Return Structure</b>		
18	Total Yield (qtl/acre)	442.72
19	Price	913.64
20	Total returns	404486.70
21	Return over variable cost	239627.59
22	Net returns	123394.54
<b>B:C Ratio</b>		<b>1.43</b>

Figures in parentheses indicate percentages to total cost

Table 1 reveals that out of the total cost structure the major proportion of cost is of variable cost which was ₹164859.11 which was then followed by the depreciation and interest on fixed capital which was ₹50842.16, risk factor which was ₹18731.27, management charges which was ₹16832.39, rental value of land which was ₹14966.91 and marketing cost which was ₹14860.32.

The return structure from the cucumber crop under greenhouse condition as revealed by the table 1 shows that total return on per acre basis was estimated as ₹404486.70. Return over variable cost and net return were calculated as

₹239627.59 and ₹123394.54 per acre, respectively. An average yield of 442.72 quintal per acre was obtained under green house condition while the average sale price was ₹913.64. It could be also observed from the cost return structure that the B:C ratio for cucumber cultivation under greenhouse condition was observed as 1.43. Similar findings were also reported by Rajur Et Al., Parveen Et Al.

While analyzing the problems faced by the respondent farmers in cucumber production it is clearly visible from table 2 that, higher initial investment (86.17 %), lack of technical guidance

Table 2. Problems faced by respondent farmers in cucumber production

Problems	% of farmers
Higher initial investment	86.17
Lack of technical guidance	81.95
High cost of pesticides and fertilizers	78.23
Lack of minimum support price	92.46
Lack of market information	66.67
Too much fluctuation in price	73.92

Figures in parentheses indicate percentages to total cost

(81.95 %) and high cost of pesticides and fertilizers (78.23 %) were the major production related problems faced by the growers while lack of minimum support price (92.46 %), lack of market information (66.67 %) and too much fluctuation in price (73.92 %) were the major marketing related problems faced by the growers. At the initial stage of

cultivation in greenhouse farmers frequently reported the issue of high incidence of pests which was even sometimes uncontrolled for higher dose of pesticides application. The findings of the present study are similar with the findings of the studies conducted by Ravi Shankar (1995) and Sreedhara (2013).

## 2. CONCLUSION

- I. Benefit Cost ratio for cucumber cultivation under green house condition in Haryana was observed to be 1.43.
- II. Higher initial investment (86.17 %), lack of technical guidance (81.95 %) and high cost of pesticides and fertilizers (78.23 %) were the major production related problems faced by the growers.
- III. Lack of minimum support price (92.46 %), lack of market information (66.67 %) and too much fluctuation in price (73.92 %) were the major marketing related problems faced by the growers.
- IV. Among the variable cost highest proportion was of seed followed by harvesting, fertilizers and FYM, ridging and bed preparation, plant protection, field preparation, weed control and irrigation.

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