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Economics of Onion Production in Jaipur District of Rajasthan

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Abstract

The Onion is the major vegetable crop of Rajasthan. The study was conducted in Jaipur district of Rajasthan, where onion is an important crop. A sample of 75 onion growers, based on land holding size were selected *viz.,* small, semi-medium, medium and large size. The average area, production and productivity of Jaipurdistrict in the last 30 years (1981 to 2010) were observed 2118.2hectares, 11857.0tons and 58.8q /ha, respectively. In Jaipur district area, production and productivity of onion in the overall period (1981-2010) have increased by 2.99, 4.14 and 1.11per cent per annum. Production of onion in the Jaipur district increased at a compound growth rate of 4.14% per annum, which was contributed both by increase in area (2.99%) as well as increase in productivity (1.11%) but the contribution of area was more than that of productivity.The average bulb yield of onion was obtained by the small, semi-medium, medium and large farmers was 306.4, 312.6, 329.9 and 355.2 q/ ha, respectively. Total onion bulb yield was produced by the all 75 respondents (onion growers) was 16314.87q from the 48.07 ha area. On an average, total cost (cost C_2) incurred in cultivation of onion was Rs. 52513.1 per hectare. The total cost incurred in cultivation of onion was highest on small farms (Rs.57437.3/ha) followed by semi-medium farms (Rs.52809/ ha), large farms (Rs.50466.4/ha) and least on medium farms (Rs.49223.1/ha). The operational cost in cultivation of onion was highest on small sized farms and lowest on large sized farms. The overhead cost in cultivation of onion was highest on large sized farms followed by small, semi-medium and medium sized farms.The cost of production per quintal of onion was highest on small and lowest on large sized farms. The study concluded that the large size group of farms obtained the largest amount of profit similarly, as observed in the present study. The results further revealed that the income measures *viz.,* gross return, return over operating cost, net return, family labour income and farm business income recorded highest on large sized farms followed by medium, semi-medium and small sized farms in the Jaipur district.

Keywords : *Onion, production, costs, returns.*

Introduction

The onion (*Allium cepa* L.) is one of the most important vegetable crops grown in the entire world. Globally onions are grown in an area of 4.45 million hactare with a production of 85.94 million tonnes of an average productivity of 19.30 t/ha. In India production of onion has increased from 40.4 lakh tonnes (1994-95) to 215.63 lakh tonnes (2016-17), India ranks first by area (12.71 lakh hectare) in onion and second in production (215.63 lakh tonnes) next to China, but productivity is 16.1 tonnes hectare which is low as compared to Netherland, USA, China and the other countries. During 2016-17 India exported 34.93 lakh tonnes of onion (Anonymous, 2017). The reason for low productivity may be due to majority of Indian varieties are short day type which yields low per unit area, whereas long day types onion yields are high per unit area since prevailing of long crop duration, which are not suited for major onion growing areas of India except hilly regions where long day falls (Manjunathagowda *et.al.,* 2015). The major onion producing states in the country are Maharashtra, Karnataka, Gujarat, Bihar, Madhya Pradesh, Andhra Pradesh, Rajasthan, Haryana, Uttar Pradesh and Tamil Nadu. These states together account about 87.93 per cent of the total area and 89.91 per cent of the total production of onion in the country (Anonymous, 2010). Onion in the country is planted in three season's viz., *kharif*, *late kharif* and *rabi* with 20, 20 and 60% proportion, respectively.

The growing demand for onions induced by rising income and changing consumption patterns coupled with declining farm incomes due to rising costs and stagnating food grain productivity has necessitated diversification towards high-value crops in recent times in Jaipur district of Rajasthan. Apart from income enhancement, this high-value crop has potential to generate additional employment opportunities in farming due to their labour-intensive character (Weinberger and Lumpkin, 2006). Thus, to improve income, provide gainful employment and save natural resources from further degradation, diversification from grain crops to high-value crops like onion vegetable has emerged as an important strategy for agricultural growth (Sekhon and Kaur, 2004). The fluctuations in production of onion adversely affect the employment and income distribution and hamper the economic growth of the state. The overtime increase in the cost of production and prices of onion have affected the profitability of onion producers. Hence, there is

needed to study the input use, cost structure and profitability of onion on different size group of farms. There are only few prominent studies were under taken, which have covered the cost of production, marketing and constraints aspects and analyses various factors affecting its profitability to the producer and intermediaries in the sale of onion is available (Dangat *et al.* 1989; Mishra *et al.* 1995; Shyamas under and Achoth 1996; Mohapatra 1999; Shah 1999; Verma *et al.* 2004).

Objectives of the study : The present investigation was under taken with the following objectives :

To work out the growth rate in area, production and productivity of onion.

To study the economics of production of onion on the farms of different size-groups.

Materials and Methods

The study was conducted in Jaipur district of Rajasthan, where onion is an important crop. A sample of 10 villages was selected in the three tehsils having highest cultivated area of onion in Jaipur district. Further, a sample of 75 farmers was taken from the selected onion producing villages. The onion producing farmers were then categorized as small (0-2 ha) semi-medium (2-4 ha), medium (4-10 ha) and large size (>10.0 ha), based on land holding size of the farmers in each selected district. The farmers to be selected from each village were distributed among these four categories in proportion to the number of farmers in each category. The number of selected onion producing farmers was in 16 in small, 28 in semi-medium, 19 in medium and 12 in large category. The study utilized both secondary and primary data, to fulfill the objectives of the present study. To study the growth rate in area, production and productivity, of Jaipur district, time series data on area, production and productivity of onion were collected for the period from 1981 to 2010 from the Statistical Cell, Commissionerate of Agriculture Rajasthan, Jaipur. The primary data regarding cost of cultivation, fixed assets, yield returns of production was collected from the sample farmers through personal interview with the help of pre-tested and structured schedules.

Analytical frame work : Tabular analytical technique with help of percentages, averages and ratio were used to analyze and compute costs, returns, prices, sales etc. of producer-seller as well as different market functionaries. Analysis of primary and secondary data for estimation of trends of growth in area, production and productivity was estimated by the standard statistical analytical procedures as per the objectives of the present study. Cost of cultivation was computed by the standard statistical analytical procedures as per suggested by Acharya, 1997.

(a) Trends of growth in area, production and productivity : To study the trends of growth in area, production and productivity of onion crop in Jaipur district compound growth rate were worked out for 30 years data by using the formula :

$$X_t = a\, b^t$$

$$\text{Log } X_t = \text{Log } a + t \text{ Log } b$$

Where;

X_t = Area/production/productivity of onion crop in year "t"

t = Time element which takes the value 1, 2, 3, ———, n

a & b = Constant

(b) Compound growth rate :

Compound growth rate (r) = (b – 1) x 100

Where;

r = growth rate in percentage

Student 't' test was used to test the significance of the calculated compound growth rates by using the formula :

$$T = \frac{r}{\text{S.E. (r)}}$$

d.f. = N-2

(c) Cost of cultivation : In order to assess the profitability and economic viability in onion cultivation, various components of costs were estimated. The details of these cost concepts are given as follows :

Cost A_1	It is the actual paid cost by the farmers, cost of inputs such as value of hired human labour + value of owned bullock labour + value of hired bullock labour + value of owned machine labour + value of hired machine labour + value of owned seed + value of purchased seed + value of owned farm yard manure + value of purchased farm yard manure + value of fertilizers + value of plant protection chemicals + irrigation charges + land revenue + interest on working capital + depreciation + miscellaneous expenses
Cost A_2	Cost A_1 + Rent paid for the leased-in land
Cost B_1	Cost A_1 + interest on value of owned fixed capital assets (excluding land)
Cost B_2	Cost B_1 + Rental value of owned land
Cost C_1	Cost B_1 + imputed value of family labour
Cost C_2	Cost B_2 + imputed value of family labour

(i) Operational cost (OC) : It is variable cost, which varies with the level of production. It is expressed as :

O.C. = Cost A_1 – Land revenue – Depreciation + Family labour charges.

(ii) Over Head Cost (OHC) : It is fixed cost, which is incurred irrespective of the volume of production. It is expressed as :

Table 1 : Area, Production and Productivity of Onion in Jaipur District.

Period	Jaipur			
	1981-81 to 1989-90	1990-91 to 1999-2000	2000-01 to 2009-10	Per cent increased in 2001-10 over 1981-90
Area (ha)	1301.1	2131.4	2622.1	101.53
Production (tones)	5641.7	15221.2	14708.1	160.70
Productivity (q/ha)	43.4	71.4	56.1	29.26
Average of the last 30 years	2118.2	11857.0	58.8	

Source : Rajasthan Agricultural Statistics at a Glance 2010, Commissionrate of Agriculture, Rajasthan, Jaipur.

Table-2 : Triennium average ending (TE) of area, production and productivity of onion in Rajasthan.

	TE 1989-90	TE 1999-00	TE 2009-10	Percentage Change
Area (ha)	1385.7	2413.3	1845.0	33.1
Production (tones)	6733.7	16059.7	8891.3	32.0
Productivity (q/ha)	111.2	78.8	119.6	7.6

Source : Rajasthan Agricultural Statistics at a Glance 2010, published by Commissionrate of Agriculture, Rajasthan, Jaipur.

$$OHC = Cost\ C_2 - OC$$

(iii) Cost of production (per quintal) : Cost of production of onion was worked out using the formula :

$$\text{Cost of production (per quintal)} = \frac{\text{Cost of cultivation - Value of by - product}}{\text{Quantity of main product}}$$

Results and Discussion

Area, production and productivity of onion inJaipurdistrict : The Table-1 depicts that the area under onion crop in Jaipur district was 1301.1 hectares in 1981-90, which increased to 2131.4 hectares in 1991-2000 and further to 2622.1 hectares in 2001-10. Overall area under onion crop increased by 101.53 per cent over 1981-1990. The maximum rate of increase (160.70 per cent) was recorded in production while, minimum increase (29.26 per cent) was recorded in productivity of onion. It is clear from the Table1 that the average area, production and productivity of Jaipur district in the last three decades were 2118.2 hectares, 11857.0 tons and 58.8 q/ha, respectively.

Triennium average ending (TE) ofarea, production and productivity of onion : The change in area under onion cultivation in Jaipur district was 33.1 per cent, while productivity of onion has decreased by 4.1 per cent during TE 2009-10 over TE 1989-90. Thus, increase in production of onion in the district was recorded at merely 32.0 per cent from 6733.7 tones during TE 1989-90 to 8891.3 tones during TE 2009-10. Though, the area and production of onion has increased during TE 1999-2000 (Table 2). The district accounted for about 10.0 per cent share in area under onion cultivation in the state during TE 1989-90, which declined to 4.6 per cent during TE 2009-10. Jaipur district produced about 11.9 per cent of total onion production in the state during TE1999-2000; however, it reduced from 2.5 per cent share during TE 2009-10. Decreases in both area and production in Jaipur district were observed due to acute shortage of ground water for irrigation owing to erratic rainfall during the period of observations.

Annual compound growth rates in area, production and productivity of onion : It is evident from the**T**able 3 that the compound growth rate of area, production and productivity of onion in the Jaipur district during the period-I worked out at 1.04, 1.67 and 0.62 per cent per annum, respectively. During the period-II, the production of onion increased at the compound growth rate of 5.79 per cent per annum inspite of negative growth in productivity of the crop (-0.49 per cent per annum). The positive growth in area (6.31%) has not only compensated the negative growth of productivity but also helped in increasing the production of the crop. During the period-III, compound growth rate of the area (-7.94%), production (-12.43) and productivity (-4.88%) of Jaipur district were recorded negative / decreased. It is further evident from the table that in the overall period (1981-2010), production of onion in the Jaipur district increased at a compound growth rate of 4.14% per annum, which was contributed both by increase in area (2.99%) as well as increase in productivity (1.11%) but the contribution of area was more than that of productivity. Similarly Waghmare and Babar (1986), Pandita and Midmore (1994), Singh and Choudhary (1997), Kallo and Singh (2000) , Malik *et al.* (2004) in their studies they also observed increasing trends in area, production and productivity of onion in various parts of the country including vegetables.

Total Costs and its Components in Production of Onion in Jaipur District : This study of onion was based on 21.33, 37.34, 25.33 and 16.00 percent of small,

Table 3 : Annual compound growth rate in area, production and productivity of onion in Jaipur.

District	Period	Area (%)	Production (%)	Productivity (%)
Jaipur	1980-81 to 1989-90	1.04	1.67	0.62
	1990-91 to 1999-00	6.31	5.79	-0.49
	2000-01 to 2009-10	-7.94	-12.43	-4.88
	1980-81 to 2009-10	2.99	4.14	1.11

Table-4 : Land holding and onion cultivation by sample farmers.

District	Category	Sample farmers	Total holding (ha)	Area under onion crop (ha)	Onion area as % of total Holding	Bulb yield of onion (q/ha)
Jaipur	Small	16 (21.3)	1.38 (5.4)	0.069	5.0	345.1
	Semi-medium	28 (37.3)	2.96 (20.3)	0.21	7.1	329.9
	Medium	19 (25.3)	7.88 (36.7)	0.95	12.1	312.6
	Large	12 (16.1)	12.76 (37.5)	1.92	15.0	306.4
	Overall	75 (100)	5.44	0.64	11.8	312.49

*Figures in parenthesis are percentages of sample farmers/total holding.

Table-5 : Analysis of Cost of Cultivation of Onion on the Farms of Different Sizes in Jaipur District of Rajasthan.

(Rs./ha)

S. No.	Particulars	Size Group				
		Small	Semi-medium	Medium	Large	Overall
A.	**Operational Cost**					
1.	Machine Labour	2567.4 (4.5)	2942.3 (5.6)	2967.2 (6.0)	2786.5 (5.5)	2843.7 (5.4)
2.	Seed and Nursery raising cost	8097.7 (14.1)	7387.4 (14.0)	5292.6 (10.8)	5537.3 (11.0)	6712.2 (12.8)
3.	Manure	3581.9 (6.2)	3040.5 (5.8)	3114.8 (6.3)	3155.8 (6.3)	3193.3 (6.1)
4.	Fertilizers	3905.9 (6.8)	3859.4 (7.3)	3629.1 (7.4)	3458.7 (6.9)	3746.9 (7.1)
5.	PP Chemicals	1264.7 (2.2)	1127.8 (2.1)	1217.2 (2.5)	1168.6 (2.3)	1186.2 (2.3)
6.	Irrigation Charges	2060.7 (3.6)	1692.4 (3.2)	1647.6 (3.3)	1597.8 (3.2)	1744.5 (3.3)
7.	Interest on working capital	667.0 (1.2)	673.5 (1.3)	661.5 (1.3)	678.5 (1.3)	669.9 (1.3)
8.	Human Labour	21270.4 (37.0)	18612.3 (35.2)	18347.2 (37.3)	17427.6 (34.5)	18922.7 (36.0)
	Total Operational Cost	43415.7 (75.6)	39335.6 (74.5)	36877.2 (74.9)	35810.8 (71.0)	39019.26 (74.3)
B.	**Overhead cost**					
1.	Interest on fixed capital	604.9 (1.1)	492.4 (0.9)	579.3 (1.2)	674.7 (1.3)	567.6 (1.1)
2.	Depreciation on farm implements and machinery	445.3 (0.8)	352.7 (0.7)	434.8 (0.9)	514.6 (1.0)	419.2 (0.8)
3.	Rental value of owned land	12962.4 (22.6)	12612.3 (23.9)	11315.8 (23.0)	13445.3 (26.6)	12491.8 (23.8)
4.	Land revenue	9.0 (0.02)	16.0 (0.03)	16.0 (0.03)	21.0 (0.04)	15.3 (0.03)
	Total overhead cost	14021.6 (24.4)	13473.4 (25.5)	12345.9 (25.1)	14655.6 (29.0)	13493.9 (25.7)
	Total cost	57437.3	52809.0	49223.1	50466.4	52513.1

Note : Figures within the parenthesis for different components of operational cost and overhead cost are the percentages to the total cost.

semi-medium, medium and large size sampled farmers, respectively in Jaipur district. The average size of holding of the sampled respondents small, semi-medium, medium and large was 1.38 ha, 2.90 ha, 7.88 ha, and 12.76 ha, respectively. The sample farmers small, semi-medium, medium and large were found to grow onion over an area

Table-6 : Economics of Onion Production on the Farms of Different Sizes in Jaipur District of Rajasthan.

(Rs./ha)

S. No.	Particulars	Size Group				
		Small	Semi-medium	Medium	Large	Overall
1.	Operational Cost Return	43415.7 (75.6)	39335.6 (74.5)	36877.2 (74.9)	35810.8 (71.0)	39019.3 (74.3)
2.	Overhead Cost Return	14021.6 (24.4)	13473.4 (25.5)	12345.9 (25.1)	14655.6 (29.0)	13493.9 (25.7)
3.	Cost A1	27800.2 (48.4)	27984.1 (53.0)	27571.0 (56.0)	28354.1 (56.2)	27899.4 (53.1)
4.	Cost A2	27800.2 (48.4)	27984.1 (53.0)	27571.0 (56.0)	28354.1 (56.2)	27899.4 (53.1)
5.	Cost B1	28405.1 (49.5)	28476.5 (53.9)	28150.3 (57.2)	29028.8 (57.5)	28467.0 (54.2)
6.	Cost B2	41367.5 (72.0)	41088.8 (77.8)	39466.1 (80.2)	42474.1 (84.2)	40958.8 (78.0)
7.	Cost C1	44474.9 (77.4)	40196.7 (76.1)	37907.3 (77.0)	37021.1 (73.4)	40021.3 (76.2)
8.	Cost C2	57437.3 (100.0)	52809.0 (100.0)	49223.1 (100.0)	50466.4 (100.0)	52513.1 (100.0)
	Cost of Production (Rs./q)	187.5	168.9	149.2	142.1	162.8
	Returns					
1.	Gross Returns	136348.0	139107.0	146805.5	158064.0	143501.8
2.	Return over Operating Cost	92932.3	99771.4	109928.3	122253.2	104482.6
3.	Net Income	78910.7	86298.0	97582.4	107597.6	90988.7
4.	Family Labour Income	94980.5	98018.2	107339.4	115589.9	102543.0
5.	Farm Business Income	108547.8	111122.9	119234.5	129709.9	115602.4
6.	Returns Per Rupee of Expenditure	2.37	2.63	2.98	3.13	2.73

Note : Figures within the parenthesis for different cost groups are the percentages to the total cost.

of 5.00, 7.09, 12.06 and 15.05 per cent, respectively in the total average size of the holding available with them. The average bulb yield of onion was obtained by the small, semi-medium, medium and large farmers was 306.4, 312.6, 329.9 and 355.2 q/ ha, respectively. Total onion bulb yield was produced by the all 75 respondents (onion growers) was 16314.87q from the 48.07 ha area (Table 4).

The total cost incurred and their components in the cultivation of onion on sample farms in Jaipur district are presented in Table 5. On an average, total cost (cost C_2) incurred in cultivation of onion was Rs. 52513.1 per hectare. The total cost incurred in cultivation of onion was highest on small farms (Rs.57437.3/ha) followed by semi-medium farms (Rs.52809/ ha), large farms (Rs. 50466.4/ha) and least on medium farms (Rs.49223.1/ha). The total cost of cultivation consists of operational cost and overhead costs.

Operational costs : The operational cost incurred in cultivation of onion was higher than the overhead cost on all size groups of farms. The operational cost in absolute terms was lowest on large sized farms and highest on small sized farms in the study area. The operational cost incurred in cultivation of onion was Rs. 39019.26 (74.3 per cent) per hectare on the overall basis. It was varied for different size groups of farms and recorded Rs. 43415.7 (75.6 per cent), Rs. 39335.6 (74.5 per cent), Rs.36877.2 (74.9 per cent) and Rs. 35810.8 (71.0 per cent) per hectare of total cost per hectare on small, semi-medium, medium and large sized farms, respectively. Thus, the operational cost in cultivation of onion was highest on small sized farms and lowest on large sized farms (Table-5).

Human labour was the major component of the operational cost on sample farms as it was alone accounted for 36.0 per cent (Rs.18922.7/ha) of the total cost. Similar results were also reported by the Bijarnia (1998) in a study of an economic analysis of onion cultivation in Jaipur district of Rajasthan found that human labour as an important component, which contributed maximum per cent share in the total operational cost of onion cultivation in Jaipur district. The cost on manures, machine labour, fertilizers, plant protection chemicals, seed and nursery raising cost, and irrigation charges together accounted for 37.0 per cent of the total cost.

Medium and large sized farms incurred more on cost for manure (6.3 per cent) compared to other size groups. Vermi-compost/poultry manures being costlier manure is used by the medium and large sized farmers, whereas small and medium sized farmers used FYM only. Further, in general, machine labour cost increased, in absolute

value as well as in terms of per cent of the total cost, with the increase in size small to medium size of holding (4.5 – 6.0 per cent). Seed and nursery raising cost was highest on small and semi–medium sized farms and lowest on medium sized farms.

Overhead costs : On an average, the total overhead cost in cultivation of onion was Rs. 13493.9 (25.7 per cent) per hectare. On different size groups, it was Rs. 14021.6 (24.4 per cent) per ha on small; Rs. 13473.4 (25.5 per cent) on semi-medium; Rs. 12345.9 (25.1 per cent) on medium and Rs. 14655.6 (29.0 per cent) per hectare on large sized farms. The overhead cost in cultivation of onion was highest on large sized farms followed by small, semi-medium and medium sized farms. Rental value of owned land was the main item in the overhead cost as it accounted for 23.8 per cent of the total costs. The items viz., interest on fixed capital and depreciation together accounted for 1.9 per cent of the total cost of cultivation. Land revenue was accounted for negligible share to the total cost of cultivation (Table 5).

Cost Groups and Returns from Cultivation of Onion in Jaipur District

Cost groups : The various cost groups and returns from the cultivation of onion by sampled farmers in Jaipur district are presented in Table-6.

Cost groups : The overall cost A_1 andcost A_2, cost B_1, cost B_2 and cost C_1 were Rs. 27899.4 per ha (53.1 per cent); Rs. 28467.0 (54.2 per cent); Rs. 40958.8 (78.0 per cent) and Rs. 40021.3 (76.2 per cent) per hectare, respectively on different sized sampled farms. The Cost A_2 was same as cost A_1 on all size groups of farms because none of the sampled farmers leased any land for cultivation of onion in the study area. The overall cost of production of onion was Rs. 162.8 per quintal. It was Rs. 187.5, Rs. 168.9, Rs. 149.2 and Rs. 142.1 on small, semi-medium, medium and large sized farms, respectively. The cost of production per quintal of onion was highest on small and lowest on large sized farms (Table 6).

Returns : The overall average gross income received by farmers from cultivation of onion was Rs. 143501.8 per hectare. Large farmers received highest gross income (Rs 158064.0/ha) followed by medium (Rs. 146805.5/ha) farmers, semi-medium (Rs. 139107.0/ha) and least by small farmers (Rs. 136348.0/ha). The average return over operating costs, net income, family labour income and farm business income per hectare of onion cultivation were Rs. 104482.6, Rs. 90988.7, Rs. 102543.0 and Rs. 115602.4, respectively on sample farms (Table-6). The return per rupee of expenditure from onion cultivation was Rs. 2.37 on small, Rs. 2.63 on semi-medium, Rs.2.98 on medium and Rs. 3.13 on large sized farms with an overall of Rs. 2.73.Jat (1992) in his study of economic analysis of onion cultivation in Jaipur district of Rajasthan reported that the large size group of farms obtained the largest amount of profit similarly, as observed in the present study.

Table-6 further depicts that the income measures *viz.,* gross return, return over operating cost, net return, family labour income and farm business income recorded highest on large sized farms followed by medium, semi-medium and small sized farms in the Jaipur district.

Conclusions

The results indicate that in Jaipur district area, production and productivity of onion in the overall period (1981-2010) have increased by 2.99, 4.14 and 1.11 per cent per annum. Production of onion in the Jaipur district increased at a compound growth rate of 4.14% per annum, which was contributed both by increase in area (2.99%) as well as increase in productivity (1.11%) but the contribution of area was more than that of productivity. It could be concluded that on an average, total cost (cost C_2) incurred in cultivation of onion was Rs. 52513.1 per hectare. The total cost incurred in cultivation of onion was highest on small farms (Rs.57437.3/ha) followed by semi-medium farms (Rs.52809/ ha), large farms (Rs.50466.4/ha) and least on medium farms (Rs.49223.1/ha). The operational cost in cultivation of onion was highest on small sized farms and lowest on large sized farms. The overhead cost in cultivation of onion was highest on large sized farms followed by small, semi-medium and medium sized farms. The cost of production per quintal of onion was highest on small and lowest on large sized farms. The study concluded that the the large size group of farms obtained the largest amount of profit similarly, as observed in the present study. The results further revealed that the income measures *viz.,* gross return, return over operating cost, net return, family labour income and farm business income recorded highest on large sized farms followed by medium, semi-medium and small sized farms in the Jaipur district. Since increase in production of onion is must for meeting domestic requirement and for increasing income of farmers so, it is necessary to identify the thrust areas of development and prioritize the same for effective achievement of the goal at a faster rate.

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