Advances in Economics and Business Management (AEBM)
Print ISSN: 2394-1545; Online ISSN: 2394-1553; Volume 1, Number 3; November, 2014 pp. 265-268

http://www.krishisanskriti.org/aebm.html

Production Costs and Returns Per Hectare of Mungbean (Vigana Radiata) in Nagaur District of Rajasthan

Subhita Kumawat*

**M.Sc. Student COA, SKRAU, Bikaner*
Ph.D. (Scholar) Agricultural Economics College of Agriculture, SKRAU, Bikaner
E-mail: subhita.kumawat@gmail.com

Abstract: *The study was conducted in Nagaur district of Rajasthan which has highest area and production under Mungbean cultivation. Merta tehsil in Nagaur district and two villages from Merta tehsils were selected on the basis of highest area under mungbean. A sample of 50 farmers was surveyed for input use pattern in Mungbean. The sample included 21 small, 16 medium and 13 large farms.*

Keywords: *Mungbean, Production, Production cost and returns.*

1. INTRODUCTION

An efficient marketing system is an important means for raising the income levels of the growers on the one hand and increasing the consumer satisfaction on the other. Growers allocate resources according to the comparative advantage of individual crops and invest to obtain increased productivity and production.

Nagaur district in Rajasthan has 246.68 thousand hectares of area under mungbean cultivation (2009) with production of 130.48 thousand tonnes. Nagaur district ranks first in area and production of mungbean.

In Rajasthan, the area under this crop was 8.85 lakh ha with the annual production of 3.73 lakh tonnes and productivity of 421 kg/ha in 2009. It is mainly cultivated in arid and semi-arid district including Nagaur, Jaipur, Jodhpur, Sikar, Pali, Jhunjhunu and Ajmer.

The study was carried out with objective in view (i) To study production cost and returns per hectare of mungbean cultivation.

2. METHODOLOGY

Nagaur district was purposively selected on the basis of highest average area, highest average production, and highest average productivity of mungbean among all the district in the Rajasthan state. Merta tehsil and two villages namely, Mungdara and Ren were selected on the basis of highest area. The farmers were classified in to small (up to 2ha), medium (> 2ha ≤ 4 ha) and large (> 4 ha). A sample of 50 farmers was randomly drawn with probability proportional to number of farmers in each size group. The sample included 21 small, 16 medium and 13 large farms. The primary data pertaining to crop year 2010-11 were collected by pre-tested schedules through personal interview method. Tabular analysis was carried out to work out production cost and returns per hectare of mungbean on different cost concepts basis.

3. STATISTICAL TOOLS:

3.1 Cost and Income measures:

Cost of cultivation

The cost of cultivation of mungbean was worked out by using various cost concepts which are defined as under:

Cost A_1:

1. Value of hired human labour.
2. Value of owned and hired animal labour.
3. Value of owned and hired machine labour.
4. Value of seeds(both farm produced and purchased).
5. Value of manures, fertilizers, insecticides and pesticides.
6. Irrigation charges.
7. Depreciation .
8. Land revenue.
9. Interest on working capital.
10. Miscellaneous expenses.

Cost A_2: Cost A_1 + rent paid for leased in-land.
Cost B_1: Cost A_1 + interest on fixed capital assets (excluding land)
Cost B_2: Cost B_1 + rental value of owned land + rent paid for leased-in land.
Cost C_1: Cost B_1 + imputed value of family labour.
Cost C_2: Cost B_2 + imputed value of

family labour.

Cost C_3: Cost C_2 + 10 per cent of cost C_2 as management cost.

The cost of production was worked out by

Item	Size of holdings			
	Small	Medium	Large	Overall
Total operational cost	4833.7 (45.26)	5510.12 (48.07)	6742.45 (52.56)	5695.32 (48.86)
Total fixed cost	5847.2 (54.74)	5952.58 (51.93)	6086.85 (47.44)	5962.21 (51.14)
Total cost	10680.90 (100)	11462.70 (100)	12829.30 (100)	11657.53 (100)

using following formula:

Cost of production per quintal	=	Cost of cultivation/ha
		Quantity of main product/ha

Income measures

Gross income: Value of output (both main and by product) evaluated at minimum support prices.

$GI = Qm \times Pm + Q_b \times P_b$

Where,

GI = Gross Income in Rupees

Qm = Quantity of main product

Pm = Price of main product

Q_b=Quantity of by product

P_b =Price of by product

Farm business income

Gross income - Cost A_1 (Cost A_2 in case of tenant operated land)

Family labour income : Gross income – Cost B_2

Net income : Gross income – Cost C_2 (Total cost of Cultivation)

Return to mgt.= Gross income – Cost C_3

$$\text{Return per rupee of investment} = \frac{\text{Gross Income(G.I.)/ha}}{\text{Total Cost (cost } C_2\text{) / ha}}$$

Total operational cost: It is variable cost of inputs used in production process.

Fixed cost: It includes interest on fixed capital, land revenue, rental value of owned land and depreciation.

4. RESULTS AND DISCUSSION:

4.1 Cost structure (Rs.)

Cost of cultivation

The comparative estimates of different costs incurred in mungbean cultivation for different size groups are given in Table: I

Table I: Cost of cultivation per hectare of mungbean on different cost concepts basis (Rs. /ha)

Cost	Small	Medium	Large	Overall Average
CostA1	4389.03	5333.68	6774.53	5499.08
CostA2	4389.03	5333.68	6774.53	5499.08
CostB1	4934.13	5949.48	7467.73	6117.11
CostB2	9934.13	10949.48	12467.73	11117.11
CostC1	5680.90	6462.70	7829.30	6657.63
CostC2	10680.90	11462.70	12829.30	11657.63
CostC3	11748.99	12608.97	14112.23	12823.39

The cost A_1, on an overall basis, was Rs.5499.08. It increased with the increase in size of holding because of better resource endowment and higher use of causally hired labour on medium and large farms. Cost A_2 was same as cost A_1 because no farmer had leased-in land. Cost B_1 and B_2 were worked out to be Rs. 6117.11 and Rs. 11117.11, respectively. The costs C_1 and C_2, on overall basis, were worked out to be Rs. 6657.63 and Rs. 11657.63, respectively. Cost C_3, which also includes managerial cost, was worked out to be Rs. 12823.39 per hectare.

Cost of production

The cost of production per quintal of mungbean on different cost concepts basis is given in Table: II

Table II: Cost of production of mungbean on different farm size holdings

Cost	Size holdings			Overall Average
	Small	Medium	Large	
CostA1	1057.59	1185.26	1328.33	1190.39
CostA2	1057.59	1185.26	1328.33	1190.39
CostB1	1188.94	1322.10	1464.26	1325.10
CostB2	2393.76	2433.21	2444.65	2423.87
CostC1	1368.89	1436.15	1535.15	1446.73
CostC2	2573.71	2547.26	2515.54	2545.50
CostC3	2831.08	2801.99	2767.10	2800.05

It is evident from the table that the overall cost of production per quintal of mungbean was Rs. 2545.50 on C_2 basis. The cost of production per quintal was highest on small farms i.e. Rs. 2573.71 followed by medium and large farmer i.e. Rs. 2547.26 and Rs. 2515.54, respectively.

Productivity and profitability of mungbean:

The productivity of mungbean and gross returns on sample farms are given in Table: III

Table III: Gross income per hectare of mungbean on different farm size holdings (Rs. /Qtl)

Size holding	Yield Main (qtl/ha)	Price/qtl	By product (qtl/ha)	Price/ qtl	Gross Income (Rs.)
Small	4.15	2760.00	3.00	225.00	12129.00
Medium	4.50	2760.00	3.25	225.00	13151.25
Large	5.10	2760.00	3.57	225.00	14879.25
overall average	4.58	2760.00	3.27	225.00	13386.50

The table reveals that on an overall basis, yield of mungbean was 4.58 quintals per hectare. The yield was highest (5.10 quintals) on large farms, followed by medium farms (4.50 quintals) and small farms (4.15 quintals) which indicated that as the size of holding increased, the yield of mungbean also increased. The gross returns also increased with increase in the size of holding.

Income measures

A comparison of various income measures from mungbean cultivation in Nagaur district are given in Table: IV

Table IV: Returns from cultivation of mungbean on sample farms (Rs./ha)

Particulars	Size holdings			overall Average
	Small	Medium	Large	
Gross income	12129.0	13151.25	14879.25	13386.5
Farm business Income	7739.97	7817.57	8104.72	7887.42
Family labour income	2194.87	2201.77	2411.52	2269.38
Net income	1448.10	1688.55	2049.95	1728.86
Returns to mgt.	380.01	542.28	767.02	563.10

It is evident from the table that on an overall average basis gross income per hectare of mungbean cultivation was Rs. 13386.50 on sample farms. It was Rs. 12129.00, Rs. 13151.25 and Rs. 14879.25 on small, medium and large farms, respectively. It increased with the increase in size of land holding, mainly because of better use of inputs on medium and large farms. On an average the farm business income from mungbean cultivation worked out to be Rs. 7887.42. It varied between from Rs. 8104.72 on large farms to Rs. 7739.97 on small farms. It increased with increase in farm size. The family labour income per hectare of mungbean cultivation varied between Rs. 2194.87 on small farms to Rs. 2411.52 on large farms. On an overall basis, family labour income worked out to be Rs. 2269.38 per hectare. The family labour income per hectare too increased with the increase in size of holding. Net income, implies profit per hectare after deducting cost C_2 from gross income. The overall net income from mungbean cultivation was Rs. 1728.86 per hectare. It varied between Rs. 1448.10 per hectare on small farms to Rs. 2049.95 per hectare on large farms. The net income also increased with the increase in size of holding.

Net returns from mungbean on the basis of different cost-concepts is given in Table: V

Table V: Net returns per hectare of mungbean on different cost concepts basis(Rs. /ha)

Particulars	Size holdings			overall Average
	Small	Medium	Large	
Cost A1	7739.97	7817.57	8104.72	7887.42
Cost A2	7739.97	7817.57	8104.72	7887.42
Cost B1	7194.87	7201.77	7411.52	7269.38
Cost B2	2194.87	2201.77	2411.52	2269.38
Cost C1	6448.10	6688.55	7049.95	6728.86
Cost C2	1448.10	1688.55	2049.95	1728.86
Cost C3	380.01	542.28	767.02	563.10

On overall basis net returns from the cost A_1, A_2, B_1, B_2, C_1, C_2 and C_3 were Rs. 7887.42, Rs.7887.42, Rs.7269.38, Rs.2269.38, Rs. 6728.86, Rs.1728.86 and Rs. 563.10 per hectare of mungbean cultivation, respectively. The net returns increased with increase in the size of the holding.

Returns per rupee of investment from mungbean cultivation on the basis of different cost concepts are given in Table: VI

Table VI: Returns per rupee of investment in Mungbean cultivation in Nagaur District

Particulars	Size holdings			Overall
	Small	Medium	Large	
Cost A1	2.76	2.46	2.19	2.47
Cost A2	2.76	2.46	2.19	2.47
Cost B1	2.46	2.21	1.99	2.22
Cost B2	1.22	1.20	1.19	1.20
Cost C1	2.14	2.03	1.90	2.02
Cost C2	1.14	1.15	1.16	1.15
Cost C3	1.03	1.04	1.05	1.04

It is evident from the table that on an average, the returns per rupee of investment on cost A_1, A_2, B_1, B_2, C_1, C_2 and C_3 were Rs. 2.47, Rs. 2.47, Rs. 2.22, Rs.1.20, Rs.2.02, Rs.1.15 and Rs.1.04, respectively. The returns per rupee of investment on large farms (cost C_3 basis) was highest (Rs.1.05) followed by medium farms (Rs.1.04) and small farms (Rs. 1.03). No major difference was observed in returns per rupees among different size groups.

5. CONCLUSION

Cost of cultivation of mungbean showed tendency to increase with increase in the size of holding. However per hectare yield was higher on large farms as compared to medium and small. Therefore gross returns per hectare of mungbean cultivation was higher on large farms.

The cost of production per quintal was lower on large farms and highest on small farms indicating that the large farms are

more efficient due to lower cost per unit of output. The farm business income, family labour income and net farm income per hectare of mungbean cultivation were higher on large farms as compared to medium and small farms.

6. ACKNOWLEDGEMENT

I am grateful to my advisor Dr. N.K. Singh, who gave me moral support and guided in different matters regarding the topic, he had been very kind and patient while suggesting me the outlines of this Research. Without his guidance and support this research would not have been possible. I thank him for his overall supports.

REFERENCES

[1] Barmon, K. K. (1997) "The production behaviour of pulses in Assam: Its growth and instability." *Agricultural Station in India*, vol. **53** (10), p. 697-701.

[2] Choudhary, H.B. (1994). "Economic Study of Pulse production in Rajasthan." *Journal of Indian Society of Agricultural Statistics*, vol. **66** (1), p.102.

[3] Devraj (2002) "Pulses Production in Uttar Pradesh: A Critical Review," Agricultural situation in India, July, p.149-151.

[4] Hiremath, G. K., Koppad, M. B., Amruta, C. P. and Gumgolmath, K. C., (1996). "Economics of pulse production present status and future strategies in Karnataka."*Rural India*, Vol.**59** (2) p. 46-50.

[5] Karwasara, J.C., Suhag, K.S. and Kharinta, S. (1993). "Growth and Pattern of Production Cost and Profitability of Gram and Mustard in Haryana". *Indian Journal of Agricultural Economics.* Vol. 48 (3): p. 444.

[6] Kumar Priya Rajan (1996) "Pulse production in North Bihar post-green revolution period." *The Bihar Journal of Agriculture Marketing*, vol.**4** (4), p. 407-416.

[7] Singh, U.B., Baloda, Satpal, Sangwan, N, Singh, Gurnam and Antil, Sandeep (2007) "Economics of production and marketing of urd pulse crop in Shivalik foothills of Haryana." *Annals of Agri-Bio-Research.* (Hisar) Vol. **12**(1), p. 63-64.