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An Economic Analysis of Nendran Banana of Insured and Uninsured Banana Farmers in Thiruvananthapuram District, Kerala

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Abstract: Risk is a major component in farm business, which makes a wide fluctuation in income. Crop insurance is tool which helps the farmers to mitigate the risk factor by transferring the risk component to insuring authority. Cost of cultivation of insured and uninsured farmers were calculated separately and it was found out that insured farmers were more investing more on inputs than uninsured farmers. It was revealed that farmers adopting crop insurance had incurred higher cost of cultivation, obtained better yield and higher BC ratio from Nendran banana cultivation
Keywords: Nendran banana, crop insurance, Benefit-cost ratio.

I. INTRODUCTION

India is a developing country in which 70 per cent of Its population directly or indirectly depend on agricultural sector for their livelihood. Risks are inherent in farming business. There are different types of risks in agriculture such as production risk, price risk, credit risk, human risk and institutional risk. Agricultural risks exist with regard to weather parameters, price fluctuation, government policies, global markets, credit and several other factors and it can cause a wide swing in the farm income. Agricultural risk cannot be avoided but can be reduced by adoption of proper mitigation measures. Risk mitigation includes a host of techniques that can reduce the negative impact of risk. Banana is a nine-month duration crop and needs more investment for its cultivation and it can be easily affected by strong winds, floods and several diseases. So the farmers should adopt risk mitigation strategies for reducing such excess burdens. Crop insurance is an effective risk mitigation tool that helps producers in case of uncertainties of crop production due to natural factors which are beyond the farmers' control. Kerala state crop insurance scheme provides support to banana farmers to overcome production risk when crop loss occurs. In this context the study is focused on compare the profitability of Nendran banana cultivation.

Manojkumar *et al.* (2003) conducted a case study of crop insurance on banana in Wayanad district and reported that due to the labour shortage, and high labour cost in Padinarathara panchayat compared to Ambalavayal and Panamaram which led to high cost of cultivation in Padinarathara (₹ 71.31 per plant) than Ambalavayal (₹ 57.96 per plant) and Panamaram (₹ 52.62 per plant).

Varalakshmi (2014) studied the impact of weather based crop insurance scheme among chilli farmers in Guntur district of Andhra Pradesh and found that net returns obtained by the insured farmers (₹ 202978.9 ha^{-1}) were higher than uninsured farmers (₹ 178951.67 ha^{-1}).

Kathirvel (2007) revealed that cost of production of banana was high. Among the cost, the cost of labour and fertilizer was more. The output of banana much depended upon maintenance of plants, timely application of fertilizers, manures, pesticides and water availability.

II. MATERIALS AND METHODS

The study is based on primary data. Data was collected from 80 banana farmers from four panchayats in Neyyatinkara taluk of Thiruvananthapuram district, having maximum area under banana cultivation. The farmers were classified into two groups, insured and uninsured, based on the adoption of crop insurance as a mitigation tool. Cost of cultivation was worked out separately for insured and uninsured farmers.

ABC cost concept was used for working out cost of cultivation of Nendran banana.

The Cost A_1 includes

A. Cost of sucker
B. Cost of hired labour

C. Cost of manures, fertilizers and soil ameliorants

D. Cost of plant protection chemicals

E. Cost of propping material and irrigation

F. Land revenue

G. Depreciation

H. Interest on working capital

I. Miscellaneous cost & insurance premium

Cost A_2 = Cost A_1 + rent paid for leased-in land.

Cost B = Cost A_2 + rental value of owned land & interest on owned fixed capital

Cost C = Cost B + imputed value of family labour.   (CSO, 2008)

Net returns

    Net Returns = Gross returns- cost of cultivation

BC ratio

    BC ratio   = Gross returns/cost of cultivation

III.   RESULTS AND DISCUSSION

For the sake of comparing the profitability of Nendran banana cultivation, the cost of cultivation, returns and BC ratio were worked out for the insured and uninsured farmers

A. Cost of cultivation of insured farmers

The cost of cultivation (Cost C) of Nendran banana of insured farmers, is given in Table 1, was ₹ 4, 28, 086 ha^{-1} . Cost A_1 was ₹ 2, 58, 582 ha^{-1} , of which cost of inputs such as manures, fertilizers and soil ameliorants accounted for the highest, about 31.49 per cent. It was followed by cost of hired labour (28.95%), and cost for propping and irrigation (15.34%). Cost A_2, includes cost A_1 and rent paid for leased in land. Average rent (₹ 75, 116. 28 ha^{-1}) was too high in this particular area which increased the cost of cultivation. Cost A_2 for insured farmers was ₹ 3, 33, 628 ha^{-1}. Total labour cost per hectare was found to be ₹ 1,18, 078, including both hired and family labour. Family labour contribution was 36.60 per cent of total labour cost. Labour wage was ₹ 750 / day. Most of the famers (80%) were practicing leased land farming. High input costs indicates more risk and are forced the farmers to adopt crop insurance.

Table 1. Cost of Nendran banana cultivation of insured farmers

Sl. No	Item	Cost (₹/ha)	Percentage
1	Sucker	31569.76	12.21
2	Cost of manures, fertilizers and soil ameliorants	81433.13	31.49
3	Cost for plant protection	3589.53	1.38
4	Cost of hired labour	74857.12	28.95
5	Cost for propping and irrigation	39662.79	15.34
6	Depreciation	1718.91	0.66
7	Land revenue	252.79	0.09
8	Premium for insurance	5009.31	1.38
9	Miscellaneous cost	3572.09	1.93
10	Interest on working capital	16916.58	6.54
11	Cost A1	258582.05	100
12	Rent of leased land	75116.28	-
13	Cost A2	333698.2	-
14	Rental value of own land and interest on fixed capital	511167.44	-
15	Cost B	384865.80	-
16	Imputed value of family labour	43220.93	-
17	Cost C	428086.7	-

B. Cost of Cultivation of Uninsured Farmers

For uninsured farmers (Table 2) cost A_1 was estimated to be ₹ 2,34,058 ha^{-1}, cost of manures, fertilizers and soil ameliorants contributed around 32.01 per cent and hired labour occupied the second highest position (28.69 per cent). Total cost of cultivation per hectare at Cost C was ₹ 3, 99, 796 ha^{-1}. Hired labour cost was lesser and family labour cost was higher than that of insured farmers. Total labour cost was found to be ₹ 1,11,290 ha^{-1} out of which 39 per cent was contributed by family labour. The cost of manures, fertilizers and soil ameliorants was less than that of insured farmers which indicted that uninsured farmers used less quantity of fertilizers than insured farmers. The average rent paid for leased in land was also lesser for uninsured farmers. Cost A_2 was ₹ 2, 95, 964 ha^{-1}.

Table 2. Cost of Nendran banana cultivation of uninsured farmers

Sl. No	Item	Cost (₹/ha)	Percentage
1	Sucker	28,716.22	12.27
2	Cost of manures, fertilizers and soil ameliorants	74,915.74	32.01
3	Cost of hired labour	67,155.23	28.69
4	Cost for plant protection	3,483.78	1.488
5	Cost for propping and irrigation	39,540.54	16.89
6	Depreciation	1855.96	0.79
7	Land revenue	303.24	0.13
8	Miscellaneous cost	2852.77	1.21
9	Interest on working capital	15,312.25	6.54
10	Cost A1	2,34,058.70	100.00
11	Rent of leased in land	61,905.41	
12	Cost A2	2,95,964.10	
13	Rental value of own land and interest on fixed capital	59,697.30	
14	Cost B	3,55,661.40	
15	Imputed value of family labour	44,135.13	
16	Cost C	3,99,796.50	

C. Net returns from Nendran banana cultivation

Net returns is a concept of farm business analysis which is used to find out profit and efficiency of farm business. Average yield was 259.7 q ha^{-1} and 220.9 q ha^{-1} for insured and uninsured farmers respectively (Table 3). The price of banana was ₹ 37/kg during April 2018. Using the average yield and unit cost, gross returns from banana were worked out. Gross return from banana was higher for insured farmers (₹ 9,61,569.76 ha^{-1}) than that of uninsured farmers (₹ 8,18,000 ha^{-1}). Net returns at cost A_1 was ₹ 7,02, 987.71 ha^{-1} for insured farmers and ₹ 5,83,941.34 ha^{-1} for uninsured farmers. At Cost C, net returns of insured famers was ₹.1,14,364.45 ha^{-1} which was more than that of uninsured farmers. It shows that insured farmers were making more profit than uninsured farmers.

Table 3. Gross returns and net returns of Nendran cultivation.

Sl. No	Particulars	Returns	
		Insured farmers	Uninsured farmers
1	Yield (q/ha)	259.7	220. 9
2	Price (₹ /kg)	37	37
3	Gross return (₹/ha)	961569.76	818000
4	Net returns at cost A_1 (₹ /ha)	702987.71	583941.34
5	Net returns at cost A_2 (₹ /ha)	627871.43	522035.94
6	Net returns at cost B (₹ /ha)	576703.99	462338.64
7	Net returns at cost C (₹ /ha)	533483.06	418203.51

D. BC Ratio

Benefit cost ratio which is a concept of profitability was complicated for insured and uninsured farmers and presented in Table 4. The higher value indicates more profit. Insured farmers have higher BC ratio than the uninsured farmers at various costs. Uninsured and insured farmers get a BC ratio of 2.04 and 2.25 respectively by spending one rupee for cultivation, at cost C. on the whole, the input- output ratio was higher for insured farmers which indicates that insured farmers are benefited more than uninsured famers. This can be attributed to higher yield on the basis assurance on income on account of crop loss.

Table 4. BC ratio of insured and uninsured banana farmers

Particulars	Insured farmers	Uninsured farmers
At Cost A1	3.71	3.49
At Cost A2	2.88	2.76
At Cost B	2.49	2.29
At Cost C	2.25	2.04

IV. CONCLUSION

Banana is a remunerative crop if when risks in production can be controlled. Most of the farmers are concerned about the effect of natural calamities that might occur during production period. Insurance is a tool which helps farmers to mitigate risk and encourage them to invest more in production. The farmers adopting crop insurance had incurred higher cost of cultivation and obtained better yield and BC ratio from Nendran banana cultivation.

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