

Resource Utilization Pattern of Pineapple Production In Konkan Region

Shilpa Mathew¹, S.S. Wadkar², P.J.Kshirsagar³

¹Dept of Agricultural Economics

²Asso.Professor, Dept of Agricultural Economics

³Asst.Professor, Dept of Agricultural Economics

^{1,2,3} College of Agriculture, Dr.B.S.K.K.V., Dapoli (Maharashtra), India

Abstract- This paper has analysed the resource utilization pattern of pineapple (*Ananas comosus L.*) production in Konkan region of Maharashtra pertained to the years 2013-16. The primary data were collected from a sample of 20 Pineapple tenant growers of five villages in Dodamarg tahsil of Sindhudurg district. The per hectare physical input utilization pattern indicated that there was higher utilization of inputs such as hired human labour, fertilizers, plant protection chemicals and lesser utilization of manures and suckers in the farms. The labour utilization was found to be intensive in operations like planting, weeding, earthing up and harvesting.

Keywords- Dodamarg, Pineapple, Resource, Tenant

I. INTRODUCTION

Agriculture continues to be the mainstay of our economy as it occupies the central place in rural life. Horticultural industry is fast emerging and the most remunerative sector for changing the age-old subsistence farming especially in the rainfed, dry lands, hills, arid and coastal agro-ecosystems. The horticultural crops are characterized by high productivity, higher returns, higher potential for employment generation and exports. Fruits are the prime source of vitamins and minerals without which human body cannot maintain proper health and resistance to the diseases. Pineapple is an important commercial fruit crop with high export value. It is one of the choicest fruit all over the world because of its pleasant taste and flavour. The fruit is a store house of huge health benefits, due to its wealth of nutrients like vitamins and minerals including potassium, sodium, phosphorus, magnesium, zinc etc. It is an excellent source of vit A, vit C, manganese, dietary fibre, folates and the enzyme Bromelain that digests food by breaking down proteins. It also has anti-inflammatory, anti-clotting and anti-cancer properties. In India, Pineapple is abundantly grown in North-East region, West Bengal, Kerala, Karnataka, Bihar and Goa. In Maharashtra, Pineapple is mainly cultivated in the Konkan region and the present study was conducted in the Dodamarg tahsil of Sindhudurg district. An attempt has been

made in this study to examine the existing pattern of resource use in Pineapple production.

II. MATERIALS AND METHODS

Dodamarg tahsil of the Sindhudurg district was selected purposively as pineapple cultivation is concentrated in the study area and area under this crop is rapidly increasing since the last seven years. Five villages of the tahsil namely, Bhike-Konal, Konalghatta, Kudase, Parme and Sateli Bhedsi were selected. A total number of available 20 tenant growers cultivating pineapple were included in the sample for study. After plantation of suckers of pineapple, it is possible to continue as a ratoon crop during second and third year, hence the results of the study are presented separately for three years.

III. RESULTS AND DATA ANALYSIS

The results obtained from the present investigation have been summarized under following heads :

Labour use pattern

The pineapple cultivation is labour intensive. The extent of human labour availability to the cultivators is one of the important factors which determine the profitable production of pineapple in the farms. The details on per hectare operation wise human labour utilized for pineapple cultivation in first, second and third years are presented in the Tables 1,2 and 3.

It is seen from the Table 1 that the per hectare total human labour days used for cultivation of pineapple in first year was 329.15 of which the major component of labour use was for the weeding operation i.e. 59.82 human days (18.17%). This was followed by labour days, for planting 48.63 (14.77%), harvesting 36.48 (11.10%), fertilizer application 25.97 (7.89%), irrigation 25.67 (7.79%), mulching 25.14 (7.63%), manuring 22.67 (6.88%), digging 20.09 (6.10%), hormonal application 15.82 (4.81%), 14.47 (4.39%)

for treatment of suckers, transporting 12.91 (3.92%), plant protection 12.15 (3.69%).

The least share of labour use was in the case of construction of solar fence i.e. 9.33 labour days (2.83%). The total machine hours used particularly for the land preparation was 31.78 in first year.

Out of the total labour days, family labour constituted 6.14 per cent and the remaining 93.84 per cent were of hired labour.

Table 1: Per hectare operation wise labour utilized for pineapple cultivation in first year

Sr. No.	Operations	Human labour (days)						Total human labour (days)	Total machine Labour (Hrs.)
		Family labour		Hired labour		Total			
		M	F	M	F	M	F		
1.	Land preparation	-	-	-	-	-	-	-	31.78
2.	Digging	-	-	18.45	1.64	18.45	1.64	20.09 (6.10)	-
3.	Fencing	-	-	9.33	-	9.33	-	9.33 (2.83)	-
4.	Treatment of suckers	-	-	9.21	5.26	9.21	5.26	14.47 (4.39)	-
5.	Planting	-	-	37.42	11.21	37.42	11.21	48.63 (14.77)	-
6.	Fertilizer application	3.77	-	14.95	7.25	18.72	7.25	25.97 (7.89)	-
7.	Manuring	3.24	-	10.49	8.94	13.73	8.94	22.67 (6.88)	-
8.	Irrigation	4.3	-	15.79	5.58	20.09	5.58	25.67 (7.79)	-
9.	Mulching	2.88	-	11.28	10.98	14.16	10.98	25.14 (7.63)	-
10.	Weeding	-	-	22.3	37.52	22.3	37.52	59.82 (18.17)	-
11.	Plant protection	-	-	12.15	-	12.15	-	12.15 (3.69)	-
12.	Hormonal application	1.85	-	13.97	-	13.97	-	15.82 (4.81)	-
13.	Harvesting	4.2	-	13.35	18.93	17.55	18.93	36.48 (11.10)	-
14.	Transporting	-	-	7.29	5.62	7.29	5.62	12.91 (3.92)	-
	Total	20.24 (6.14)	-	184.81 (56.14)	124.10 (37.70)	205.05 (62.29)	124.10 (37.70)	329.15 (100.00)	31.78

(Figures in parentheses indicate percentage to total labour consumed)

Table 2 represents the operation wise human labour utilized for pineapple cultivation in second year. It is observed from the table that as in the first year the labour used for weeding 64.13 labour days (25.07%) was the major segment in second year also. The second major activity of labour use was in harvesting operation, 36.91 labour days (14.42%) followed by earthing up 9.92 (25.4%), irrigation 25.10 (9.81%), mulching 23.89 (9.33%) and fertilizer application 19.8 (7.74%) respectively.

Table 2: Per hectare operation wise labour utilized for pineapple cultivation in second year

Sr. No.	Operations	Human labour (days)						Total human labour (days)
		Family labour		Hired labour		Total		
		M	F	M	F	M	F	
1.	Ratooning	2.55	-	11.16	5.66	13.71	5.66	19.37 (7.57)
2.	Earthing up	2.48	-	15.79	7.13	18.27	7.13	25.4 (9.92)
3.	Fertilizer application	3.1	-	9.94	6.76	13.04	6.76	19.8 (7.74)
4.	Irrigation	3.17	-	18.28	3.65	21.45	3.65	25.10 (9.81)
5.	Mulching	2.8	-	11.27	9.82	14.07	9.82	23.89 (9.33)
6.	Weeding	-	-	27.4	36.73	27.4	36.73	64.13 (25.07)
7.	Plant protection	-	-	11.82	-	11.82	-	11.82 (4.62)
8.	Hormonal application	2.15	-	14.71	-	16.86	-	16.86 (6.59)
9.	Harvesting	4.1	-	14.24	18.57	18.34	18.57	36.91 (14.42)
10.	Transporting	-	-	6.52	5.86	6.52	5.86	12.38 (4.83)
	Total	20.49 (8.01)	-	141.13 (55.17)	94.18 (36.81)	161.62 (63.18)	94.18 (36.81)	255.8 (100.00)

(Figures in the parentheses indicate percentage to total labour consumed)

For hormonal application and transporting, 16.86 (6.59%) and 12.38 (4.83%) labour days were utilized respectively. The least labour use was in plant protection operation i.e. 11.82 labour days (4.62%). An average of 255.80 labour days were utilized in second year, out of which 20.49 (8.01%) was of family labour and remaining 235.31 days (91.99%) were constituted by hired labour.



Fig: Pineapple fruiting in field

Table 3: Per hectare operation wise labour utilized for Pineapple cultivation in third year

Sr. No.	Operations	Human labour (days)						Total human labour (days)
		Family labour		Hired labour		Total		
		M	F	M	F	M	F	
1.	Ratooning	2.73	-	11.15	5.33	13.88	5.33	19.21 (8.89)
2.	Earthing up	2.95	-	16.19	7.44	19.14	7.44	26.58 (12.31)
3.	Fertilizer application	2.34	-	10.83	6.76	13.17	6.76	19.93 (9.22)
4.	Irrigation	2.91	-	9.39	3.13	12.30	3.13	15.43 (7.14)
5.	Weeding	-	-	19.8	39.6	19.8	39.6	59.4 (27.51)
6.	Plant protection	-	-	10.97	-	10.97	-	10.97 (5.07)
7.	Hormonal application	1.65	-	14.24	-	15.89	-	15.89 (7.35)
8.	Harvesting	3.12	-	13.92	17.97	17.04	17.97	35.01 (16.21)
9.	Transporting	-	-	7.77	5.76	7.77	5.76	13.53 (6.26)
	Total	15.70 (7.27)	-	114.26 (52.91)	85.99 (39.81)	129.96 (60.18)	85.99 (39.81)	215.95 (100.00)

(Figures in the parentheses indicate percentage to total labour consumed)

It is seen from the Table 3 that the human labour used for weeding 59.4 labour days (27.51%) constituted the major share in total labour use in third year. The labour use observed in other operations were harvesting 35.01 (16.21%), earthing up 26.58 (12.31%), fertilizer application 19.93 (9.22%), ratooning 19.21 (8.89%), hormonal application 15.89 (7.35%), irrigation 15.43 (7.14%), transporting 13.53 (6.26%) and plant protection 10.97 (5.07%). The total human labour use in third year was 215.95, out of which 15.70 days (7.27%) were supplied by family and 200.25 days (92.73%) by hired labour.

The labour use pattern indicates that in first, second and third year labour used for weeding constituted the major segment, about 18.17 per cent in first year, 25.07 per cent in second year and 27.51 per cent in third year. Other major labour oriented operations were planting 14.77 per cent in first year, earthing up 9.92 per cent and 12.31 per cent in second and third year and harvesting 11.10 per cent, 14.42 per cent and 16.21 per cent in all the three years respectively.

Therefore the total labour days utilized for first, second and third years was 800.90 out of which 744.47 days were found to be of hired labour and remaining 56.43 days were of family labour. The major utilization was found in weeding operation in all the three years.

Per hectare physical input utilization

Apart from labour, many other physical inputs are also utilized in pineapple cultivation. The per hectare physical input utilization on pineapple farms for the first, second and third years are presented in Table 4.

Table 4: Per hectare physical input utilization for pineapple cultivation in first, second and third year.

Sr. No.	Particulars	1 st year	2 nd year	3 rd year	Total
1.	Suckers (No)	19074	-	-	19074
2.	Manures (tonnes)	19.46	-	-	19.46
3.	Fertilizer (kg.)				
	a) N	574.63	548.25	264.73	1387.61
	b) P ₂ O ₅	109.49	132.33	87.24	329.06
	c) K ₂ O	535.42	529.67	283.29	1348.38
4.	Fungicides (kg.)	2.91	2.40	1.79	7.1
5.	Weedicides (kg)	3.26	3.12	2.67	9.05
6.	Growth regulators (ltr)	0.28	0.32	0.35	0.95
7.	Irrigation charges (₹)	2716	2967	2730	8413
8.	Electricity charges (₹)	1266	1205	1105	3576

The total number of suckers planted were 19074. As regards other inputs, 19.46 tonnes of manure was used particularly in first year. In first year, the per hectare N, P₂O₅ and K₂O used was 574.63 kg, 109.49 kg and 535.42 kg followed by 548.25 kg, 132.33 kg and 283.29 kg in second year, 264.73 kg, 87.24 kg and 283.29 kg in third year. An average of 2.91 kg, 2.40 kg, 1.79 kg fungicides and 3.26 kg, 3.12 kg, 2.67 kg weedicides were utilized for first, second and third years respectively. The usage of growth regulator varied as 0.28 litre in first year, 0.32 litre in second year and 0.35 litre in third year. The electricity and irrigation charges amounted to ₹ 8413 and ₹ 3576 for the three years.

**Fig 2: Pineapple farm in Dodamarg**

IV. CONCLUSION

While comparing the level of input utilization in three years, it can be concluded that the per hectare human labour use got decreased in second and third year compared to first year since many labour intensive farm establishment operations were required in the first year. Overall per hectare labour utilization was seemed to be higher for sample farms.

Inputs like suckers and manures were used lesser than the recommended level. While in case of fertilizers, there

was over utilization in first and second years while the usage was comparatively lesser in the third year. Fungicides and weedicides were also used slightly higher than the recommended dosage. The growth regulator application was in par with the recommendation. Since the fruit bearing is from ratoon of original plant, there was no planting material utilization in second and third years.

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