

Economics of Sunflower

By

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ABSTRACT

The significant increase in farm income, evident in all the three situations viz., sunflower Vs rainfed groundnut, sunflower Vs. irrigated maize and sunflower Vs irrigated cholam establish the relative advantage of sunflower over the crops that compete with the new crop for the resource. The study has shown the relative profitability of sunflower and the potential of the crop to fit in the existing crop mix in Tamil Nadu.

INTRODUCTION

Farmers' production plans are not commodity specific but profit oriented. Programmes to extend the area under sunflower needs to be backed up by adequate information on the relative profitability of raising sunflower *vis a vis* other crops and hence the present study was undertaken.

MATERIALS AND METHODS

This study attempts on costs and returns of sunflower cultivation and evaluates its economics in Coimbatore District. The study covered 10 randomly selected farms in Thondamuthur block of Coimbatore District. The crop season of the study was 1972—'73. The data have been updated to make the study relevant to the present time. The substitutable crops as revealed by the enquiry are groundnut (rainfed), irrigated maize and irrigated cholam. Partial budgeting is used to estimate the potential increase in income over its substitutable crops.

RESULTS AND DISCUSSION

The average cost of cultivation of sunflower as estimated for the sample farms is presented in Table 1.

The per hectare cost of cultivation of sunflower in sample farms was estimated to Rs. 1508/- and Rs. 796/- under irrigated and rainfed conditions (Table 1). Manures and manuring, preparatory cultivation and irrigation account for over 82 per cent of the total cost under irrigated situation while the former two operations alone account for nearly 77 per cent under rainfed conditions. Seeds and sowing costs are 11 per cent under rainfed conditions, since farmers reported a high seed rate to ensure a good population. The average per hectare yield under irrigation was nearly double than under rainfed conditions. It may be observed that the net returns of Rs. 1641.80 and Rs. 855.60 per hectare for irrigated and rainfed crops of sunflower are encouraging.

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TABLE 1. Average cost of cultivation of sunflower under field conditions

(Per hectare)

Details of operations	Irrigated crop		Rainfed crop	
	Cost (Rs.)	%	Cost (Rs.)	%
1. Preparatory cultivation	178.00	11.80	148.00	18.58
2. Manures and manuring	891.00	59.08	468.00	58.76
3. Seeds and sowing	64.20	4.25	90.90	11.41
4. Irrigation	165.00	10.94	Nil	—
5. After cultivation	72.50	4.81	37.50	4.71
6. Plant Protection	25.00	1.66	—	—
7. Harvesting, thrashing and cleaning	112.50	7.46	52.00	6.54
Total cost	1508.20	100.00	796.40	100.00
Yield:				
Seed : Quantity (kg)	1545		790	
Value at Rs. 2/- per kg. (Rs.)	3090.00		1580.00	
Plant remains — value as fuel (Rs.)	60.00		50.00	
Total returns (Rs.)	3150.00		1630.00	
Net returns (Rs.)	1641.80		855.60	

Partial budgeting was employed and the net additions to farm income due to the introduction of sunflower was estimated. Three such partial budgets with reference to three situations viz. (i) Sunflower replacing rainfed groundnut, (ii) Sunflower replacing irrigated maize and (iii) Sunflower replacing irrigated cholam were prepared.

The net additions under the above three situations are presented in Tables 2 and 4.

Sunflower Vs Rainfed groundnut: In the situation of sunflower replacing rainfed groundnut, the

comparative costs of cultivation presented in Table 2 reveal that the reduction in costs in sunflower is primarily due to seeding, harvesting and after-cultivation in that order and the additional cost is due to the application of fertilizer for sunflower crop. Seed cost of groundnut accounted nearly for 33 per cent of its cultivation expenses. It is also a labour intensive crop demanding large volume of labour for harvesting, cleaning and hand picking operations. Under rainfed conditions, scarcity of labour interferes with sowing and pre-sowing operations as well as with harvesting and post-harvesting activities in groundnut. This crop also needs

TABLE 2. A comparative cost for sunflower and groundnut under rainfed condition

(Per hectare)

Details of operation	Cost (Rs.)		Addition in cost (Rs.)	Reduction in cost (Rs.)
	Groundnut	Sunflower		
1. Preparatory cultivation: 4 ploughing and levelling	148.00	148.00	...	...
2. Manures and manuring: FYM/Compost (10 cart loads)	74.00	74.00	..	...
Fertilizers 20-40-40 over 10-20-30	195.00	372.00	177.00	...
Labour for application	22.00	22.00	...	...
3. Seeds and sowing: Seeds 20 kg over 200 kg of pods	400.00	53.40	...	346.60
Sowing in line behind the plough	37.50	37.50	...	...
4. Irrigation	Nil	Nil	Nil	Nil
5. After cultivation: Weeding once	37.50	37.50	...	...
Earthing (Groundnut = 1; Sunflower = nil)	45.00	...	...	45.00
6. Plant protection: Dusting = 1 No.; Spraying (groundnut = 1; Sunflower = nil)	40.00	...	...	40.00
7. Harvesting, thrashing and cleaning (hand picking for groundnut)	140.00	52.00	...	88.00
Total	1,139.00	796.40	177.00	519.60

plant protection once or twice. In aggregate the reduction in cost in raising sunflower is Rs. 520 per hectare.

The additional cost and additional returns resulting in substituting rainfed groundnut with sunflower are presented in Table 3 and the additional returns realised from sunflower is nearly Rs. 364 per hectare for a period of less than four months. Thus the performance of sunflower clearly shows that it is potentially a high yielder per unit area and per unit time under irrigation deserving quick and wide popularisation in Tamil Nadu for enhancing oil production in the State.

Sunflower Vs. Irrigated maize:

The comparative cost structure for sunflower and maize under irrigated conditions is presented in Table 4. The reduction in cost in raising sunflower in the place of maize is estimated to be Rs. 440.80 of which additional cost of manures and fertilizers alone accounted for Rs. 240/- while irrigation, weeding and plant protections, account for the balance of Rs. 200.80. The partial budget analysis (Table 5) indicates an additional return of Rs. 480.80 per hectare.

Sunflower Vs. Irrigated Chola Co. 18: The comparative costs

TABLE 3. Partial Budget: Sunflower EC. 68415 replacing rainfed groundnut

(Per hectare)

Additional cost	Rs.	Additional returns	Rs.
1. Value of additional fertilizer 8-16-16 over 4-8-12	177.00	1. Additional returns from sunflower seeds @ 790 kg @ Rs. 2/- per kg	1580.00
...		Plant remains @ Rs. 50/- per hectare	50.00
2. Interest on working expenses at 6 per cent per annum for three months	2.70	2. Reduction in cost on Cost of seed	346.60
3. Reduced returns from groundnut pods @ 980 kg @ Rs. 1.50 per kg	1482.00	Earthing	45.00
Haulms 2.47 tonnes @ Rs. 50.00		Spraying	40.00
per tonne	123.50	Harvesting	88.00
346.60		Total additional returns	2149.60
...		Total additional cost	1785.20
Nil	1785.20	Net additional returns due to sunflower	364.40
...			
45.00			

TABLE 4. Comparative cost for sunflower and maize under irrigated condition

(Per hectare)

Details of operations	Cost		Addition in cost (Rs.)	Reduction in cost (Rs.)
	Maize	Sunflower		
1. Preparatory cultivation: (i) Ploughing	148.00	148.00	...	...
(ii) Forming ridges/beds	30.00	30.00	...	...
2. Manures and manuring FYM/Compost (25 cart loads)	125.00	125.00	...	...
Fertilizers: Sunflower: 40-80-80	984.00	744.00	...	240.00
Maize: 130-65-45				
Labour for application	22.00	22.00	...	...
3. Seeds and sowing: (Sunflower = 10 kg; Maize = 16 kg)	104.00	26.70	...	77.30
Dibbling/broadcasting seeds	37.50	37.50	...	...
4. Irrigation (Sunflower = 7 Nos.; Maize = 8 Nos.)	136.00	112.50	...	23.50
Guiding charges	60.00	52.50	...	7.50
5. After cultivation: Weeding	110.00	72.50	...	37.50
6. Plant protection: Dusting	25.00	25.00	...	...
Spraying	37.50	...	...	37.50
7. Harvesting, thrashing and cleaning	130.00	112.50	...	17.50
Total	1949.00	1508.20	Nil	440.80

TABLE 5. Partial Budget: Sunflower EC. 68415 replacing maize (irrigated crop)

(Per hectare)

Additional cost	Rs.	Additional returns	Rs.
1. Reduction in returns of maize grain		1. Returns from sunflower	
3700 kg at the rate of 80 paise per kg	2360.00	(i) Seed 1545 kg @ Rs. 2/- per kg	3090.00
Straw 15 tonnes at the rate of		(ii) Plant remains @ Rs. 60/- per	
Rs. 50.00 per tonne	750.00	hectare	60.00
	<u>3110.00</u>		
		2. Reduced cost on	
		Fertilizers	240.00
		Seed	77.30
		Irrigation	31.00
		After cultivation	37.50
		Plant protection	37.50
		Harvesting and cleaning	17.50
		Total	<u>3590.80</u>
		Total additional cost	<u>3110.00</u>
		Net additional returns due to	
		sunflower	480.80

between these two crops are presented in Table 6. The net additional cost in substituting cholam with sunflower is about Rs. 297.95 of which more than 50 per cent is accounted for by fertilizer alone. The partial budget analysis (Table 7)

indicates a net additional return of Rs. 387/- per hectare from sunflower while replacing cholam. One factor weighing heavily for cholam is that it is both a grain crop and fodder crop, raised with ease and with much less risk.

TABLE 6. Comparative cost for sunflower and cholam CO. 18 under irrigated condition

(Per hectare)

Details of operations	Cost (Rs.)		Addition in cost Rs.	Reduction in cost Rs.
	Cholam	Sunflower		
1. Preparatory cultivation :				
(i) Ploughing	148.00	148.00	....	...
(ii) Forming ridges/beds	20.00	30.00	10.00	...
2. Manures and manuring :				
(i) FYM/Compost (12 tonnes)	125.00	125.00	...	...
(ii) Fertilizer (sunflower = 40-80-80 ; cholam = 70-35-0)	505.75	744.00	238.25	...
(iii) Labour for application	22.00	22.00	...	...

TABLE 6 (Contd.)

Rs.	Details of operations	Cost (Rs.)		Addition in cost Rs.	Reduction in cost Rs.
		Cholam	Sunflower		
3090.00	3. Seeds and sowing: (Sunflower = 10 kg; Cholam = 25 kg)	37.00	26.70	...	10.30
60.00	Dibbling sunflower/broadcasting cholam	7.50	37.50	30.00	...
	4. Irrigation (Sunflower 7 Nos.; Cholam 5 Nos.)	87.50	112.50	25.00	...
	Guiding water	37.50	52.50	15.00	...
	5. After cultivation; Weeding (1 No.)	72.50	72.50	...	...
240.00	6. Plant protection: Dusting (Sunflower = 1; Cholam = 2)	50.00	25.00	...	25.00
77.30	Spraying	...	...	...	...
31.00	7. Harvesting, thrashing, cleaning	97.50	112.50	15.00	...
37.50	Total	1210.25	1508.20	333.25	35.30

TABLE 7. Partial Budget: Sunflower EC. 68415 replacing cholam CO. 18 (Irrigated Crop)

(Per hectare)

Additional cost	Rs.	Additional returns	Rs.
1. Preparatory cultivation:		1. Value of returns from sunflower:	
Cost of forming ridges over that of forming beds	10.00	(i) Seed 1545 kg @ Rs. 2/- per kg	3090.00
		(ii) Plant remains @ 60 rupees per hectare	60.00
2. Additional fertilizer. 16-32-32 over 28-14-0	238.25	2. Reduced cost on	
3. Sowing: Dibbling over broadcasting	30.00	(i) Seed	10.30
4. Irrigation: 2 Nos. — extra	40.00	(ii) Plant protection	25.00
5. Harvesting: Additional labour	15.00	Total additional returns	3185.30
6. Interest on working expenses at 6 per cent per annum for 3 months	4.95	Total additional cost	2788.20
7. Reduced returns from cholam		Net additional returns due to sunflower	387.10
(i) Grain 2500 kg @ 0.80 paise per kg.	2000.00		
(ii) Straw 7½ tonnes @ Rs. 60 per tonne	450.00		
Total additional cost	2788.20		

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