

## RESEARCH PAPER

# Costs, returns and profitability of dryland farming system as a whole in Nanded of Maharashtra

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### ABSTRACT

Investigation regarding dryland farming system was carried out during the year 2013-2014. About 48 dryland farms were randomly selected from sixteen villages of two tehsils of Nanded district of Maharashtra. Data were collected by personal interview method by using pretested schedule. Data were related to all crops and livestock on dryland farming system. The result revealed that area under all crops was 4.41 hectares in which shares of cotton crop was 24.94 per cent. Net profit from all crops was Rs. 66610.02 in which the share of cotton was 37.10 per cent. Net profit all livestock was Rs. 42308.51 in which shares of crossbred cow was found to be 47.56 per cent. Thus, in relation to dryland farm business as a whole, net profit was found to be Rs. 108918.53. Regarding per hectare efficiency, soybean crop showed the highest output input ratio as compared to other crops in dryland farming system.

**KEY WORDS :** Dryland, Per field, Per hectare, Cost-C, Gross return, Net profit

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**D**ryland farming which is cultivation of crops with annual rainfall of 750-1150 mm is known as dryland farming. Dryland farming relates for adoption of soil and moisture conservation practices and has also provision of drainage especially in black soils. India ranks the first among the dryland agricultural countries in terms of both extent and value of produce.

Out of every three hectares of cultivated land in the country nearly two hectares are under the influence of dryland agriculture. In dryland agriculture, scarcity of water is the main problem. Apart from low and erratic behaviour of rainfall and limited water holding capacity of the soil constitute the principle constraint in crop production in dryland area.

Yield fluctuations are high mainly due to vagaries of weather. Monsoon starts in the month of June and ends in last week of October. Most of the rainfall is received during this period with undulating topography and low moisture retention capacity of the soil. Major portion of the rain water is lost through runoff causing erosion and adding to water logging of low lying areas. After the rain stops, very little moisture is left in profile to support plant growth and grain production. Crop

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production relating problems, poor crop stand due to crusting and repaid drying of surface soil. Poor crop growth due to under liable soil moisture supply low moisture storage capacity due to shallow depth and drought spell during crop season. The low soil fertility due to low organic matter, poor nutrient status particulars with respect to nitrogen, phosphors and potash compact subsoil erosion and crusting, poor organizational structure for input supply in dryland areas.

This information needs to be studied, mainly because of cropping pattern followed by the cultivators is governed by many factors like socio-economic condition. Such study would help research workers to understand the present day technology adopted by the farmers and suggest new change either in cropping pattern or input utilization, so as to increase the productivity per unit of area. The comparative economics of various crops gives an idea about their profitability which would help the farmer for allocation of resources to maximize returns from the farm as a whole.

## METHODOLOGY

Multistage sampling design was adopted for selection of district, tehsils, villages and dryland farms. In the first stage, the Nanded district was purposively selected because of mostly existence of dryland farmings. In the second stage, Himayatnagar and Naigaon tehsils were selected on the basis of higher area under dryland farms. In the third stage, eight villages were selected from the each of tehsils on the basis of higher area under dryland farms. From Himayatnagar tehsil villages were selected namely Borgadi, Dhanora, Jawalgaon, Karla, Pawan, Sarsum, Siranjani and Sonari while from Naigaon tehsil villages were selected namely Aluwadgaon, Balegaon, Benderi, Degaon, Lalwandi, Salegaon, Sangvi and Suilegaon. In the fourth stage, from each village, the list of dryland farmers along with their holding sizes was obtained. Three dryland farmers were randomly selected from each of the villages. In this way, from sixteen villages, 48 farmers were selected for the present study. The techniques like tabular analysis, arithmetic mean and ratio were used to analyze the data. As per the cropping pattern, costs, returns and profit were calculated. In other words, as per area under crop or per field costs, returns and profit of all crops were estimated. For that cost concept of cost-A, cost- B and cost- C was used. Similarly, as per herd size costs, returns

and profit of all livestock were calculated. For that cost concept of variable cost and fixed cost was used. The summarization of all crops and livestock with respect to cost, return and profit can be done to determine cost, return and profit for farm business as a whole. Then, per hectare or per animal, cost, return and profit can be estimated to know the efficiency of crop or animal in farm business management.

## ANALYSIS AND DISCUSSION

The findings with respect to per field, per hectare, cost-C, gross return and net profit as well as per herd, per livestock, total cost, return and net profit obtained and are presented as follows :

### Per field total costs and net profit :

For all crops and all livestock, as per cropping pattern and as per livestock herd, costs, returns and net profit were estimated and are presented in Table 1. The results revealed that area under all crops was found to be 4.41 hectares in which shares of cotton crops was 24.94 per cent followed by soybean (21.32%), pigeonpea (10.20%), paddy (4.76%), greengram (4.31%), *Kharif* jowar (3.85%) and black gram (3.18%) in *Kharif* season. In *Rabi* season, the share of chickpea showed as 15.42 per cent followed by that of *Rabi* jowar (8.16%) and wheat (3.40%). As well as in summer season maize was 0.46 per cent. Thus, cotton, soybean, chickpea, pigeonpea, *Rabi* jowar greengram and paddy were major crops in dryland farming system. On the contrary, *Kharif* jowar, blackgram, summer maize and greengram were minor but important crops. All livestock include cow 1.32 in numbers, buffalo 1.18 in numbers, goat 0.38 in number and poultry bird 0.02 in number. Thus, total livestock was 2.90 in number in the dryland farming system. The expenditure on all crops was Rs.140275.80 in which the share of cotton was 31.19 per cent. Gross return from all crops was found to be Rs. 206885.82 in which the shares of cotton was 33.58 per cent in this way, net profit from all crops was Rs.66610.02 in which the shares of cotton was 37.10 per cent. For all crops output input ratio was found to be 1, similarly it was observed that all livestock saws 2.90 o number. Total expenditure on all livestock was 90029.13 in which shares of cow was 44.13per cent while that of buffalo was 41.35 per cent. Return from all livestock was Rs.132337.64 in which shares of cow and buffalo was 45.23 and 43.19 per cent,

respectively. Thus, net profit of all livestock was Rs. 42308.51 in which share of cow was 47.58 per cent followed by that of buffalo (47.11). In relation to farm business as a whole, cost, return and net profit was Rs. 230304.93, Rs. 3392223.46 and 108918.53, respectively.

**Per hectare total cost, gross return and net profit :**

Per hectare total cost of all crops and livestock has been worked out and it present in Table 2. The result revealed that dryland farming system in *Kharif* season cotton was showed highest net profit of Rs.22468.31 followed by soybean (Rs.20391.91), pigeonpea

**Table 1 : Per filed crops as well as per herd size livestock's cost, return and net profit of dryland farming system as a whole**

Sr. No.	Enterprises	Crop area(ha)/ animal (No)	Cost-C/ Total cost (Rs.)	Gross returns (Rs.)	Net profit (Rs.)	Out-input ratio
1.	Cotton	1.10	44772.92	69488.10	24715.18	1.55
2.	Soybean	0.94	30973.08	50141.48	19168.40	1.61
3.	Pigeonpea	0.45	13311.60	18525.15	5213.54	1.39
4.	Paddy	0.21	5904.74	7419.72	1514.98	1.25
5.	Greengram	0.19	4705.49	6148.88	1442.91	1.30
6.	Blackgram	0.14	3664.40	4807.88	1143.48	1.31
7.	K. Jowar	0.17	4254.70	5222.74	968.04	1.22
8.	Wheat	0.15	3943.80	4965.15	1021.35	1.25
9.	Chickpea	0.68	18793.68	26398.28	7604.60	1.40
10.	R. jowar	0.36	9599.24	13360.32	3761.08	1.39
11.	Maize	0.02	352.15	408.60	56.50	1.16
12.	All crops	4.41	140275.80	206885.82	66610.02	-
13.	cow	1.32	39736.54	59858.70	20122.16	1.50
14.	Buffalo	1.18	37232.62	57168.05	19935.43	1.53
15.	Goat	0.38	12884.79	15086.05	2201.26	1.19
16.	Poultry	0.02	175.18	224.84	49.66	1.28
17.	All livestock's	2.90	90029.13	132337.64	42308.51	-
18.	Farm as a whole	-	230304.93	339223.46	108918.53	-

**Table 2 : Per hectare and per animal efficiency on dryland farming system as a whole**

Sr. No.	Enterprise	Cost	Gross return	Net profit	Output-input ratio
1.	Cotton (Rs./ha)	40702.69	63171.00	22468.31	1.55
2.	Soybean Rs./ha)	32950.09	53342.00	20391.91	1.61
3.	Pigeonpea (Rs./ha)	29581.35	41167.00	11585.65	1.39
4.	Paddy (Rs./ha)	28117.84	35332.00	7214.16	1.25
5.	Greengram (Rs./ha)	24765.77	32360.00	7594.23	1.30
6.	Blackgram (Rs./ha)	26174.30	34342.00	8167.70	1.31
7.	K.Jowar (Rs./ha)	25027.68	30722.00	5694.32	1.22
8.	Wheat (Rs./ha)	26292.01	33101.00	6808.99	1.25
9.	Chickpea (Rs./ha)	27637.77	38821.00	11183.23	1.40
10.	R jowar (Rs./ha)	26664.58	37112.00	10447.42	1.39
11.	Maize (Rs./ha)	17619.21	20430.00	2822.03	1.16
12.	Cow(Rs./cow)	30103.34	45347.50	15244.16	1.50
13.	Buffalo (Rs./buffalo)	31589.07	48447.50	16858.43	1.53
14.	Goat (Rs./ goat)	6566.93	7877.00	1310.07	1.19
15.	Poultry ( Rs./ birds)	78.20	100.37	21.37	1.28

(Rs.11585.65), chickpea (Rs.11183.23), *Rabi* jowar (Rs. 10447.42), blackgram (Rs. 8167.70), greengram (Rs. 7594.23), paddy (Rs.7214.16) wheat (Rs.6808.89), *Kharif* jowar (Rs.5694.32) and maize (Rs.2822.63). Similarly buffalo was highest net prifit Rs. 16858.43 followed by cow (Rs. 15244.16), goat (Rs. 1310.07) and poultry bird Rs. 21.37. Thus, cotton was mostly efficient crop in *Kharif* season. In *Rabi* season chickpea was most efficient crop. In regard summer maize found most efficient in summer season. In comparison cow and buffalo was showed net profit Rs.15244.16 while buffalo showed net profit Rs.16858.43. Thus, buffalo was most efficient as compared to cow. The output input ratio soybean was highest 1.61 followed cotton, chickpea, pigeonpea, *Rabi* jowar, black gram, greegram, paddy, wheat, *Kharif* jowar and maize 1.55,1.40, 1.39, 1.39, 1.31, 1.30, 1.25, 1.25, 1.22,1.16, respectively and livestock enterprises buffalo was highest input output ratio was 1.53 and cow 1.50.

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