

## Economic Parameters of Maize Fodder Cultivation

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**Abstract:** The study was conducted by the survey method, selecting 15 maize fodder growers randomly in the area of Sakrnad, Sindh, Pakistan. The selected sample respondents were interviewed frequently by personal visits and questionnaire. The interpreted results showed that the total area operated for maize fodder crop was 78 hectares, recording total expenses Rs. 165244.00 (Rs. 2118.51.ha<sup>-1</sup>), total return/income Rs. 943000.00 (Rs. 12089.74ha<sup>-1</sup>), Total net returns Rs. 77756.00 (Rs. 9971.23.ha<sup>-1</sup>), with the Input-Output Ratio 1:6.02 and Benefit-Cost Ratio of 5:02.

**Key Words:** Maize, Fodder, Economics

### Introduction

Agriculture is the physical foundation of human society and a mode of living. The economy of almost every country in general and Pakistan in particular is dependant on agriculture. More than 75% of the population earn their livelihood from farming or agrol-related industries and livestock. Pakistan's vital sector of economy also is dependent on agriculture. Thus, farming is the largest single occupation followed by livestock raising, fish and dairy farming (Aziz, 1984). The ruminant animals of Sindh plays a vital role in the economy of the province by supplying feed products and by-products beside providing power for various agricultural operations. In spite of the large number of ruminants being kept in the province per capita production and consumption of their products are low and mainly due to inadequate feeding supply in their nutritional requirements. The Milk products constitutes a good source to meet part of the portion requirements of the people of Pakistan. Pakistan has been the home of the best tropical milk cattle and buffaloes in the world. Although the genetical quality of livestock in Pakistan is good enough, the production of milk has been for below the world's average due to lack of man power trained in production management, poor quality of feed and unsatisfactory disease control measures. Over average milk yield for a lactation period of 300 days is only 1000 liters, while in the developed countries it is ten times more than that of Pakistan. The most of our farmers are unaware of the economics of milk production and need to exploit our potentials for maximizing production (Khan, et al. 1984). Investigations of Choudhry (1994) for the productivity difference between small and large farms shows that small farms, despite financial stringencies, have beneficial as much from green revolution as the large ones. Land reforms, provision of cheap inputs and liberal provision of hired services of tubewells, and tractors are among the silent recommendations to further improvement of the social well-being of small farm of agriculture. Further, Shoab *et al.* (1993) stated that more than 70 % of the total cost for raising livestock is incurred on feed only. He suggested that economical livestock raising is therefore, only possible if low cost and high quality forages are feed. Current scientific, technological, economic, social and environmental trends are causing farmers to reconsider their practices and look for alternatives. Many farmers are turning to farming practices that reduce purchased input costs and potential for environmental damage. Intensive management and efficient use of

natural and biological resources are now being advocated.

### Materials and Methods

The economic analysis of the crop gives a picture to the growers on the receipts, expenses, and net income. It also enables them to use resource in such a way so as to get maximum returns. However, data and information on cost, income and returns forms the materials for the study. For the purpose of this research study, the survey method was adopted. This method concentrates on a number of cases to be examined but less intensively than in the case study method. This method is more useful and generally it avoid errors which may arise from the choice non-representative cases. The study consisted a sample of 15 farmers growing maize fodder on various land units was selected at random and were interviewed personally in Sakrand area, within a radius of 15 kilometers.

### Results and Discussion

**Cost of Production:** This cost refers to the outlays of funds for productive services. The structure of the cost of production is determined by the nature of production function as well as the level of price and the nature of markets of the productive services (Heady, 1964). Cost analysis also develops interest among the consumers in order to bargain with the retailers when they purchase various commodities. It also suggests the volume of input to be employed and help in examining the relationship between input and output of an enterprise.

**Cost Components:** Cost components indicate the various items of expenditure which are incurred during the production process. The total expenditure on a farm enterprise is the resultant of payments of the prices paid to various factors of production such as land, labor, capital and organization/ management.

**Fixed Costs:** Fixed costs present farming expenses which do not change with output. They are commonly considered as "sunk costs". No cost become fixed until they have been incurred. But, after costs have been incurred they do not vary with change in outputs. These costs are not generally influenced by the decisions regarding an increase or decrease in production. Fixed costs generally include taxes, depreciation, insurance, and rent of the land. Fixed costs are the expenses which relate to the fixed resources. In present study fixed costs includes land rent, water charges (Abiyana) and ushur.

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Table 1: Economics of Maize Fodder in Sakrand Area

Farm No.	Area in Hectares	Fixed Cost	Labor Cost/ha	Capital Inputs	Variable Costs	Cost of Production	Total Yield	Total Farm Income	Total Net Return	Per ha Income (3)	Per ha Costs (4)	Per ha Return (5)	Input Output Ratio (3-4)	Benefit Cost Ratio (5-4)
1	4	1472	1680	5000	6680	8152	3600	40000	31848	10000	2038	7962	1:4.91	3.91
2	5	1840	2040	6000	8040	9880	4200	65000	55120	13000	1976	11024	1:6.58	5.58
3	4	1742	1680	5000	6680	8152	4000	60000	51848	15000	2038	12962	1:7.36	6.36
4	4	1472	1680	5200	6880	8352	3800	58000	49648	14500	2088	12412	1:6.94	5.94
5	7	2576	2576	8200	11200	13776	7000	70000	56224	10000	1968	8032	1:5.08	4.08
6	8	2944	3360	5800	6680	8152	3600	75000	58896	9375	2013	7362	1:4.66	3.66
7	4	1472	1680	5000	6680	8152	3600	50000	41848	12500	2038	10462	1:6.13	5.13
8	3	1104	1320	3800	5120	6224	3300	45000	38776	15000	2074	12925	1:7.23	6.23
9	4	1472	1680	5000	6680	8152	3600	60000	49520	12000	2038	11712	1:6.75	5.75
10	5	1842	2040	6600	8640	10480	5000	55000	46848	13750	2096	9904	1:5.72	4.72
11	4	1472	1680	5000	6680	8152	4800	60000	49520	12000	2038	11712	1:6.75	5.74
12	10	3680	4080	15000	23080	26760	12000	120000	93240	12000	2676	9324	1:4.48	3.48
13	8	2944	3360	10000	13360	16304	16000	90000	73696	11250	2038	9212	1:5.52	4.52
14	3	1104	1320	3800	5120	6224	3900	40000	33776	13333	2074	11258	1:6.42	5.43
15	5	1480	2040	6500	8540	10380	6000	60000	49620	12000	2076	9924	1:5.78	4.78
Grand Total	78	28704	32640	103900	136540	165224	88800	943000	777756	"	"	"	"	"
Average/5.20 hectare		368	418.4	1332.0	1750.5	2118.5	1151.3	11705.1	9971.23	"	"	"	1:6.02	5.02

The result of the study shows that the total fixed costs incurred by the selected maize fodder growers in the study area on a total of 78 hectares under maize fodder was Rs. 28,704.00 to the tune of Rs. 368.00.ha<sup>-1</sup>.

**Labor Inputs:** Cultivation operations of maize fodder crop were undertaken with the help of human, bullock and tractor power. Wages paid for the work done by labor and tractor were calculated. The total labor inputs of Rs. 32640.00 (418.4.ha<sup>-1</sup>) were incurred by the crop on a total area of 78 hectares.

**Capital Inputs:** Capital inputs includes the cost of seed fertilizers, insecticides and repair of implements. The selected growers of Sakrand area incurred a total of Rs. 103900.00 as capital inputs on the 78 cultivated hectares (Rs. 1332.0.ha<sup>-1</sup>).

**Marketing Costs:** The maize fodder growers incurred various costs while disposing-off their agricultural products. These expenses included payments of octroi taxes, transportation, loading and unloading charges etc. It is very interesting to note that here the maize growers did not bear any marketing expenses because they sold their crop in the field and all marketing costs were borne by the buyers of the green fodder.

**Total Variable Costs:** These are expenditure, which are incurred on the use of variable resource input. In other words variable costs with their varying costs are the expenditures which change with the changes in output. Inputs on labor, capital and marketing items were consolidated. A total of Rs. 136540.00 (1750.5.ha<sup>-1</sup>) were spent on variable factors used on production of maize fodder.

**Total Cost of Production:** In order to estimate the total cost of production on various items for maize fodder production, it was considered appropriate to bring together all the costs calculated under heads/items. The total cost of production as the term implies include all the fixed (land inputs) plus variable costs (labor, capital and marketing costs) which are borne during the production period or production process in a particular period of time. To know the costs of production it was considered, therefore necessary to sum-up all costs borne by the selected growers. Therefore, the above said costs (variable and fixed) were summed-up as Rs. 165244.00 on an average of Rs. 2118.5.ha<sup>-1</sup>.

**Per Hectare Cost of Production:** The calculation is done to find-out per unit extent of inputs in production process of any crop which enable the grower to compare it with per unit farm income to evaluate the crop profitability. Total costs are shown farm-wise and their summation was divided with the area under crop to find-out per hectare costs of production. The study revealed that a total per hectare cost of production of Rs.1976.00 was borne by the number second grower of maize crop in the series. The highest per hectare expenditure of Rs. 2676.00 was borne by the 12<sup>th</sup> grower of maize crop in

the series.

**Revenue Productivity:** It refers to money income accruing to the farmers from the production of fodder crop. It was usually calculated by multiplying physical productivity (yield) with the prices of the crop. It is money income earned by the farmers. A total income of Rs. 943000.00 (Rs. 11705.1.ha<sup>-1</sup>) was realized by maize growers on 78 hectares of land in Sakrand area.

**Net Returns:** Net return or net income refers to the residuals left with farmer after meeting all expenses and costs of production from farm income. Net income represents the reward of the entrepreneurs for producing specific crop. It is the income which remains with the farm family. The present study revealed that the maize fodder growers alone realized a gross net return of Rs. 777756.00 (Rs. 9971.2.ha<sup>-1</sup>).

**Input-Output Ratio:** The efficiency of production function can well be appraised by examining the Input-Output Ratio, it refers to the ratio of variable output to the rate of variable inputs. It is investigated by dividing gross income with the total cost of production. The results of the study showed that the highest Input-Output Ratio of Rs. 1:7.36 was realized by the 3<sup>rd</sup> grower in the series. That implies that by investing rupee one on producing crop, the farmer can earn Rs. 7.36 which is a highly profitable.

**Benefit-Cost Ratio:** Benefit Cost Ratio shows the rate of net returns as compared to the cost of production. It was calculated by dividing net returns with the cost of production. The highest profit of Rs. 6.36 received by the grower number 3 in the series of maize fodder growers.

**Recommendations:** Input prices may be checked and frequent rise in the prices of capital input in particular may be discouraged by formulating such favorable policies.

The institutional credit facilities may be provided on easy terms and conditions and loaning procedures to encourage farmers to produce and invest to fodder production in city surroundings to earn more profits. Maize fodder production may be enhanced because these are short period crops and high returning in nature.

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