Journal of Agricultural Development and Policy, 2017
Volume 27, No. 1&2, 69-74

Economics of Ghani Oil Enterprise in Punjab A study of an Agro Based Industry

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Abstract

The present study was carried out with the objective to analyze the economics of ghani oil an agro based industry in Punjab. The primary data were collected from 40 villages of Fatehgarh Sahib district during the year 2015-16. A total number of 14 enterprises were found running ghani oil units. The proportion of landless, marginal, small, semi medium, medium entrepreneurs were 35.71 percent, 14.28 percent, 14.28 percent, 28.58 percent, and 7.15 percent respectively and none of the entrepreneur had large farms. The net returns were to the tune of Rs 82177 per annum. The payback period was 3.43 years. The major problem as reported by the entrepreneurs was of tough competition with large enterprises. The shortage of power, seasonal availability of raw material, shortage of labour and lack of marketing facilities were some of the other the important problems. Setting up more enterprises in villages, branding of the product and guarantee of uninterrupted power supply may help to promote the agro based village industries in the state.

Keywords: *Entrepreneurs, Enterprises, Payback*

JEL Classification: *L26, Q12, Q13*

Introduction

Agriculture sector can rightly be called upon as the mother and the care taker of all the major and minor sectors (Meier 1995). The sector triggers off the growth impulses of other sectors (Himani, 2014). India is a developing country, therefore, its economic growth is mainly dependent on the integration of industry with agriculture. As India lives in villages and is basically an agrarian economy, emphasis on agro based village industries was made in the 1920s by father of nation as a segment of independence movement of India (Goyal *et al,* 2014). The agro based village industries have been recognized as major organizations in the decentralized sector for generating sustainable non-farm service opportunities (Balasubramanyam, 2015) in rural areas by using local agro produce at low (Anjum, 2011) investment. These hold a great probable for generating gainful employment opportunities for the rural poor population (Kamala and Khot, 1972) and need little investment to set up, thereby making an economically workable option for them. They offer instant large scale employment, ensure more reasonable distribution of national income and facilitate a helpful mobilization of skill and assets. The agro-based industries open opportunities to farmers and create additional income by them (Mehta, 2012).These industries reduce pressure on land which leads to increase in the productivity of agriculture sector (Kaur, 2017). Infact, the growth of agro- based industries is significant for generating value-addition to output of agriculture, converting farm produce to consumer commodities (Chengappa, 2014), rising employment and supplementing farm income and alleviating poverty in the countryside (Anonymous, 2008).

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Punjab holds a pride of being one of the Indian states for its outstanding achievements in the development of agriculture. The state has earned a name of Granary of India through contributing 35-40 per cent of rice and 40 to 75 per cent of wheat to the central pool in the past two decades (Anonymous, 2016). Rice and wheat are the two major crops of Punjab having about 82 percentage of the total cropped area. On the other hand, the estimated production of oil seeds was 58.3 thousand tonnes in 2017 (Anonymous, 2017). It is stated that India is deficit in edible oil and about two-third of its requirement sare met through imports per annum.

Due to supreme reliance on small-scale and medium industries, Punjab's industrial economy stands out distinctly among other states of India. Industrial structure of Punjab is constituted mainly by the private sector. Agro industry primarily depends on low grade technology process agricultural raw materials locally produced (Ahluwalia *et al,* 2008) such as cotton ginning, atta chakies, paddy shelling, oilseeds processing (ghani oil) etc. Mustard oil is one of the most important edible oils used vastly in the country. It is also used by rural population of the state for the cooking. The oil is having nutritional and medicinal value. Dried mustard seeds are crushed mixing with adequate water (ghani) for a number of times till the oil is extracted and collected separately. The by product is oilseed cake which is served as cattle feed in dairy farming. The entrepreneurs of ghani oil units process their own raw material and sell mustard oil to the buyers. These units were also adding value to the customer's raw material by providing services of extracting oil from mustard oil seeds. Keeping in view the above discussion, the present study was undertaken with the objectives to workout economics of ghani oil, an agro-based village industry and to know the problems faced by the entrepreneurs of ghani oil in Punjab.

Data Sources and Methodology

For the purpose of the study, the Punjab state has been divided into three agro-climatic zones, namely sub-mountainous zone, central plain zone, and south west zone. The multistage random sampling technique was adopted for collection of data. The central zone having the highest number of small scale units (Anonymous 2014) was selected for the study in the first stage. One district i.e. Fatehgarh Sahib falling in the central zone, was randomly taken, in the second stage. A complete list of all the 444 villages falling under the district was prepared. From that list, 40 villages were randomly taken for the study in the third stage. Each village was visited personally to find out ghani oil units. In each village, the sarpanch or chowkidar of the village was contacted for guidance. A total number of 14 ghani oil units were there in these 40 such villages. The information was collected from the entrepreneurs-landless (5), marginal (2), small (2), semi- medium (4) and medium (1). A self designed pre-tested schedule was prepared and primary data by personal interview method about capital investment, cost of fixed as well as variable inputs, price and quantity of the produce were collected from the entrepreneurs. The respondents were asked to rank various problems and thus the main problems faced by the entrepreneurs were examined.

To examine the economic viability of different enterprises, net return, break even quantity (BEQ), break-even quantity as percentage of actual quality, profitability index (benefit-cost ratio) and payback period were calculated.

Break -even quantity (BEQ)

$$BEQ = \frac{\text{Total fixed cost}}{\text{Sale (Price per unit)} - \text{Average variable cost}}$$

$$\text{Break even quantity as percentage of actual quantity} = \frac{BEQ}{\text{-----------}} \times 100$$

$$\text{Payback period} = \frac{\text{Actual quantity Initial investment}}{\text{Annual net Returns}}$$

To work out the input-output of different farm enterprises, the capital output ration, share of fixed and variable cost in the capital output ratio, benefit cost ratio, benefit cost ratio at variable and total cost were calculated.

$$\text{Output-capital ratio} = \frac{\text{Gross returns}}{\text{Total cost}}$$

$$\text{Share of variable cost in capital output ratio} = \frac{\text{Output-capital Ratio}}{\text{Total cost}} \times \text{Variable cost}$$

$$\text{Share of fixed cost in capital output ratio} = \frac{\text{Output-capital Ratio}}{\text{Total cost}} \times \text{Fixed cost}$$

$$\text{Benefit cost ratio (at variable cost)} = \frac{\text{Returns over variable cost}}{\text{Variable cost}}$$

$$\text{Benefit cost ratio (at total cost)} = \frac{\text{Returns over Total cost}}{\text{Total cost}}$$

Garret's Ranking Technique has been used to rank the problems faced by the sampled entrepreneurs of agro based village industries. The rank assigned to reasons by the sampled respondents was transmitted into scores using the formula given by Garrett and Woodworth (1981).

Percentage position=$100 \times (R_{ij}-0.5)/N_j$

Where

R_{ij} = Rank given for i^{th} problem by the J^{th} respondent
N_j = Number of variables problem by the J^{th} respondent

By referring Garrett table, the present position estimated was converted into scores. For each problem, the score of various entrepreneurs were added and mean score was calculated. The factor with the highest mean score was considered to the most important reasons.

Factors used, while ranking the problem faced by entrepreneurs in agro- based industries are given as:

F1- Lack of marketing facilities
F2- Tough competition
F3- Power problem
F4- Shortage of labour
F5- Seasonal availability of raw material

Results and Discussion

Economics of ghani oil enterprise

The data given in Table 1 presents the economics of ghani oil enterprise among different entrepreneurs of land farm categories. The various components of total

Table 1. Economics of ghani oil enterprises in Punjab

Particulars	Landless	Marginal	Small	Semi-medium	Medium	Overall
A. Capital Investment						
1. Land	60450	69750	46500	72500	96000	65768
2. Building	49000	49500	42500	46000	56000	47857
3. Various machines	115000	122000	145000	141250	150000	130357
Total	224650	241750	234000	259750	302000	243982
B. Fixed Cost						
1. Interst on capital investment @ 11% P.A.	24712	26591	25740	28573	33220	26838
2 .Depriceation on building @2% P.A.	964	970	833	902	1098	938
3. Depreciation on machinery @ 10% P.A	11609	11022	13050	12711	13500	12181
Total Fixed Cost	37285	38588	39623	42185	47818	39957
C. Variable Cost						
1. Raw material	43200	72000	78000	231750	285000	123429
2. Labour charges	78000	78000	78000	78000	78000	78000
3. Electricity/Diesel/Cost	43680	58800	57960	34800	38400	44966
4. Interst on variable cost @7% P.A	11542	14616	14977	24119	28098	17248
Total variable cost	176422	223416	228937	368669	429498	263642
Total cost (B+C)	213706	262001	268560	410854	477316	303599
D. Gross return	267600	315800	339200	534575	614500	385771
E. Net return	53894	537799	70640	123721	137184	82177
Return over variable cost	91178	92384	110263	165907	185002	122130

capital investment, total fixed cost and total variable cost of ghani oil have been computed along with oil yield per quintal per enterprise per annum and its market price per quintal are presented. Overall, the total investment in terms of working land i.e. Rs 60450, building Rs 49000 and various machines Rs 115000 of landless farmers is estimated at Rs 224650 per unit per annum. The total fixed cost per unit per annum of landless farmers has been worked to out be Rs 37285. This included interest on capital investment i.e. Rs 24712 and depreciation on building i.e. Rs 964 and machines i.e. Rs 11609. The total variable cost was Rs 176422 which included the cost of raw material, charges of labour, cost of electricity and interest on variable cost. These costs were Rs 43200, Rs 78000, Rs 43680 and Rs 11542 respectively. The gross returns included the value of crushing seeds per quintal i.e. Rs. 1000, the market price of oil was Rs 110 per liter and the value of the waste material i.e. by product (oil cakes) was Rs 70 per kg. The gross returns of entrepreneurs those were landless was Rs 267600 per annum. The net returns of landless farmers were Rs 53894 per unit per annum.

The total fixed cost of ghani oil industry was Rs 38588 per annum as against the total capital investment of Rs 241750 for the entrepreneurs those had the marginal size of land. The components of fixed cost were the interest on capital investment, depreciation on building and machines was Rs 26591, Rs 970, and Rs 11022 respectively. Out of the total variable cost, cost of raw material such as sarson seeds was Rs 72000 and the total cost on labour was as high as Rs 78000. The cost of electricity was Rs 58800 and interest on variable cost was Rs14616 per annum. The variable cost was Rs 223416 while the gross returns and net returns were Rs 315800 and 53799 per annum respectively.

The study brought out that the total fixed cost of entrepreneurs of ghani oil with small farm size was Rs 39623. The order of various items of fixed cost were similar to the entrepreneurs those were landless and marginal farmers. The total variable cost per annum per unit was Rs 228937. The cost of raw material such as sarson seeds was Rs 78000. The human labour was worth Rs 78000 which was the next important item after raw material. It was followed by electricity charges which were Rs 57960 and interest on variable cost was Rs 14977. The gross returns per annum were Rs 339200 per ghani oil unit.

The fixed cost per industry per annum was Rs 42185 for the entrepreneurs those had semi medium size of land, The components of total fixed cost were the interest on capital investment which was Rs 28573, depreciation on working building was Rs 901 and working land was Rs 12711. The total variable cost per industry per annum was Rs 368669. The cost of raw material and labour charges were Rs 231750 and Rs 78000 respectively. The electricity charges (Rs 34800) and interest on variable cost (Rs 24119) was other important factors of variable cost in the descending order of importance. For entrepreneurs with semi medium farms the gross returns and net returns were Rs 534575 and Rs 108064 respectively. It was observed were worked out to be that the fixed cost of entrepreneurs with medium farms was Rs 47818 which was highest among other farm categories. The two components i.e. depreciation on building (Rs 1098) and equipment and machinery (Rs 13500) were found to had the highest value as compared to the other farm categories. The total variable cost per annum per unit was recorded the highest the ghani oil entrepreneurs those were having medium size of agricultural land holdings (Rs 429498). The important items of variable cost were raw material (Rs 285000), charges of labour (Rs 78000), electricity charges (Rs 38400) and interest on variable cost (Rs 28098). The gross returns were accounted to the tune of Rs 614500 and were the highest among entrepreneurs of all the five categories of farm. The net returns were to the tune of Rs 137184 per annum per unit of the entrepreneurs those had medium size of land for agriculture.

The study showed that overall, the average

Table 2. Economic evaluation of ghani oil enterprises in Punjab

Particulars	Landless	Marginal	Small	Semi medium	Medium	Overall
Actual quantity	157.20	169.00	181.00	199.75	215.00	178.57
Break even quantity	114.69	152.89	157.08	127.25	119.54	130.04
BEQ as % of actual quantity	72.95	90.46	86.78	63.70	55.60	72.82
Quantity above BEQ	42.51	16.11	23.92	72.50	95.46	48.53
Payback period (years)	4.28	4.56	3.32	2.33	2.20	3.43

Table 3. Input output relationship of ghani oil enterprise in Punjab

Particulars	Landless	Marginal	Small	Semi medium	Medium	Overall
Output-capital Ratio	1.25	1.20	1.26	1.30	1.29	1.26
Benefit cost ratio (at variable cost)	0.53	0.41	0.48	0.45	0.43	0.48
Benefit cost ratio (at total cost)	0.25 (20.00)	0.20 (16.66)	0.26 (20.63)	0.30 (23.07)	0.29 (22.48)	0.26 (20.63)
Share of fixed cost on capital output ratio	0.23 (18.40)	0.18 (15.00)	0.19 (15.07)	0.13 (10.00)	0.29 (22.48)	0.18 (14.28)
Share of variable cost in capital output ratio	1.03 (82.94)	1.03 (85.71)	1.08 (82.40)	1.06 (85.83)	1.07 (85.71)	1.08 (81.53)

variable cost was as Rs 263642 per annum per unit whereas the fixed cost was Rs 41099. The total cost for medium farmer worked out to be Rs 477316 per unit per annum, which was highest among the other farm categories. The return over variable cost and return over total cost were the highest i.e. Rs185002 and Rs 137184 per annum per unit respectively. For entrepreneurs those had medium farm, the gross returns were as high as Rs 614500 per annum per unit. The returns over variable cost were Rs 91178 and returns over total cost were Rs 53894 in case of the entrepreneurs those were landless farmers.

Economic evaluation

The economic evaluation of ghani oil enterprise is exhibited in Table 2. The study revealed that break-even quantity was found to be the highest in case of entrepreneurs with small farms i.e. 157.08 liter per annum per unit and was found lowest in case of entrepreneurs those were landless farmers which was 114.69 liter per annum per industry. The break-even quantity (BEQ) as percentage of actual yield was 72.82 per cent on an average in Punjab. It was found to be the highest in case of marginal farms 90.46 per cent and lowest in case of medium farmer i.e. 55.60 per cent. It showed that the present value of seeds crushed was more than the quantity which was required for the survival of ghani oil industry. Initial capital investment in ghani oil enterprise was Rs 224650, Rs 241750, Rs 234000, Rs 259750 and Rs 302000 for entrepreneurs in landless, marginal, small, semi medium and medium farm categories respectively.

It was observed that the payback period on an average was 3.43 years for the investment of the enterprise. However, it was 4.28 years for entrepreneur for landless, 4.56 years for marginal, 3.32 years for small, 2.33 years for semi medium and 2.20 years for medium size farm category to cover their investment. Increase in investment with increase in the size of ghani oil enterprise was responsible for the longer payback period of the enterprise.

Input-output relationship

The different ratios of output /benefit in relation to different types of cost concepts have been presented in Table 3. The results revealed that by investing one rupee on fixed and variable resources, an amount equal to Rs 1.26 on an average was indicated by output-capital ratio. This showed that there were net earnings of rupee 0.26 which came to be 20.63 per cent of total earnings and remaining 79.37 per cent were the total cost on an average in Punjab. The output-capital ratio

Table 4. Problems reported by entrepreneurs of ghani oil units in Punjab

Problems	Rank					Total no. of respondents	Total score	Mean score	Rank
	1	2	3	4	5				
Lack of marketing facilities	0	0	0	0	74	74	1776	24	5
Tough competition	45	13	16	0	0	74	5000	67.57	1
Power problem	17	26	0	31	0	74	4061	54.88	2
Shortage of labour	0	20	20	34	0	74	3526	47.65	4
Seasonal availability of raw material	12	15	37	10	0	74	4052	54.76	3

was worked out to be 1.25, 1.20, 1.26, 1.30 and 1.29 of ghani oil for the entrepreneurs belonging to different farm categories in Punjab. Out of the gross returns per rupee invested, 20, 16.66, 20.63, 23.07 and 22.48 per cent were the net returns per rupee while the remaining 80, 83.34, 79.37, 76.93 and 77.52 per cent came to be total cost (fixed + variable cost) for ghani oil in the different farm categories. In Punjab, on an average, the share of fixed cost in capital output ratio was lower i.e. 14.28 per cent as compared to the share of variable cost i.e. 85.71 per cent in ghani oil enterprise.

Problems reported by entrepreneurs

The problems reported by the entrepreneurs of ghani oil village industries in Punjab had been shown in Table 4. The entrepreneurs reported that tough competition with large one was a big problem. By applying Garret's ranking test, using the ranks given by the respondents, total scores and mean scores were obtained. Their ranking of various problems was done on the basis of degree of scale measured in items of rank 1 to 5 was gathered from the respondents. The tough competition of the village ghani oil with branded ones was the main problem with the entrepreneurs. It was followed by power problem. The seasonal availability of raw material, shortage and going back of migrant labour in peak season of the business and lack of marketing facilities were at 3, 4 and 5 order of rank.

Conclusion and Policy Implications

During the pilot survey under study, sufficient number of ghani oil units was not found from first 20 villages. Therefore, to achieve a reasonable sufficient number of agro based units, 40 villages were surveyed. From this, the study concluded that there were less such agro based units in the villages. The study revealed that a small unit or agro based industry can help people to earn their livelihood. The government may take some relief measures for setting up of agro-based industries in the villages to promote employment and income. The entrepreneurs were found selling their product in local market i.e. in the villages itself and were facing tough completion therefore, it is suggested that they may brand their products. The power supply problem, especially during the summer season and in bad weather conditions can be solved by ensuring regular power supply to these agro based units in the rural areas.

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Received: December 5, 2016 Accepted: November 10, 2017