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Economic Analysis of Chrysanthemum Flower in Punjab, Pakistan

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Abstract

The aesthetic value of flowers and ornamental plants, their use in social events, overall satisfaction in working with them and high income generating power are attracting modern entrepreneurs to invest money in the floriculture industry. The present study was aimed to estimate the production cost, net income and Benefit Cost Ratio of chrysanthemum flower. Purposive sampling technique was employed for the data collection. Data were collected from district Kasur, Lahore and Sheikhupura. A total of 50 respondents of chrysanthemum were interviewed. A Cobb-Douglas production function was employed to estimate the effect of different socioeconomic and agronomic factors on the production of chrysanthemum. The total average cost of production per acre of small, medium, large and all farmers was Rs. 133,272, Rs. 129,634, Rs. 140,982 and Rs. 133,567, respectively. The total revenue received from the sale of chrysanthemum per acre of the small, medium, large and all farmers was Rs. 300,960, Rs. 300,251, Rs. 307,684 and Rs. 299,967, respectively. The gross margin per acre was the greatest of the medium farmers (Rs. 186,378) followed by small (Rs. 183,448) and large farmers (Rs. 182,462) while that of all farmers was Rs. 182,160. The net income was also the highest of the medium farmers (Rs. 170,618). The result of the findings revealed that the sampled medium farmers earned the highest returns per acre (1:2.26) as compared to small (1:2.26) and large farmers (1:2.18). The BCR of all the sampled farmers was 1:2.25. The results of Cobb-Douglass production function revealed that the variable of education, flower growing experience, land preparation cost, FYM cost, fertilization cost has positive and significant while seed-quantity, total labor man-days and irrigations applied has negative and significant impact on the yield of chrysanthemum. The educated and experienced people should be motivated to engage in floriculture business. The use of FYM should be increased and farmers be trained to prepare good quality land to fetch better and high-quality yield of chrysanthemum flowers.

INTRODUCTION

Flowers are used for expressing or exhibiting the innermost feelings to the beloved ones or complementing any one or versifying any conceivable emotions (Usman *et al.*, 2014). People usually use flowers in all their ceremonies like wedding, birthday and marriage day greetings, religious offerings and sometimes in social, political and historical occasions. The universal usage has created a real trend of producing flowers on a commercial basis to meet increasing demand in the market (Haque *et al.*, 2013). Flowers are an integral part of human life due to their diversity in beauty, form, texture, color and fragrance (Ikram *et al.*, 2012).

Floriculture has become one of the important high value agricultural industries in many countries of the world. International trade in cut-flowers is growing at a rate of 25 percent per annum. The international trade is around US$ 11 billion and cut-flowers contribute 60 per cent of the world trade in floriculture. The global exports increased over ten folds from 0.5 billion in 1995 to 5.1 billion in 2005, which again is expected to double by 2025 (Singh *et al.*, 2010). Many flowers growing countries are earning handsome foreign exchange from export of flowers. Among them, Netherlands is playing a leading role in the production and marketing of flowers.

About 305,105 ha area was under flower production in different countries of the world, of which the total area in Europe was 44,444 ha, North America 22,388 ha, Asia and Pacific 215,386 ha, the Middle East and Africa 2,282 ha and central and South Africa 17,605 ha. Flowers grown under protected greenhouses in different countries around the world total 46,008 ha. India has the maximum area under ornamental crops (88,600 ha) followed by China (59,527 ha), Indonesia (34,000 ha), Japan (21,218 ha), USA (16400 ha), Brazil (10285 ha), Taiwan (9.661 ha), The Netherlands (8,017 ha), Italy (7.654 ha), the United Kingdom (6,804 ha), Germany (6,621 ha) and Colombia (4,757 ha). Globally, more than 145 countries are involved in the cultivation of ornamental crops and the area under these crops is increasing steadily (Usman, 2013).

The annual consumption of cut-flowers in the world is worth US $ 13,000 million. The main importers of cut-flowers are USA, Germany, France, UK, Switzerland, Sweden, Norway, the Netherlands, Denmark, Belgium, Italy, Australia and Japan. Germany is the largest importer now, followed by US, France and Britain. Among the exporters of cut-flowers, the Netherlands dominates the world trade (65%) followed by Columbia (12%) and Israel (6%). Thailand is the world's sixth largest exporter of cut-flowers. At present Western Europe alone consumes half of the flowers produced in the world and a large expansion in flower consumption is taking place in Eastern Europe, Japan, China, South Korea, Thailand and Indonesia (Ashfaq *et al.*, 2015).

The world consumption of cut-flowers and plants is increasing and there is a steady annual increase of 10 to 15 per cent in all importing countries. Due to globalization and its effect on income, there is growing per capita floriculture consumption in most of the countries. In case of developed countries, the consumption of flowers is closely linked with GNP per capita income and urban population (Sudhagar, 2013). Consumption of cut-flowers is going to increase day by day in Pakistan. It is related to the rising living standards, education and electronic media that have promoted this business in recent years. The production and consumption of cut-flowers has increased over the past decade and this increase is expected to continue. However, local consumption and demand is yet to be satisfied (Riaz *et al.*, 2007).

Conventionally flowers were grown for the aesthetic benefits, social function and export of essential oils and fragrance production (Byczynski, 1997). Now floriculture has emerged as a lucrative profession with the much higher potential for returns compared to another Agri-horticultural crop (Sudhagar, 2013). Evidences from all civilizations reveal that mankind has a historical interest in gardening and culturing flowers to satisfy an aesthetic need. But, in the present world, the flower becomes important not only for its aesthetic, social values, but also for its economic contribution (Aditya, 1992; Dadlani, 2003). Floriculture has been identified as a potential business due to divergence of farmers towards high value floral crops and utilization of flowers in social events as well as for industrial production in Pakistan (Younis *et al.,* 2002). Owing to enhanced profit levels, commercial floriculture is emerging as a potential field of horticultural production.

Commercial floriculture has emerged in the Pakistan. The most important floricultural crops to trade of cut-flowers in Pakistan are roses, gladiolus, tuberoses, marigold, carnation, lilies, gerberas, jasmine, chrysanthemum and statice (Usman and Ashfaq, 2013). Pakistan has a subtropical climate favorable for cut-flower production. Pakistan can also establish floriculture industry by providing necessary facilities which can surely fetch millions of dollars as foreign exchange (Nawaz *et al.*, 2009). Total production of cut-flowers is estimated to be in the range of 10-12 thousand tons per annum and floriculture is fast emerging business as a profitable venture for small farmers in Pakistan (Usman *et al.*, 2014). Cut-flower require abundant quantity of labor from production till sale in the market and Pakistan has abundant labor located in both urban and rural areas. Investment in this sector is evident from the increased number of nurseries, greenhouses, flower markets and flower auction centers and the production of cut-flower (Usman *et al.*, 2013).

Cut-flower can become Pakistan's second largest export sector after textile if the government of Pakistan encourages the cut-flower growers by facilitating them to provide better technology in production, refrigerated transportation, easy loan, extension services and exploring more foreign markets (Usman and Ashfaq, 2013). The diverse agro-climatic conditions in Pakistan suit all kinds of floriculture crops, including cut-flowers, and pot plants throughout the seasons. In Pakistan growing cut-flowers are a very profitable business if done properly on a commercial basis. The cut-flower marketing business is getting popular because of its high demand. As farm holdings are small, therefore a farmer hardly makes his both ends meet from this enterprise. It is high time that innovative approaches were employed by the farmers to increase their income (Usman *et al.*, 2014).

The objectives of the study were to estimate the production cost, gross margin, net income and Benefit Cost Ratio of chrysanthemum flower. The study also determines the effect of different socioeconomic and agronomic factors on the production of chrysanthemum and suggest recommendations.

MATERIALS AND METHODS

Study Area, Sampling and Data Collection

The present study was conducted in the province of Punjab, Pakistan during the year, 2013. Data were collected from district Kasur, Lahore and Sheikhupura. Purposive sampling technique was employed for the data collection. A total of 50 respondents of chrysanthemum were interviewed. 20 respondents were selected from tehsil Pattoki of

district Kasur, 15 each from Lahore and Sheikhupura districts. There were 25 small, 15 medium and 10 large respondents, respectively. Small respondents were taken more than of medium and large of each of the selected flower as in most of the land holdings are small. The data were collected through farmers' interviews using a well-structured and field pre-tested questionnaire.

The respondents were classified into small, medium and large farms, according to the size of their area under flower acreage. The farmers having flower acreage of less than 2.5 acres were termed as small farmers; those with flower acreage between 2.5 acres to 5 acres were placed under medium farmers, whereas farmers having more than 5 acres of flower were classified as large farmers (Usman *et al.*, 2013; Usman and Ashfa, 2013a, 2013b; Usman *et al.*, 2014; Ashfaq *et al.* 2015).

Cost Estimation Procedure

This part deals with the methodology adopted for estimation of cost of production of cut -flowers incurred by the farmers. Estimation of cost of production of a farm enterprise is a very complex exercise. The cost of any one-farm enterprise cannot be determined precisely unless the costs of all other farm enterprises are determined simultaneously (Ahmad *et al.*, 2004). To overcome this problem, actual hiring or market rates, including transportation cost of variable inputs such as labor, ploughing, planking, seed, fertilizer, irrigation, hoeing, pesticide, weedicide and picking etc. was considered. Costs, margins and income were calculated following the previous studies (Usman *et al.*, 2013; Usman & Ashfa, 2013a, b; Usman *et al.*, 2014; Ashfaq *et al.*, 2015).

Land Preparation

Cost per time/hour of ploughing, planking, leveling, seed beds and ridges were estimated based on prevailing hiring rate in the village.

Seed

Seed cost per seedling, bud, cutting and or kilogram were estimated based on prevailing hiring rate in the market.

Fertilizer

The value of the fertilizer applied, including transportation cost, was charged to the selected flower.

Irrigation Cost

Canal irrigation cost was determined by using water charges cost (Abyana). The rate at which tube well water can be purchased was used irrespective of the fact whether the farmer owned or did not own his tube well.

Pesticide/Weedicide

The value of the chemicals applied along with the hiring rate of the sprayers was used to calculate the total cost.

Labor Uses

Growing flowers is a labor intensive business. Large number of laborers are used in hoeing, seed transplanting and pricing etc., during flower production. Three types of labor are used on the farm i.e. family labor, permanent hired labor and casual hired labor. Casual hired labor was mostly employed during the peak load periods for specific operations. Market or hiring rate was used for all types of labor used in chrysanthemum flower production.

Land Rent

It is generally assumed that land has no cost of production, i.e. is a free gift of nature. It is true, but in its natural state it cannot be used for agriculture. Land is not a factor of production unless it is not modified. The payment made to land, for its use in production, is called the land rent (Ahmad *et al.*, 2004). Land rent was estimated by following the three steps used by Ahmad *et al.* (2004).

Land Revenue and Other Taxes

The actual amount paid to the government for flower was considered for working out the cost.

Analytical Framework

Data were edited and entered into the computer for analysis purposes and following statistical techniques were used to analyze and interpret data.

Descriptive Statistics

To analyze the results of the present study the descriptive statistics were used to find out the percentages and frequencies of different stakeholders. The average was calculated by using the formula AM = $\sum X$ / N where AM is arithmetic mean, N is total number of observations and $\sum X$ is total sum of variables. The percentage was calculated by using the formula P = F/ N* 100 where P is percentage, F is frequency and N is total number of observations.

Gross Margin

Gross margin was calculated using the formula GM = TR-TVC where GM is gross margin, TR is total revenue and TVC is total variable cost.

Net Income

Net income was calculated using the formula NI = TR-TC where NI is net income, TR is total revenue and TC is total cost.

Benefit Cost Ratio

It is defined as the amount received in the shape of profit on the cost of one rupee. The BCR was computed by formula BCR = TR/TC where BCR is benefit cost ratio, TR is total revenue and TC is total cost.

Econometric Analysis of Data

The Cobb-Douglas production function is the most commonly used functional forms for analyzing agricultural production data. The major reasons for using this functional form are mathematical properties, simplicity of computation, and interpretation (Heady and Dillon, 1961). In addition, the Cobb-Douglas production function is relatively simpler to estimate because of logarithmic transformation into linear form (Beattie and Taylor, 1985). The Cobb-Douglas production function was linearized in a double logarithmic function with a view to getting a form amenable to practical purposes and was used as expressed below.

$$\text{Ln } Y = \beta_0+\beta_1 \text{Ln}X_1+\beta_2 \text{Ln}X_2+\beta_3 \text{Ln}X_3+\beta_4 \text{Ln}X4+\beta_5 \text{Ln}X_5+\beta_6 \text{Ln}X_6+\beta_7 \text{Ln}X_7+B_8 \text{Ln}X_8+\beta_9 \text{Ln}X_9+\beta_{10} \text{Ln}X_{10}+\beta_{11} \text{Ln}X_{11+}\mu_i$$

Where;

Y	Production per acre (Kg)
B_0	Constant
X_1	Age (years)
X_2	Education (years)
X_3	Flower growing experience (years)

X_4	Distance from flower market (Km)
X_5	Land preparation cost (Rs.)
X_6	Seed quantity (seedling, cutting, buds)
X_7	Farmyard manure (FYM) cost (Rs.)
X_8	Fertilization cost (Rs.)
X_9	Total labor man-days (No.)
X_{10}	Chemical cost (Rs.)
X_{11}	Irrigation (No.)
$B_1, B_2 \ldots B_{11}$	Regression coefficients estimated through multiple regression analysis
μ_i	Error term which included unknown factors affecting revenue of farmers

Ashfaq *et al.* (2015) also used similar function to estimate the production function of cut-flowers.

RESULTS AND DISCUSSION

Cost of Production of Chrysanthemum Flower Per Acre

The land preparation cost per acre of the chrysanthemum small farmers was Rs. 7,191. The highest cost was of picking i.e. Rs. 21,328 followed by seed (Rs. 21,328), tube well (Rs. 17,492), hoeing (Rs. 12,984), and fertilizer (Rs. 9,093). The variable and total cost of production per acre was Rs. 117,512 and Rs. 133,272 (Table 1). It was reported that after picking expenditure (Rs. 30361) of the medium farmers, the highest cost was of the seed (Rs. 21,363), tube well (Rs. 14,821), hoeing (Rs. 12,060), and fertilizer (Rs. 9,532). The variable (Rs. 113,874) and total cost (Rs. 129634) of production of the chrysanthemum medium farmers per acre was less as compared to small and large farmers. Medium farmers used available resources better than small and large farmers. Majority of the farmers in our country are small and medium farmers. They have small holdings; they utilized them very productively and earned a good return from their small holdings.

Table 1 revealed that the major cost incurred by the chrysanthemum large farmers was of picking (Rs. 31824), seed (Rs. 25075), tube well irrigation (Rs. 17,111), hoeing (Rs. 15318), fertilizer (Rs. 10308) and land preparation (Rs. 7410). The variable (Rs. 125,222) and total cost of production (Rs. 140982) of the large farmers were greater, than that of their counterparts of small and medium farmers. The total cost was the highest of the sampled large farmers, as they have plenty of financial resources and utilized more resources than the small and medium farmers, to produce chrysanthemum. The results of the finding indicated that the land preparation, seed, fertilizer, and hoeing cost of chrysanthemum all farmers were Rs. 7,559, Rs. 22,128, and Rs. 13,074. The highest cost born was of picking (Rs. 30789). The variable and total cost of production per acre was Rs. 1178807 and Rs. 133567.

Economic Analysis

The average yield (kilogram) per acre of the chrysanthemum of the sampled large farmers was the highest (1,586 kg). The large farmers have plenty of resources to use them in the production of chrysanthemum that yields higher production. The yield per acre of chrysanthemum of small and medium farmers was 1,584 kg and 1,522 kg, respectively. The sampled medium farmers received the highest price (Rs. 197.30) per kilogram of chrysanthemum than that of small and large farmers. The average price

received per kilogram of chrysanthemum by the sampled farmers in the study was Rs. 195.90. The total revenue received from the sale of chrysanthemum per acre of the small, medium, large and all farmers was Rs. 300,960, Rs. 300,251, Rs. 307,684 and Rs. 299,967, respectively.

The gross margin per acre was the greatest of the medium farmers (Rs. 186,378) followed by small (Rs. 183,448 and large farmers (Rs. 182,462) while that of all farmers was Rs. 182,160. The net income earned from the cultivation of chrysanthemum was the highest of the medium farmers (Rs. 170,618) followed by smell (Rs. 167,688) and large farmers (Rs. 166,701), while that of all the sampled farmers was Rs. 166,400. The result of the findings reveals that the sampled medium farmers earned the highest returns per acre (1:2.26) as compared to small (1:2.26) and large farmers (1:2.18). The benefit cost ratio (BCR) of all the sampled farmers was 1:2.25 (Table 2). These results are in accordance with the study of Ashfaq *et al.* (2015). The growing of chrysanthemum is a profitable business. These give double returns than the cost incurred. The returns of the growing flower are double than the traditional crops, i.e. wheat, rice, cotton, sugarcane and vegetables, etc. Dadlani (2003) reported that growing of flower is estimated to give 3-5 times and 1.5-2 times higher returns than obtained from rice and vegetable cultivation.

Table 1: Production cost of chrysanthemum flower per acre.

Production practices	**Farm size categories**			
	Small	**Medium**	**Large**	**All**
Rotavator (No.)	1,763.27	1,500	1,566.67	1,619.38
Cultivator (No.)	1,950.81	2,403.75	1,912.50	2,122.56
Planking (No.)	499.38	658.35	495	562.66
Leveling (Rs.)	1,833.33	2,050	2,166.67	2,028.57
Ridges (No.)	1,145	1,285	1,270	1,226
Seed quantity (buds/ seedling)	21,327.88	21,363.13	25,075	22,128.16
Man-days for seed/buds transplantation	3,053.25	2,972.50	3,159	3,050.32
Man-days for earthling up	2,914.50	3,078	3,315	3,061.60
FYM trolley	7,017.86	6,341.78	5,669.44	6,497.39
Urea (bag)	3,659.09	3,374.29	3,960	3,613.57
DAP (bag)	4,009.09	4,442.98	4,160	4,213.44
SSP (bag)	1,424.49	1,714.45	2,187.50	1,706.93
Hoeing	12,984.44	12,060.15	15,318	13,074.01
Weedicide	850	830	700	810
Spray	4,950	4,616.88	5,332.50	4,901.31
Tube well irrigation	17,492.24	14,821.05	17,111.11	16,402.17
Picking	30,637.20	30,361.27	31,824.0	30,788.97
Water charges (abyana 4 months)	60	60	60	60
Land rent (4 months)	15,700	15,700	15,700	15,700
Variable cost	117,511.82	113,873.57	125,222.39	117,807.03
Total cost	133,271.82	129,633.57	140,982.39	133,567.03

Production Function of Chrysanthemum Flower

The results of the Cobb-Douglas production function reveal that the coefficient of age of the farmers was 0.05. The coefficient of education was positive (0.17) and had significant impact on the dependent variable (production of chrysanthemum). It indicates that with a one percent increase in the level of education, production increased by 0.17 percent. The educated farmers got higher production than their counterparts who has less years of experience. This variable is in accordance with the study of Usman and Ashfaq (2013a), Usman *et al. (*2013) and Ashfaq *et al. (*2015). The coefficient of flowers growing experience was 0.32. It was positive and highly significant. It illustrates that with a one percent increase in the level of flower growing experience, production increased by 0.33 percent. These results are supported by the study of Usman and Ashfaq (2013b) and Ashfaq *et al. (*2015).

The increase in the distance (Km) of the farmers from the flower markets creates problems in transportation. The coefficient of distance from the flower markets was positive (0.19) and insignificant, the majority of sampled chrysanthemum producing farmers were lying near the flower markets. Ashfaq *et al. (*2015) also reported similar results. Good quality and well-prepared soil is very essential to get higher production and better quality of chrysanthemum flowers. It was reported that the coefficient of land preparation cost was positive (0.39) and significant. It indicates that with a one percent increase in the expenditures for the cost of land preparation, the production increased by 0.39 percent. Similar results are reported earlier (Usman *et al.*, 2013; Usman and Ashfaq, 2013a; Usman *et al.*, 2014; Ashfaq *et al.*, 2015). The coefficient of seed quantity applied per acre was negative (0.35). It had a negative and significant impact on the dependent variable (production). It shows that with a one percent increase in the seed quantity (buds), the production decreased by 0.35 percent. Ashfaq *et al.* (2015) also reported similar results.

Farmyard manure (FYM) is essential to maintain the organic fertility of soil. The coefficient of FYM cost was 0.38 and significant. It demonstrates that with a one percent increase in the expenditures for the cost of FYM, the production increased by 0.38 percent. This variable is in accordance with the study of Usman *et al. (*2013, 2014) and Ashfaq *et al. (*2015). Farmyard manure application reduced the deleterious effects of brackish water and enhanced the fertility level of the soil (Munir *et al.*, 2012). Straw mulch encourages flower production, both qualitatively and quantitatively (Younis *et al.*, 2012). The coefficient of fertilizer cost was positive and insignificant. The increase in the expenditure on fertilizer cost increased the production but insignificantly. The chrysanthemum required less quantity of fertilizer than the other flowers. This variable is in accordance with the study of Usman *et al. (*2013), Usman and Ashfaq (2013b) and Ashfaq *et al. (*2015). Fertilizer is a very important input in the production of cut-flower. There is always needed to add fertilizers in soil to fulfill nutrients deficiency to get maximum production. A balanced used of fertilizer with the desire level of nutrients is very necessary if one wants to get maximum production. Fertilizer is very essential for flower production as their pickings are done daily during season (Usman *et al.*, 2014).

The trained and skilled labor force is very essential for the handling and management of the chrysanthemum flowers. The coefficient of labor man days was negative (-0.25) and significant at the three percent level. It indicates that with a one percent increase in the labor man-days, the production of chrysanthemum reduced by 0.25 percent. Unskilled, untrained and child labor force was being used in the study area

by the sampled farmers. Ashfaq *et al. (*2015) also reported similar results. Chemicals are required to kill the insects and pests of the flowers. The coefficient of chemical cost was positive (0.03) and had an insignificant impact on the dependent variable (Table 3). The coefficient of total irrigations (number) applied was negative (-0.26) and had significant impact on the dependent variable. It indicates that with a one percent increase in the number of irrigations, the production decreased by 0.26%. There was overused and the use of unfit quality of water in the study area by the sample farmers. Earliers studies also reported similar results (Usman *et al.*, 2013, Usman and Ashfaq, 2013a; Ashfaq *et al.*, 2015).

Table 2: Economic analysis of chrysanthemum fower/acre.

Item/unit	**Chrysanthemum**			
	Small	**Medium**	**Large**	**All**
Variable cost (Rs.)	117,511.82	113,873.57	125222.39	117807.03
Total cost (Rs.)	133,271.82	129,633.57	140982.39	133567.03
Production (Kg)	1,584	1,522	1586	1531
Sale price/kg (Rs.)	190	197.30	194	195.90
Total revenue (Rs.)	300,960	300,251	307684	299967
Gross margin (Rs.)	183,448.18	186,377.57	182461.61	182159.95
Net income (Rs.)	167,688.18	170617.57	166701.61	166399.95
BCR	2.26	2.32	2.18	2.25

Table 3: Regression Results of Estimated Cobb-Douglass Production Function of Chrysanthemum Flower.

Variable/unit	**B**	**t-value**	**Significance level**
Constant	9.17	6.01	0.0
ln-age (years)	0.05	0.51	0.61
ln-education (years)	0.17	1.69	0.09
ln-flower growing experience (years)	0.33	3.25	0.0
ln-distance from flower market (Km)	0.19	1.41	0.17
ln-land preparation cost (Rs.)	0.39	3.73	0.0
ln-seed-quantity (buds)	-0.35	-3.24	0.0
ln-FYM cost (Rs.)	0.38	3.40	0.0
ln-fertilization cost (Rs.)	0.13	1.02	0.31
ln-total labor man-days (No)	-0.25	-2.19	0.03
ln-chemical cost (Rs.)	0.03	0.24	0.81
ln-irrigation (No)	-0.26	-2.36	0.02
R^2	0.67		
Adjusted R^2	0.57		
F-value	6.98		

CONCLUSION AND SUGGESTIONS

With the increased in the demand of flowers in Pakistan, there is ample opportunity for increasing the income from flower production and marketing. Income from floriculture has a remarkable contribution to increase the total household income. For small, medium and large farmers, income from different sources was also increased

than before the situation of practicing commercial floricultural. Hence, commercial floriculture has a remarkable positive impact on increasing total household income (Yeasmin, 2009). The present study estimated the production cost, gross margins, net income and benefit cost ratio (BCR) of chrysanthemum in Punjab, Pakistan. The impact of different socioeconomic and agronomic factors is also determined by employing Cobb-Douglas production function. The results of the findings indicated that the growing of chrysanthemum as cut-flower in the study area is profitable as returns are double than the cost incurred. Based on the findings of the study, following suggestions are given for flower growers and policy makers:

Farmers should be trained about the modern production practices and technology related to this new enterprise. The average distance of the farmers to sale flower ranged from one to fifty Kilometer. The more flower markets should be established near the growing areas. There is a need to establish a research wing in production areas to develop better methods of cultivation and optimum use of recommended inputs (seed fertilizer and chemicals etc.) in floriculture. This would be helpful in enhancing the production of various flowers at relatively less cost. This would, in turn, increase the income of growers as well as give surplus produce for export purpose.

An efficient extension program is a bridge between research and field application. Existing department should provide well-equipped extension service program to extend valuable guidelines to the producers of flowers regarding flower cultivation, maintaining of quality and reducing wastage during harvesting and enhancing the storage life of flowers. Moreover, this service should be capable to motivate the other farmers to participate in such type of crop diversification at farm level. Electronic and press media are playing very important role to create awareness among people about the scenic value and aesthetic sense of the flowers. Extension services should be provided to different stakeholders involved in flower business by electronic and press media. As the growing of flowers is a labor intensive job, private sector has a room to evolve a policy mechanism through which flower business could get an upward momentum from its present status. As a result, surplus labor could also be effectively engaged in different activities of production and marketing of the flower business. There is a potential for export of flowers in Pakistan. A regular export of cut-flowers in fairly substantial quantities could make a valuable share in foreign exchange earnings. Thus, some necessary institutional reforms need to be introduced to provide an export opportunity and facilitate the export of cut-flowers through easily adoptive and conductible procedure.

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