

Analysis of Water Shortage and Socioeconomic Impacts on Jujube Growers of Taluka Hyderabad Rural, Sindh Pakistan

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Abstract: Water plays a vital role not only for survival of human being but it is also important for crops, animal and every creature which lives on the universe. Therefore; water shortage has some negative impacts on socioeconomic condition of jujube growers. Jujube (*Ziziphus jujube*) locally called 'Beer', is a native fruit of South Asia. Produced in moderate regions of different countries in the world: such as China, India, Pakistan, Syria, Malacca, Australia and Malaysia, Afghanistan, Iran and Russia. China is perhaps the most important country for jujube cultivation, where it is known as the "Chinese dates", with hundreds of varieties, some being seedless. The study was conducted at Taluka Hyderabad Rural. Samples were randomly carried out from six villages (ten growers from each village) were selected, so the total sample size was 60 in numbers. Results exposed that education level of growers were primary 48 percent, secondary 27 percent, higher 18 percent and illiterate 7 percent respectively. Pattern of farming of growers in study area states that majority 29 percent of producer's were full time and 71 percent of respondents were part time engaged in jujube growers. Mostly 67 percent of jujube farmers belong to medium income group, 18 percent were high income group and 15 percent were very low income group. Canal water unavailability to growers was 43 percent in study area. So government should take action to provide them excess of water for earning maximum profit.

Keywords: Water, Impact, Jujube, Input output Ratio, Cost Benefit Ratio, Pakistan.

INTRODUCTION

Jujube, locally called 'beer', is an indigenous fruit of China and South Asia. Produced in moderate regions such as China, India, Pakistan, Syria, Malacca, Australia and Malaysia [1]. It is also grown in parts of Afghanistan, Iran and Russia [2]. China is perhaps the most important country for jujube cultivation, where it is known as the "Chinese dates", with hundreds of varieties, some being seedless. In northern China, it is considered one of the principal fruits. In the US this fruit has been introduced but is not grown on a large scale [3]. In Pakistan, 'beer' is successfully cultivated in Hyderabad, Khairpur, Multan, Sargodha and Lahore districts. The area under its cultivation has increased in Sindh during 1994-95 to 2000-2001, from 680 to 1,326 hectares, thus pushing the production from 3,451 to 4,817 metric tons 2005 3,019 area production 17288, 2006 3152 area production 1,7874 2007 area 3905 23225 production 2008 area 4470 production 25291, 2009 area 5200 production 28079. Hyderabad is famous for producing quality fruit for export to Middle East. Jujube tree is hard, drought-resistant and can thrive in poor alkaline tracts without proper irrigation and care, and can also survive on soils where other

fruit trees cannot [4]. Kheerol (chambeli), sanghri and gola are varieties among which gola is most popular and is of two kinds, the green (leemai) and the golden (white). White gola is harvested earlier than other varieties. Previously, the fruit was harvest only for one month (March), but with the introduction of grafted varieties in Pakistan, now the fruit is available from mid-December to early April. The jujube is a small, deciduous tree, growing to 40 feet tall in Florida, but smaller in size in California. The naturally drooping tree is graceful, ornamental and often thorny with branches growing in a zig-zag pattern. The wood is very hard and strong. Jujube cultivars vary in size and conformation, with some being very narrow in habit and others being more widespread. One cultivar, the so, seems to be fairly dwarfing in habit. After 30 years of growth in an average site, trees can be 30 feet tall with a crown diameter of up to 15 feet. Plants send up suckers (often with intimidating spines) from their roots, and these suckers can appear many feet large at the time of full growth from the mother plant [5]. Currently for establishment of a jujube orchard many growers depend on service providers who conduct layout work and supply planting material. The seedlings are planted at 25ft spacing that comes to about 162 plants per hectare. Most growers buy grafted seedlings which takes the shape of a tree in two years. The trunk of this seedling is not very strong to bear the weight of the fruit, therefore seeds of the non-grafted (local varieties) is grafted with new varieties, which can bear yield of

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about 200 to 400kg. These trees are pruned soon after the harvest giving plenty of firewood, and foliage for livestock. Another advantage is that the farmer can grow kharif crop which is usually cash crop like cotton etc. The plants traveled beyond Asia centuries ago and today are grown to some extent in Russia, northern Africa, southern Europe, the Middle East and the southwestern United States [6]. Jujube seedlings, inferior to the Chinese cultivars, were introduced into Europe at the beginning of the Christian era and carried to the U. S. in 1837 [7]. It wasn't until 1908 that improved Chinese selections were introduced by the USDA. Therefore objectives of the study are to identify the socio-economic status of grower, to determine the cost of production and net profit return of jujube crop in the study and canal water availability status of growers [8].

METHODOLOGY

The study was conducted in Taluka Hyderabad rural. This study was based on primary data collected from jujube producers during 2017. Sample survey was carried out and personal interviews were held to collect the information. Before launching the survey questionnaire was pre tested and was improved accordingly. Key informant technique was also followed to get authenticated information. Primary data was used in this study and the study was conducted at Taluka Hyderabad Rural. Sampling was randomly carried out from six villages (ten growers from each village) were selected, so the total sample size was 60. There are estimation techniques. Frequency tables are very useful in knowing the trend related to a particular variable. The same technique was followed in analyzing results of this study. Percentage method was used to assess farmer's responses. The assessment was carried out in two parts related to percentage analysis on age, education and experience of farmers and farm size, tenancy status, soil type, input out ratio, Cost benefit ratio.

RESULT AND DISCUSSION

Age of Respondents

Age is one of the important characteristics of the young community. It reflects on the productivity of population on overall situation within the commodity. In developing countries, aged members are more prone to diseases and thus are less productive. It has a bearing on the employment pattern, spatial mobility and quality of work done. Age plays a significant role in any kind of business, particularly in agriculture, because the use of child labor on the farms is quite high.

Data presented in Figure 1 majority of the respondent (69 percent) between 36 to 50 years, 13.8 percent of the respondents have 20 to 35 years and 13.8 percent of the respondents have age between 51 to 60 years, 3.4 percent of the respondents were above 60 years.

Farming Experience of Respondents

It is said that experience makes the man perfect. So experience in cultivation of land is always count as an important tool. Farmers having experience of jujube production are always regarded as an asset in the farmer's community. The farmers who supplement their income engaged with other petty landowner for part time jobs like poultry-and livestock production etc which help them to develop socio-economic conditions of family. Mostly farmer having 16-25 years of farming experience and 43 percent farmer have 6 – 10 years of jujube growing experience.

Involvement in Farming

Involvement in farming is always considered as progress; data regarding farming experience of jujube growers is given below;

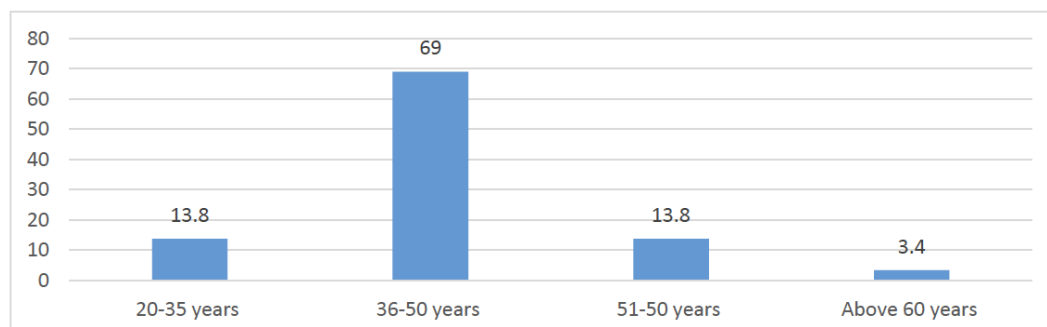


Figure 1: Age of Respondents.

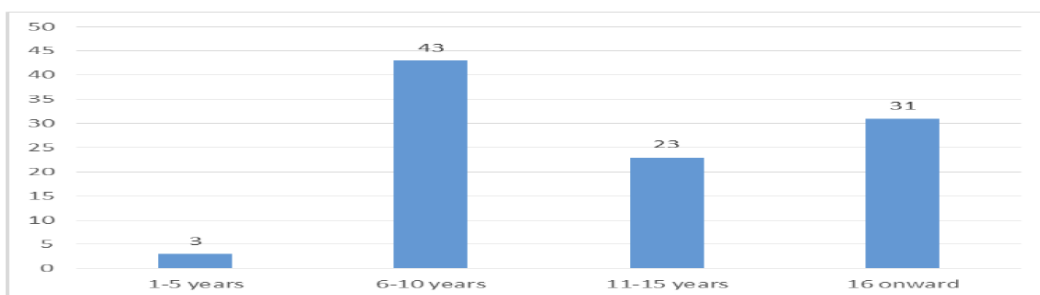


Figure 2: Jujube Growing Experience.



Figure 3:

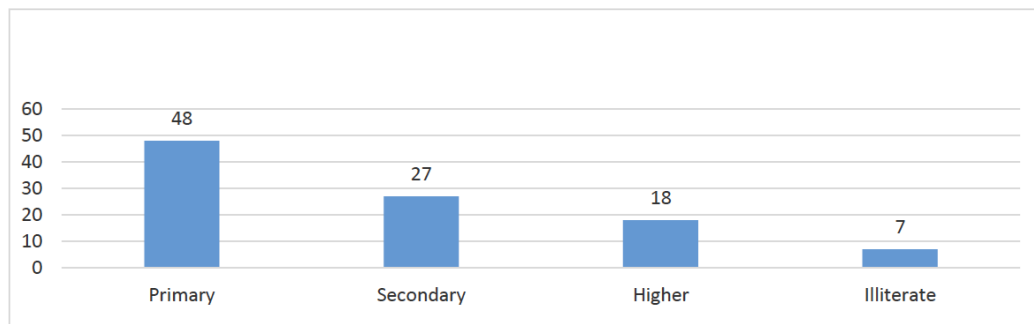


Figure 4:

Figure shows that majority involvement 67 % of the jujube growers had part time experience and 23% of the growers had full time experience.

Education Level

Education is always considered as an important factor for understanding and learning skills. It is education which changes the behavior of human beings. Education changes moral character, thinking pattern and make learn how to talk and behave with other people. It helps in making the decisions on right direction. Following data shows education level of the growers.

Information regarding the education level of selected growers was analyzed and presented in Figure 4. It was founded that 48 percent of the respondents were primary educated, 27 percent have

secondary education, 18 percent have higher education level and 7 percent were illiterate.

Primary Source of Income

A primary source is a main source of information or situation. For example a primary source of income where a person gets their maximum income.

Table 1: Primary Source of Income

	Frequency	Percentage
Agriculture	48	80
Employment	12	20

This table shows that 80 percent respondents have primary source of income and 20 percent have employment.

Irrigation Source

Growers used different sources such as canal and Tube wells to irrigate the soil. Tube well water is mostly

used at the time of scarcity of canal water. But unfortunately we have no available canal water.

Table 2: Land Type

	Frequency	Percentage
Clay	40	67
clay loam	12	20
Sandy	8	13

This table shows that 67 percent respondents have clay, and 20 percent have sandy loam soil, 13 percent growers have sandy soil.

Table 3: Irrigation Source

	Frequency	Percentage
Availability of canal water	34	57
Non availability of Canal water	26	43

The source of irrigation was examined and found that 57 percent respondents have canal water and 43 percent have non availability of water.

Fixed Cost

Fixed costs are those costs which remain the same regarding the volume of output actually achieved. The cost which does not vary according to the magnitude of production and remains the same, whether the output is large or small is known as fixed costs.

Variable Cost of Jujube

Variable costs are those costs which change with the volume of output over a specific time period. Variable costs are also known as running costs. These costs refer to those expenses or out lays which incurred on fertilizer, seeds, pesticides, harvest, labor wages, expenditure incurred on marketing costs etc. Variable costs are those items of expenditure that have a direct bearing on production. Variable costs are those costs which increase with the change in output often more or less in proportion. Labor cost refers to all out lays incurred to engage labor for production process. Labor has been defined as any exertion of mind or body under gone partially or wholly with view to produce some good other than pleasure derived directly from the work. Data presented in Table 3 shows that variable cost of Jujube production. The total variable costs Rs. 30168.9 /acre

Jujube Marketing Cost

Marketing cost are those expenses in agriculture commodities which move from the producing center to final consumer. The marketing cost includes a number of expenses like cost of grading, packing cost,

transportation, loading, unloading, and commission charges. The presented data shows that total marketing cost is 31504.7 Rs/acre

Total Cost of Production

Total cost is sum of the fixed cost and variable cost for any given level of production i.e. fixed cost plus total variable cost. Agriculture cost is often divided into various categories. Some of the more commonly used cost concepts are follows.

Net Returns

Net return refers to the residual which remains for the entrepreneurs after subtracting cost production

Table 4: Different Costs and Net Return from the Crop

Components	RS/Acre
Fixed costs	
Govt. Tax	400
Water charges	700
Total	1100
Initial cost	
Labor charges for layout/digging expert	603.4
Labor charges for Transplanting	489.7
Cost Rs / plant	826.9
Transportation cost of seedling	534.5
Total (A)	2454.5
Variable Cost	
FYM trucks	1158.6
Urea bags	1750.7
Dap bags	4226.9
Labor charges for irrigation	5570
Pesticide	2671.4
Lime white Washing	336.8
Interculturing	12000
Total (B)	30168.9
Marketing cost	
Grading	627.6
Packing	5931.0
Loading/Unloading	1482.8
Commission	16049.5
Transportation	7413.8
Total (C)	31504.7
Yield price	
Sale Price/bag	539.6
Yield / acre	250.6
Total output	135223.76
Total input (A+B+C)	65228.1
Net return	69995.66

from gross income net returns was determined by acre cost from average income per acre realized by the growers

Input-Output Ratio of Jujube Growers

The criteria of input-output ratios, is usually used to examine the production efficiency of some specific enterprise. It indicates the rate of return as compared to cost.

In the present study, input-output ratios were determined to know the income of farm on per rupee expenses. It was calculated by dividing total value of production with the total cost of production.

Table 5: Input-Output Ratio of Growers

Total output	Total input	Input-output ratio
135223.76	65228.1	1:1.9

Data presented in Table 6 shows that input-output ratio of jujube growers the input-output ratio of growers stood at 1:1.9. It means that with the investment of Rs. 1.00 in jujube crop they earned Rs. 1.9.

Cost Benefit Ratio of Jujube Growers

The cost benefit ratio refers to net returns as compared to cost of production it is calculated by dividing net income with cost of production.

Table 6: Cost Benefit Ratio of Growers

Net return	Total input	Cost benefit ratio
69995.66	65228.1	1:1.07

Data presented in table 7 shows that cost benefit ratio of jujube growers which stood at 1:1.07.

CONCLUSION

It is concluded that jujube is a beneficial crop for growers on average a single grower can earn net return of jujube orchard 69995.66 thousands rupees per acre. In the mean while the reality is that a grower can earn more than one lac rupees on acre if the canal water should be given proper to the orchard because 43 percent growers have not availability of canal water. Therefore Govt. should take action on irrigation department to provide the canal water on time that they can take maximum profit, tube well water has become salinity due to earthquake.

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Received on 30-03-2017

Accepted on 04-04-2017

Published on 28-04-2017

<https://doi.org/10.6000/1927-5129.2017.13.29>

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