SOCIO-ECONOMIC ANALYSIS OF PULSES FARMERS MOHANUR BLOCK, NAMAKKAL DISTRICT, TAMILNADU

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ABSTRACT

Pulses are the staple protein food item for majority of rural and vegetarian population of our country. The low fat and high fiber content add to the nutritional value of pulses. And hence, India remains the largest producer and consumer of this food item. India is an agrarian economy. After the introduction of Green Revolution, India was able to achieve self-sufficiency in food production. In spite of this achievement, India remained the home for highest number of malnourished children under 5 years of age. In order to cater to the nutritional deficiency of children and adult, the government of India has changed the structure of food basket from basic cereals to fruits, milk and milk products, meat, fish, pulses, eggs, etc. Protein and micronutrient deficiencies can be reduced by increasing the consumption of pulses which are rich sources of proteins, minerals, iron and fibre. In India, production of pulses is around 19.3 million tonnes (ESI 2015) with a very low average productivity of 764 kg/ha. There is a massive yield gap between India and other developed countries and also within India, between research station yield and farmers' yields. This variation is due to the differing environmental conditions in which they are produced. As the crop requires minimum irrigation, it is cultivated as rainfed crop, where there is scarcity of water, minimum or no use of fertilizers. And most of the farmers who are indulged in pulse production are either marginal or small farmers who were not informative about the modern techniques production. As a result, the yield of pulses per acre is meager in Tamilnadu, more than three fourth of the area under pulse cultivation is rain fed. The low production and productivity of pulses at home and the high dependency on imports often results in price volatility which has a severe impact on poor households. The consumption behavior of poor household is such that they used to spend a major portion of their income for the purchase of food items. So, any increase in food prices affects the poor the most. And, hence it becomes the responsibility of the government to control food prices

KEYWORDS: *pulses, cereals to fruits, irrigation, crop, cultivation, production, consumption, etc.*

1. INTRODUCTION

India is the leading producer of pulses which accounts for 23.1 percent of world pulse production, followed by China (12.08 percent), Myanmar (7.57 per cent) Canada (6.7 per cent), and Brazil (4.03 per cent). In spite of being the largest producer of pulses we are unable to attain self-sufficiency in pulses demand, and compelled to import pulses from other countries. In 2013-14, total area under pulses was 25 million ha and production was about 19 million tonnes while the demand was about 24 million tonnes (Directorate of Economics & Statistics 2015). Also, compared to India, pulse output has been much higher in other major pulse-producing countries. The pulse yield in Canada improved from 1141 kg/ha in 1961 to 1893 kg/ha in 2012. However, the yield in India has not improved much, and has been less than 800 kg/ha even till 2011-12. Encouraging the production and consumption of pulses is in line with the second Sustainable Development Goal's three-fold objective to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture (FAO 2016 (2), United Nations 2016). The government significantly increased the minimum support price (MSP) of pulses and strengthened the pulses procurement mechanism by designating additional central agencies to support farmers (IIPR 2015). However, till 2014-15, the announcement of MSP had been coming too late. By then the farmers had already decided on the crops to be planted. Meanwhile, price volatility has also been affecting the poor. As the Indian agricultural sector faced a severe drought during 2015-16, there was a sharp decline in the production of pulses leading to price escalation.

To meet out the pulse requirement of the poor, the state government started distributing pulses through Public Distribution System at affordable price. India's food grain production which was 82 million tones in 1960-61 reached to India has witnessed an impressive growth in pulses production during last 5 years. The credit goes to the improved varieties and production of breeder seed, demonstration of pulses production technologies through technology demonstrations, front line demonstrations, and policy support. Launched by the government to promote pulses cultivation. It is estimated that to attain self-sufficiency by 2050, India may need to produce 39 million tons of pulse at home. For that the pulse production should increase at a rate of 2.2 percent per annum. Thus, any distress or stagnation in agriculture becomes a subject of widespread discussion in recent years. Though the face of India is changing gradually from a village economy to a more urbanized economy, the beliefs, attitudes and the wealth and welfare of people in villages reflect more in the social and political platform of Indian economy. Agriculture, along with food production for the large population, provides raw materials for industrial sector and enhances the growth of service sector. And hence, economic growth with stability would be possible only with the sustained development of agricultural sector. Therefore, a good performance of the agriculture sector is viewed as an effective instrument for attainment of inclusive economic growth and poverty reduction. In Tamil Nadu, Agriculture plays a very vital role. Agriculture is the principal source of livelihood for more than 40 percent of the population of this State, and it accounts for 13 percent of the GSDP. The sector accounted for 11.6 percent of the Gross State Value Added (GSVA) in 2016-17. For Tamil Nadu, water is a highly scarce resource, and the state has access to only about 3% of India's freshwater resources.

2. REVIEW OF LITERATURE

OFUYA , Z M; AKHIDUE, V(2016) analysed the role of pulses in human nutrition and recommended the consumption of pulses by both adult and children. They suggested the use of pulses as components of weaning food. They further stated that the oil from pulses could be consumed as they have more poly unsaturated fatty acid content which is capable of reducing the risk of heart disease.

MUHAMMAD ASIF (2018) has stated that Pulses are the richest sources of plant proteins and provide approximately 10% of the total dietary requirements of the proteins world over. Pulses are also high in dietary fibers and complex carbohydrates leading to low GI (glycemic index) foods. Pulses help to lower cholesterol and triglycerides as leguminous fibers are hypo glycosuria because of consisting more amylose than amylopectin. Pulses provide tremendous opportunities to be utilized in the processed foods such as bakery products, bread, pasta, snack foods, soups, cereal barfiling, tortillas, meat, etc.

Singh, Pushpa and Shahi (2017) studied the trends of pulses production, consumption and import in India with special reference to Bihar. They added that inspite of being the largest producer of pulses in the world(around 25 percent of global production), it however, consumes 27% and imports around 14% of its pulses requirements. The yield of pulses in India is quite low at 781 kg/ha which might be due to policy neglect. They recommended that provisions should be made for easy credit, insurance, attractive Minimum Support Price (MSP) with procurement and appropriate incentives for pulse producers as well as creating necessary infrastructure for processing, marketing and value-addition. This paper analyses status of pulse crop in India as whole and Bihar in particular along with paradigm shift required in policy decision, pulse research, technology generation and dissemination, commercialization along with capacity building of farmers and frontier areas of research and extension.

Sivasankari et al, (2019) there was based on secondary data on area, production and productivity of Pulses in Tamil Nadu for the period of 45 years from 1970-71 to 2014-2015. They concluded that the growth rate of pulses in terms of area was high during Pre-liberalization period. Productivity of pulses influences the production and hence technologies have to be developed to increase the pulse productivity. It was average of 443 kgs/ha during the Post- liberalization period.

Sundar et al, (2011)stated that the area and production of food grains exhibited a negative growth rate during the period under consideration. Among the cereals, the decline in growth was observed in area in the case of paddy, sorghum, pearl millet and ragi and in production of the aforesaid crops with the exception of paddy. The instability in area and production of food grains was observed during the study period. Among the food grains, Instability in area was observed in the case of total cereals and in production in the case of pulses. Instability in area and production was more pronounced in case of maize as compared to other cereals. The growth rates implied that declining trend in area and production warrant

confined focus on research on variety and management technologies to continue not only for enhancing yield potentials but also for harnessing the potential created through distribution of quality seeds and large scale adoption of management technologies.

Gabrielle Kissinger, (2016) made his research with neutral investigation approach to understand the key features of pulse crop production associated with the three pillars of sustainability. Attention was given to socio economic development and environmental benefits across both developed and developing countries and ranging from small holder farmers to large scale agriculture production systems. This paper specifically seeks to develop a framework to evaluate the economic, social and environmental benefits and potential trade-offs of pulses production in different geographic, agro-ecological and economic contexts. The frame work defines the sustainability elements to be evaluated in any given context, given the diversity across cropping systems and geographical contexts of suitable pulse growing areas.

Julia Cooper & Luca Panzone (2017) This report briefly summarized key knowledge on the beneficial impact of adding pulses to rotate on the environment. Because of their role in fixating nitrogen, pulses can be an extremely important part of a sustainable agriculture because they can increase the nitrogen content of soils without impacting the need for chemical supplementation. The first part of this report highlights these benefits. A second part advances this point, qualifying the economic benefits. While there is no research explicitly valuing the benefit of pulses in rotation and in agriculture from an economic stand point, there is clear awareness of the potential benefits originating from moving to a more sustainable agriculture. Pulses can play an important role in reducing the external cost of agriculture.

3. RESEARCH METHODOLOGY

Objectives

- To study the socio economic conditions of pulses farmers in the study area.
- To analyse the growth and variability of area, production and productivity of pulses in the study area
- To project the demand and supply gaps of pulses in study area.

Methodology

The concentration of pulses farmers. As four variety of pulses such as Black gram, Red gram, Green gram and cow pea were largely cultivated in the study area, 40 farmers of each crop were selected for the study. And hence, the size of sampling is 160. The study uses both primary and secondary data. The area, production and productivity of pulses in India were analysed over a period of 18 years at the national level and for a period of 10 years at State level and for a period of 2019-2020 in the study area., i.e., from and primary study was made during the crop year 2019-20. The farmers were interviewed with a well-structured schedule prepared for that purpose. The schedule has been prepared in such a way so as to collect the data regarding personal particulars of the farmers such as age, sex, education,

occupation, religion, farming experience, income of the family, asset of the family, etc and the cost of cultivation of paddy particulars such as cost of ploughing, cost of levelling, cost of applying manure, cost of applying green manure, irrigation cost, cost of raising nurseries, cost of transplantation, weeding cost, cost of pest control, cost of applying fertilizer, cost of harvesting, cost of cultivation of paddy. The questionnaire prepared for the survey was kept purposively small so as not to trouble the respondents by consuming more time. The data retrieved from the sample respondents were classified under the following heads. The secondary data on Pulses farming were obtained from newspapers, journals, magazines and the reports and statistics published by the state government.

Data Analysis

The collected data were processed, using the techniques of the classification and tabulation. Percentages and averages mean, standard deviation and coefficient of variation have been calculated.

4. RESULTS AND DISCUSSION

Table No. 4.1 Age –wise distribution of the Respondents

S. No.	Age Group	No. of Respondents	Percentage
1	20 - 30 Years	15	9
2	31 - 40 Years	22	14
3	41 - 50 Years	38	24
4	51 - 60 Years	40	25
5	Above 60 Years	45	28
	Total	160	100

Source: primary data

Table no 4.1 shows that the Age is one of the indicators of quality of population. Any section of people having greater share of working population is expected to develop faster. The following table shows the age composition of the sample respondents. It is learnt from the above table that the maximum number of respondents indulged in banana cultivation was above 60 years old. They constitute around 28 percent of sample respondents. Around 50 percent of the respondents were between 41 to 60 years of age. Only 15 respondents out of 160 sample were less than 30 years of age. This shows that the poor yield and low profit expectation are preventing the rural youth from indulging in pulse farming.

Table No. 4.2 Sex –wise Distribution of the Respondents

S. No.	Sex	No. of Respondents	Percentage
1	Male	147	92
2	Female	13	8
	Total	160	100

Source: primary data

Above table shows that the women comprise of almost half of the population. Any development, unless it reaches the womenfolk could not be considered a successful one. And hence, both male and female respondents were taken for the study, to make it relevant. Out of 160, only 13 respondents were women and 147 respondents were male. This shows the disproportionate ownership of land asset between men and women.

Table No. 4.3 Marital status wise distribution of the respondents

S. No.	Size of Family	No. of Respondents	Percentage
1	Married	154	96%
2	Unmarried	6	4%
	Total	160	100%

Source: primary data

Table no 4.3 reveals that the Marriage is considered as a compulsory social institution for both male and female in the study area. The following table provides the marital status of respondents. Around 96 percent of sample respondents were married and only 4 percent of them were unmarried.

Table. 4.4 Distribution of Respondents on the basis of Religion

S. No.	Religion	No. of Respondents	Percentage
1	Hindu	16	100
2	Muslim	Nil	-
3	Christian	Nil	-
	Total	160	100

Source: primary data

The above table 4.4 shows that the India is a socialistic country where people of various creeds, linguistics and religions live with unity. The following table shows the religious distribution of respondents in the study area. As the study is made in a remote rural area with very bleak growth prospects, the people from other religious faith were not present there. And hence, all the respondents chosen were Hindus.

Table No. 4.5 Community wise Distribution of Respondents

S. No.	Community	No. of Respondents	Percentage
1	OC	Nil	-
2	MBC	125	78
3	BC	25	16
4	SC	10	6
5	ST	Nil	-
	Total	160	100

Source: primary data

Above table reveals that the Division of people in the name of caste is a long rooted social evil prevalent in Indian society. The following table furnishes information regarding proportion of respondents from various communities. 78 percent of the sample respondents belonged to Most Back ward community. 16 percent of them were from Back ward community. Only 6 percent of the respondents were chosen from Scheduled Caste community.

Table No. 4.6 Educational Qualification of Respondents

SI. No	Education	No. of Respondents	Percentage
1	Illiterate	35	22
2	Primary	50	31
3	High School	30	19
4	High Secondary	25	16
5	Under Graduate	10	6
6	Post Graduate	7	4
7	Technical / Professional	3	2
	Total	160	100

Source: primary data

Table no 4.6 shows that the Literacy level is an important determinant of human development. It is a common belief that education increases the skill, efficiency and productivity of people. The following table shows the literary level of respondents in the study area. Around 22% of sample respondents in the study area were illiterate. 31 percent of the respondents had primary education. The number of respondents who studied up to high school and higher secondary level were 30 and 25 respectively. Around 12 percent of the respondents were graduates.

Table No 4. 7 Type of family wise distribution of the respondents

S. No.	Family	No. of Respondents	Percentage
1	Joint family	145	91
2	Nuclear family	15	9
	Total	160	100

Source: primary data

The above table reveals that the joint family system is a deep rooted social institution in India. It provides security to the old, children and unemployed. The following table exhibits the concentration of joint family system in the study area. As the study area is a remote village, the people of those villages were not altered by the impact of globalization. This could be understood from the study as 91 percent of the sample respondents were from joint family and only 9 percent were from nuclear family.

Table No 4.8 S i z e of family wise distribution of the respondents

S. No.	Size of Family	No. of Respondents	Percentage
1	Small (up to 4)	25	16
2	Medium(5 to 7)	90	56
3	Large(8 & above)	45	28
	Total	160	100

Source: primary data

The advanced medical technology has provided a space for us to decide the size of family. Size of family is a determinant of per capita availability of wealth and welfare in a family. The study reveals that as the study area has more number of joint families, bringing up of children is not at all a problem for them, and hence, more than 50 percent of the respondents have medium size family. 28 percent of the respondents have large family with more than 7 members. Only 16 percent of the respondents have small families.

Table No. 4.9 Average Monthly Income of the respondents

S. No.	Monthly Income	No. of Respondents	Percentage
1	Below Rs. 4000	45	28
2	Rs.4001 to 6000	86	54
3	Rs.6001 to 8000	18	11
4	Rs.8001 to 10000	8	5
5	Rs.10001 & above	3	2
	Total	160	100

Source: primary data

Table no 4.9 shows that the Income is the deciding factor of standard of living of the people. A regular and reasonable monthly income will bring up a family from below poverty line. The study aims at learning the average monthly income of the respondents. The study reveals that around 28 percent of the respondents' income was less than Rs.4000 per month. 54 percent of the respondents earned Rs.4000 to 6000 per month. 11 percent of the respondents' income was between Rs.6000 to 8000. Only 2 percent of them earned more than Rs.10000 per month. The income from pulse was insufficient even to meet out their basic requirements. And hence, the farmers had to earn additional income either as wages or through cattle or income from other crops.

Table No. 4.10 Monthly household expenditure of respondents:

S. No.	Monthly expenditure	No. f Respondents	Percentage
1	Below Rs 2000	45	28
2	Rs.2001 to 4000	50	31
3	Rs.4001 to 6000	30	19
4	Rs.6000 to 8000	21	13
5	Rs.8001 & above	14	9
	Total	160	100

Source: primary data

Above table reveals that the Expenditure is also considered as one of the indicators of standard of living. The following table furnishes information regarding the monthly expenditure pattern of the respondents. The above table reveals that around 28 percent of the respondents spend less than Rs. 2000 per month which includes their expenses on food, fuel education, health care and other expenses. Around 50 percent of the respondents spend between Rs.2000 to 4000 per month. Since most of their consumption goods, such as grains, millets, pulses, fruits and vegetables are either grown by themselves or cultivated in nearby fields, they need to spend less. For most of the illness they use herbal medicines and thereby spend little on modern medicines.

Table No. 4.11 Source of debt of the respondents

S. No.	Source of debt	No. of Respondents	Percentage
1	Commercial banks	45	28
2	Co-operative societies	74	47
3	SHGs	13	8
4	Money lenders	20	12
5	Friends and Relatives	8	5
	Total	160	100

Source: primary data

Table No 4.11 The development of any section of the people depends upon the source of finance available to them. Free flow of finance at cheaper interest, enhances enterprise and increases productivity and employment. The following are the sources of finance available for the respondents in the study area. Around 28 percent of the respondents borrowed money from commercial banks to meet out their financial needs for farming. 47 percent of them took loan from co- operative credit societies. 8 percent of the respondent's availed loans from SHGs. 12 percent of the respondents still depend upon money lenders as they consider them as easily approachable. 5 percent of the respondents borrowed money from friends and relatives.

Table No 4.12 Distribution of respondents on the basis of size of land holding:

SI. no	Size of land	No. of Respondents	Percentage
1	Less than 2 acres	98	61
2	2.5acres to 3.5 acres	48	30
3	3.5 More than 5 acres	11	7
4	More than 5 acres	3	2
	Total	160	100

Source: primary data

Table no 4.12 shows that the Land is the only tangible asset for the farmers in the study area. The size of land holding of the respondents is listed below. 61 percent of the respondents owned less than 2 acres of land. The size of land holding of 30 percent of the respondents were 2.5 acres to 3.5 acres. Only 9 percent of the respondents own more than 3.5 acres of land.

Table No. 4.13 Method of cultivation of the respondents

S. No.	Method of Cultivation	No. of Respondents	Percentage
1	Conventional	40	25
2	Modern	25	16
3	Both	95	59
	Total	160	100

Source: primary data

The above tables reveal that the Farming is a traditional occupation that originated with human civilization. Research and innovations has brought about several changes in agriculture. The method of cultivation adopted by the respondents in the study area is explained in the following table. Around 25 percent of the respondents follow conventional method of cultivation. 16 percent of them use modern cultivation practices like use of high yielding variety seeds, chemical fertilizers and tractors for ploughing. 59 percent of the respondents use both the techniques such as using chemical as well as organic fertilizers, pesticides and following traditional techniques of production.

Table.No.4.14 Average cost of cultivation per acre

Sl.No	Stages of cultivation	Average cost per acre		
		Marginal Farmer	Small Farmer	Medium Farmer
1	Ploughing	800	700	500
2	Seeds and Sowing	600	500	400
3	Irrigation cost	600	500	300
4	Weeding	1300	1200	1000
5	Fertilizer cost	1100	1000	800
6	Pesticide cost	600	400	200
7	Harvesting cost	700	700	500
8	Transport cost	400	400	400
	Total Cost	6100	5200	4100

Source: Primary Data

The farmers in the study area are classified in to marginal, small and medium farmers, depending upon their size of land holding. The cost of cultivation is given under eight heads. Pulses in the study area are grown as rainfed crop mostly utilizing the rain water. Additional irrigation is done only when it is required. And hence, irrigation cost comes around 10 percent of the total cost. More than twenty percent of the expenses are made for the purchase of fertilizers and pesticides. Ploughing and harvesting are the next major expenses. As the quantity produced per acre is minimum, the cost of transport would be the least.

5. SUMMARY OF FINDINGS

The study of growth trends of pulses reveals that there was a sharp increase in area under pulses cultivation between 1980s and 1990s from 22.46 lakh hectares to 37.25 lakh hectares. But, between 1991 to 2001, the area under pulses cultivation was dropped to 20.35 hectares. Since then, the pulses cultivated area tend to fluctuate frequently. But in spite of fluctuations in area under pulse cultivation, the total output produced and the productivity per acre increases sharply. The production of pulses was 10.63 lakh million tonnes in 1980-81 and it continued to increase thereafter and reached a total output of 24.51 lakh million tonnes. The productivity also increased from 473 kg per hectare in 1980s to 835 kg per hectare during 2017-18. Since 2005-06, there was a continuous rise in the area under pulses cultivation until 2011-12. The area of cultivation once again started increasing after 2013-14 till date. This is due to the ever increasing demand for pulses. Since the state government was unable to cope with the rising demand, pulses were imported. In order to safeguard the farmers from fluctuating prices the government of Tamilnadu has implemented Price Support Scheme which is known as Minimum Support Price(MSP). And the pulses were directly procured by the farmers at the price fixed by the government. These were the reason for increase in area under pulses cultivation in the state. There has been an increase in the import of pulses from 2013 to 2017, as the prices of pulses were skyrocketing. From 2017-18 onwards, the import of pulses tend to decline, and the trend is expected to continue in 2019-20 too. The union ministry of agriculture has stated that „with an estimated consumption of 25 million tonnes, India has already achieved self-sufficiency in pulses. The decline in India’s pulses import is going to lower its imports bill and also preserve valuable currency for other uses. Around 22% of sample respondents in the study area were illiterate. 31 percent of the respondents had primary education.

As the study area has more number of joint families, bringing up of children is not at all a problem for them, and hence, more than 50 percent of the respondents have medium size family. 28 percent of the respondents have large family with more than 7 members. Only 16 percent of the respondents have small families. Around 28 percent of the respondents’ income was less than Rs.4000 per month. 54 percent of the respondents earned Rs.4000 to 6000 per month. 11 percent of the respondents’ income was between Rs.6000 to 8000. Only 2 percent of them earned more than Rs.10000 per month. The income from pulse was insufficient even to meet out their basic requirements. And hence, the farmers had to earn additional income either as wages or through cattle or income from other crops. The size of land holding of 30 percent of the respondents were 2.5 acres to 3.5 acres. Only 9 percent of

the respondents own more than 3.5 acres of land. Around 25 percent of the respondents follow conventional method of cultivation. 16 percent of them use modern cultivation practices like use of high yielding variety seeds, chemical fertilizers and tractors for ploughing. 59 percent of the respondents use both the techniques such as using chemical as well as organic fertilizers, pesticides and following traditional techniques of production. Around 95 percent of the respondents were dependent upon bore wells for irrigation. 5 percent of them were able to use water from lakes for cultivation. The farmers in the study area are classified in to marginal, small and medium farmers, depending upon their size of land holding. The cost of cultivation is given under eight heads. Pulses in the study area are grown as rainfed crop mostly utilizing the rain water. Additional irrigation is done only when it is required. And hence, irrigation cost comes around 10 percent of the total cost.

6. CONCLUSION

As people are more aware about the nutritional contribution of pulses, there is continuous increase in the demand for pulses. Import of pulses to meet out the domestic demand is not a viable solution. Efforts to increase pulse production at home will serve the twin objectives of the government, by way of providing a source of livelihood for the marginal and small farmers of rain fed area, and by saving foreign exchange. Drought and heat are the main abiotic stresses which affect the crop growth leading to poor yield. Research should be encouraged to produce new varieties of pulses and to introduce new techniques of cultivation which could help to withstand biotic and abiotic stresses. As per the findings, most of the farmers who are indulged in the cultivation of pulses are either marginal or small farmers. In order to mitigate the disadvantages of small farming, "Collective Farming"- an innovative programme introduced by the Tamil nadu government could be implemented in the study area. If the above said suggestions are carried out by the state government, it could certainly pave way for the development of pulses cultivators.

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