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PRODUCTION AND MARKETED SURPLUS OF COTTON: A CASE STUDY OF BATHINDA DISTRICT OF PUNJAB

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Cotton often referred as "White Gold" has been in cultivation in India for more than five thousand years. India occupies the 2nd place among the cotton growing countries of the world. The increased industrialization and urbanization in India is bringing about shifts in cotton consumption pattern. This in turn, has resulted in increased demand for cotton. The present study is carried out with the objective of studying the production and marketed surplus in case of cotton crop. Production and marketed surplus of cotton are very important for the development of agro based industries as well as for the economic development of the country. Both play an important role in country's export earnings also. Therefore, it is important to study the production and marketed surplus of cotton crop. In present study, two concepts viz. "marketable surplus" and "marketed surplus" have been coined to ascertain the quantity of produce available for marketing and the quantity actually marketed. The study suggests some measures for raising the production activity as well as area under cotton crop so that its production and marketed surplus may increase.

Keywords: Agricultural marketing, Agricultural production, Marketable surplus, Marketed surplus

Introduction:

Agricultural marketing is the most important multiplier of agricultural development as it helps in stimulating production and consumption. From the marketing point of view, producer's surplus is one of the most important concepts. Producer's surplus is defined as the quantity which is actually made available to the non-producing population of the country. There are two types of producer surplus, i.e., marketable surplus and marketed surplus. Marketable surplus represents that part of production which is available with the producer to sell in the market to earn an income needed for the purchase of other goods and services required to satisfy his needs and attend to his comforts and luxuries. In other words, it represents the theoretical surplus available for disposal with the producer after his genuine requirements of family consumption, payment of wages in kind, seed and spoilage, etc. It is residual left with the producer after meeting the requirements of family consumption, farm needs and payment-in-kind to casual and permanent labor, artisans and others (Johl et al., 1973). It is the output net of seed, payments-in-kind and consumption at source. (Patnaik, 1975; Nadkarni, 1980). Whereas marketed surplus is the amount of agricultural produce that is brought to the market for sale after what is retained by the producers for their consumption. It is the quantity of the produce that the producer actually sells irrespective of his needs for home consumption and other requirements (Johl et al., 1973). A farmer's marketed surplus can be more, less or equal to the marketable surplus.

Objectives of the study:

The present study attempts to focus on the following objectives:

- To examine the production and marketed surplus of cotton at farm level.
- To identify the factors which influence marketed surplus.
- To examine the degree of elasticity of marketed surplus of cotton in respect to production, operational area and proportion of area allocated to the crop in Bathinda District.

Any scientific analysis begins with the process of browsing, understanding and critically analyzing the past literature available on the subject, which is being currently looked into. A number of studies in the past examined the production and marketed surplus at regional and national levels. For instance, studies by Krishana, R. (1962), Singh, B. and et al. (1973), Jain, K.K. (1992), Kumar, Parmod (1999), Grover, D.K. and et al. (2012) found that the marketed surplus of cotton production was high on large sized holding followed by medium sized and

small sized holdings. However, the present study examined the production and marketed surplus in case of cotton crop in Bathinda district of Punjab for the year 2013-2014 in which there is hardly any research regarding cotton.

Research Methodology:

To achieve the objectives of the study, primary data has been used, which were collected from producers. Survey method has been used to collect the relevant data. A well prepared questionnaire has been used to collect primary data from 200 farmers. The primary data is related to the year 2013-14.

For the collection of primary data, a four-stage stratification scheme has been adopted. At the first stage, the selection of Bathinda District is made as Bathinda is the largest producer of cotton in the Punjab state. At the second stage, two markets one small and one large would be sampled from Bathinda District. For this purpose, using the criteria of market arrivals, the markets has been arranged in ascending order and later categorized into two categories, i.e., small and large. As Bathinda market represents more or less the characteristics of the largest market, it has been chosen as a representative large market. Bathinda's market share in the arrival of total cotton in Bathinda district is the highest, i.e., 24.5 per cent, so it has been considered as the large market. The Goniana market has less share in the arrival of cotton in Bathinda district, i.e., 7.8 per cent, so it is chosen as a representative small market.

At the third stage, five villages from each of markets are sampled from the list of villages growing cotton having maximum area under the crop. The sampled villages from Bathinda market in case of cotton are Phus Mandi, Jodhpur Romana, Mehta, Naruana and Jassi Pauwali, as 40-50 per cent of cotton is grown in these villages. The sampled villages from Goniana market in case of cotton are Deon, Ablu, Mehma Sarja, Jandan Wala and Jeeda. From the selected villages, a sample of 20 per cent of farmers growing these crops has been taken. All efforts have been made to collect a sample of the population engaged in the production of the cotton.

For the calculation of the marketed surplus, 200 farmers were classified into four farm categories, i.e. small (0-2 hectares), semi-medium (2-4 hectares), medium (4-10 hectares) and large (>10 hectares) by using the classification standard given by the Government of Punjab**.**

Marketed Surplus = Total Production – Total Retention

Then the Tabular and Regression analysis were made to arrive at the conclusion.

Results and Discussion:

Cotton crop is mainly produced for the sale in the market. Marketed surplus accounts for more than 99 per cent of the produce. The reason for higher marketed surplus of cotton is that it is used as raw material in agro-based industry, almost all the production is available for sale except the small quantities kept for self-consumption. Another probable justification for this is that, cotton is liable to damage during storage at various stages. It loses its weight, colour and quality and is not free from the ravages of rat and danger of fire.

I. Production and Marketed Surplus of Cotton:

The total production and retention of cotton in Bathinda district were 17486.3 quintals and 23 quintals respectively. The total marketed surplus was 17463.3 quintals. The total percentage shares of the retention and the marketed surplus were 0.13 and 99.87 respectively (**Table 1**). With respect to small farmers, out of the total production of 2067.8 quintals, 5.6 quintals were meant for retention forming 0.27 per cent of the total production. The marketed surplus was 2062.2 quintals, which was about 99.73 per cent of the produce. With respect to semi-medium, medium and large farmers, the percentage shares of the retention were 0.14, 0.11 and 0.08 while that of marketed surplus were 99.86, 99.89 and 99.92 respectively. The per farm marketed surplus on the small, semi-medium, medium and large farm holdings were 29.46, 74.57, 136.47 and 292.25 quintals respectively.

Table 1

Production and Marketed Surplus of Cotton of Small,

Semi-Medium, Medium and Large Farmers in Bathinda District, 2013-14, Size-wise

(Unit: Quintals)

Cotton area Categories	Frequency	Production		Retention		Marketed Surplus	
		Total	Per Farm	Total	Per Farm	Total	Per Farm
Small (0-2) Hectares	70	2067.8	29.54	5.6 (0.27)	0.08	2062.2 (99.73)	29.46
Semi-Medium (2-4) Hectares	68	5077.5	74.67	7.1 (0.14)	0.1	5070.4 (99.86)	74.57
Medium (4-10) Hectares	50	6831	136.62	7.3 (0.11)	0.15	6823.7 (99.89)	136.47
Large (>10) Hectares	12	3510	292.5	3.0 (0.08)	0.25	3507 (99.92)	292.25
Total	200	17486.3		23 (0.13)		17463.3 (99.87)	

Source: Field Survey, 2013-14.

Note: Figures in brackets show percentage values of retention and marketed surplus of total production of cotton crop.

On overall basis, it has been found that the sampled farmers sold about 99.87 per cent of their cotton produce in the market and a small part, i.e., about 0.13 consumed for various purposes. Regarding factors influencing marketed surplus, it has been found that size of holdings, per hectare yield/productivity and variability in consumption pattern are the most essential factors that influence the extent of marketed surplus.

In conformity with the scale economies, as the area under the crop increases, the share of marketed surplus in the production tend to grow for the cotton crop (Table 1). In other words, the share of marketed surplus in the produce has the positive relation with the level of production.

II. Degree of Elasticity of Marketed Surplus of Cotton in respect to Production, Operational Area and Proportion of Area Allocated to the Crop in Bathinda District:

To verify whether there exists an elastic relationship between marketed surplus and production, the following log linear relationship between marketed surplus and production has been fitted:

Log (marketed surplus) = a + b log (production) + error term……

……(i)

Here 'b' represents the elasticity parameter. This functional relation was computed for cotton crop using 200 observations. The parametric values were computed by using the technique of ordinary least square method.

The estimated value of 'b' coefficient for cotton crop was positive, statistically significant and carry magnitude unity (1.00). **(Table 2).** Thus, there exists a positive and statistically significant relationship between marketed surplus and production. In other words, as the level of production rises, there is a tendency of marketed surplus to increase in the same proportion. This depicts that a proportion of production, which is retained for household use tends to be constant with increase in production. In other words, the dependence of the households on market tends to increase, with the increase in the production of cotton.

Table 2

Degree of Elasticity of Marketed Surplus of Cotton in respect to Production, Operational Area and Proportion of Area Allocated to the Crop in Bathinda District, 2013-14

(Selected Equations)

Variables	**Cotton**		
	1	2	3
Production	1.00* (.000)		
Operational Area		0.838* (.050)	
Proportion of the area allocated to the crop			1.032* (.007)
Constant	-.007	2.933	3.134
R^2	1.000	.586	.991
Degree of Freedom	199	199	199

Source: Sample Survey, 2013-14

Note: Figures in parentheses are the Standard Errors of the respective parameters.

*Significant at 5 per cent level of significance.

Is there a relationship between the marketed surplus on the one hand and the size of the operational area on the other? To capture the effect of this variable, the following log linear relationship between the marketed surplus and the operational area has been fitted:

Log (marketed surplus) = a + b log (operational area) + error term……

…..(ii)

The ordinary least square method has been used to estimate the parametric values of this equation **(Table 2).** The coefficient was positive and statistically significant between marketed surplus and operational area in the cotton crop. However, the relationship was less elastic (the value of coefficient being 0.838 less than unity). This implies that as the size of the operational holdings increases, the marketed surplus increases but do not increase in same proportion. In other words, marketed surplus increases less than increase in the operational area.

Does the proportion of area allocated to the crop have a positive influence on the marketed surplus? If so, is it statistically significant? Earlier a positive tendency between operational area and marketed surplus is observed. To verify the statistically validity of this relation, the following log linear relationship between marketed surplus and proportion of area allocated to the crop has been fitted:

Log (marketed surplus) = a + b log (proportion of area allocated) + error term……

…… (iii)

As expected earlier, there exists a positive statistically significant relationship between marketed surplus and proportion of area allocated to the crop. The elasticity coefficient was positive and statistically significant the value being 1.032. This shows that, the marketed surplus of cotton tends to increase with increase in the area allocated to the crop. This implies that marketed surplus responds favourably to proportion of area allocated to the cotton crop.

Conclusions:

To sum up, it can be concluded that the marketed surplus works out to be more than ninth-tenth of the production in all the four categories of the farmers. However, the quantum of marketed surplus found to be varied from farmer to farmer depending upon the size of the

holdings, per hectare yield of cotton and variability in consumption pattern. It has also been found that marketed surplus experienced a positive relation with the size of the holdings, i.e., with increase in the size of holdings; there is an increase in the marketed surplus.

Our results highlighted that all the three coefficients, i.e., of production, operational area and proportion of the area allocated to the crop are statistically significant and positively related with the marketed surplus. However, the value of elasticity coefficient of relationship between the marketed surplus and operational area is less elastic. This implies that marketed surplus increases with increase in the operational area but do not increase in the same proportion. In other words, marketed surplus of cotton crop tends to increase as the level of production rises, as the size of operational holding increases and as more area is allocated to the crop.

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