# POST- HARVEST MANAGEMENT OF FARMERS CULTIVATING COTTON IN KHANDILI BLOCK OF VELLORE DISTRICT

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*Abstract*

*Cotton enjoys a prime place among all the agricultural commodities in the world, because it exercises a profound influence on man and material since the dawn of civilization. Cotton remains the most miraculous fiber under the sun, even after 8,000 years till now. Cotton plays a vital role in the Indian economy as it provides gainful employment to millions of people besides contributing substantially to the country's foreign trade. The journey of cotton from the farm gate to the mill is fairly long when it is under the wings of marketing. Since cotton is a fine fibre the post-harvest management of cotton involves cumulative, tedious and protective process. Every farmer cultivating cotton struggles to identify a proper strategy in order to reduce the loss of cotton during the post-harvest management. Tamil Nadu is one of the premiering states in the production and marketing of cotton. In Tamil Nadu Vellore is one of the leading districts where more cotton is procured. Among the 20 blocks in Vellore district Kandhili occupies a significant place in the cultivation of cotton. The post-harvest management of picking, storing, packing, loading, unloading and transporting of cottonat every stage involves watchful attention. Here is an attempt to study the post-harvest management or practice adopted by some of the selected farmers in Kandhili block. Using the convenience sampling method about 105 sample farmers cultivating cotton were selected and information regarding the post-harvest management of cotton were collected using personal interview method. The results of the study reveal that all the selected farmers use to pick cotton manually and nearly 62 percentage of the selected respondents store their cotton in their residence, about 71 selected farmers pick cotton after reaching its full maturity, majority of the farmers sell their produce to cooperative societies, only 21 percent of the farmers reported of damage of cotton during the post-harvest process.*

*Key words: cotton, post-harvest, cooperative society.*

## I.  INTRODUCTION

Cotton enjoys a prime place among all the agricultural commodities in the world, because it exercises a profound influence on man material since the dawn of civilization. Cotton remains the most miraculous fiber under the sun, even after 8,000 years. Cotton plays a vital role in the Indian economy. It provides gainful employment to millions of people besides contributing substantially to the country's foreign trade. Agricultural production is seasonal and exposed to natural environment, but post-production operations play an important role in providing stability in the food supply chain(Kannan, 2014).

It has been one of the crops, in the case of which marketing system had been developed from very early times. Cotton marketing is quite complex because of several factors not in the least of which high volatility in prices. The journey of cotton from the farm gate to the mill gate is fairly long when it is under the wings of marketing.Proper management of agricultural produce after harvest is an economical and environmentally friendly way to increase food availability in the context of a growing world population(Barthelenga G. Hanfoga, 2014).

## II.  POST-HARVEST MANAGEMENT OF COTTON

Post-harvest losses may vary greatly among commodities, production, areas, seasons, handling and management practices (Abadi Gebre Mezgebe, 2016).

a) Picking of cotton – during the first stage of post-harvest of cotton the cotton has to be picked and separated from the boll. Normally picking of cotton is done by the women by plucking the cotton from the plant manually. They use to make a pouch around their waist and put the picked cotton into it. Some of them try to carry sack bags and put the picked cotton into it. Farmers are advised not to pick the cotton during the hot mid-day and also during wet weather conditions.

b) Storing of cotton – the next stage is to store the picked cotton in a safer place avoiding contamination. In the initial stage the seed from the cotton should be separated from the boll. After separating the cotton from the seed it is necessary to dry them in a shade. Exposure to sunlight should be totally avoided. After gathering the cotton it has to be covered and stored in a protective place in order to contamination of cotton. Cotton in India is not generally stored for more than a year. When cotton is stored it is susceptible to deteriorate in grade, colour because of extreme weather conditions lime humidity, rainfall, etc. Farmers normally used to store cotton in their own houses, nearby cooperative societies, godowns, etc.

c) Grading of cotton – in order to maintain the quality of cotton in terms of staple length the extra-long staple length cotton is separated from the short staple length cotton. On the other hand the immature cotton, poor quality of cotton are separated from the good one. This is sought to be achieved by grading the produce in conformity with certain accepted quality standards viz. shape, size, form, weight, and other physical and technical characteristics

d) Sorting of Cotton – it is another serious problem in the post-harvest management of cotton in general. Cotton generally contains impurities of two kinds, viz. (1) stained and immature locks and leafy material (2) Trash in the form of hulls, stalks and leafy bits and

sand. Trash can be easily removed in a blow room but no other contaminants, which have to be picked up either manually or with the help of machines and results in additional avoidable cost.

e) Packing of Cotton -Proper packing of cotton will protect it from damages and contamination. Materials used for packing of cotton should be more versatile and in no way it should hamper the condition of cotton.Plastic crates offer better protection against physical injuries than the other containers due to their smooth surface, rigidity, and ease in handling(Acedo, 2006). The packing should be in such a way that the quality of cotton especially the colur the staple length should not be affected.

f) Transportation of cotton – after proper packing of cotton it has to be transported to different placed preferred by the farmer to sell the cotton. While loading and unloading of cotton due care should be taken into account not letting the cotton to trample or crush.

g) Marketing Practices– the cotton can be marketed to different destination like village merchants, wholesale traders, cooperative societies, spinning mills etc. The farmer according to his convenience sell the cotton to some of the above mentioned places.

h) Marketing Constraints – during the marketing process every farmer has to face certain constraints in the form of too many varieties, contamination of cotton, determination of market price, determination of quality, government policies of different states, market information, inadequate infrastructural facilities, getting of license, etc.

## III.    IMPORTANCE OF THE STUDY

The importance of Post-harvest management of cotton lies in the fact that it has capability to meet fiber requirements of growing population by removing avoidable losses  The purpose of post-harvest processing is to maintain or enhance quality of the products and make it readily marketable. This study would bring to light some of the important post-harvest practices of cotton adopted by the farmers in thestudy area and the need for revival of government policies towards post-harvest management by the farming community.

## IV.    STATEMENT OF THE PROBLEM

Cotton which is also called as white gold is vulnerable to dreaded plant diseases at every stage of its production and marketing. There are several factors which contribute to the post-harvest loss in cotton. They include internal factors such as harvesting, grading, storing, processing, transporting of cotton and external factors like environmental, climate, humidity, pest's attacks, etc. This create a serious ramification of the entire process of post-harvest management of cotton. Every farmer in India who cultivates cotton has to face these problems and they need to overcome these obstacles to win the race. Hence this study tries to understand the practices adopted by the farmers of Khandili block in their post-harvest management of cotton.

## V.    OBJECTIVE

- To study the practices adopted by the famers of Khandiliblock during their post-harvest management of cotton.

### VI.    HYPOTHESIS
- Income from cotton depends largely on wastages and damages of cotton during the post-harvest period

### VII.    METHODOLOGY
This study is a descriptive study undertaken in Khandili block of Vellore district in Tamil Nadu.The studyanalysed the post-harvest management or practice adopted by some of the selected farmers in Khandili block. Using the convenience sampling method about 105 sample farmers cultivating cotton were selected and information regarding the post-harvest management of cotton were collected using personal interview method and coded using SPSS. Using appropriate statistical tools like simple percentages and regression the collected data wereanalysed and interpretations are given accordingly.

### VIII.    ANALYSIS AND INTERPRETATION
This study is based on primary data and the required information was collected using structured interview schedule through personal interview method. This study tries to analysethe common practices adopted by farmers in post-harvest management of cotton. The collected data has been analysed using SPSS and the resultant output and its interpretations are given below. During the study it was revealed by the respondents that all the farmers in the study area pick cotton manually and in this process more women are employed.

The next stage in the post-harvest management is separating cotton from its seeds and other dust particles. Once the removal of wastages and the cotton lint is over the next stage is to store the cotton in an appropriate place. The following table shows the different storing places of cotton adopted by the sample farmers in the study area.

TABLE 1: Storing of cotton

| Storing | Frequency | Percentage |
|---|---|---|
| Inside crate | 21 | 20.0 |
| Heaping on the floor | 65 | 61.9 |
| Heaping on the shelf | 11 | 10.5 |
| Go-downs | 8 | 7.6 |
| Total | 105 | 100.0 |

Source: Primary data

The above table reveals that farmers in the study area tend to store in four different places after picking and separation of cotton from its lint. It is clear that most of the farmers nearly 62 percent of them store cotton in open place heaping it in the floor while 20 percent opt to put it inside the crate and the remaining 18 percent prefer to store the cotton in shelves or in the nearby go-downs.

TABLE 2: Packing Materials

| Materials | Frequency | Percentage |
|---|---|---|
| Cloth bag | 40 | 38.1 |
| Basket | 37 | 35.2 |
| Sack bag | 28 | 26.7 |
| Total | 105 | 100.0 |

Source: Primary data

At the time of selling the cotton it has to be neatly packed with causing much damage to the cotton. Every farmer would be more precautious in handling cotton because of its versatility. Using of appropriate and conducive materials is much important in the packing process. The preference of farmers vary according to the quantity and time of its dispatchment. In the study the farmers used three type of materials in packing the cotton namely cloth bag, baskets and sack bags. Out of the total sample about 40 respondents used cloth bag as their packing material while 37 of them used baskets made of bamboo and the remaining 28 used sack bags as their packing material.

TABLE 3: Sources of selling cotton

| Sources | Frequency | Percentage |
|---|---|---|
| Local merchants | 4 | 3.8 |
| Wholesalers | 10 | 9.5 |
| Cooperative Society | 61 | 58.1 |
| Retailers | 18 | 17.1 |
| Commission agents | 12 | 11.4 |
| Total | 105 | 100.0 |

Source: Primary data

Farmers have different options of selling their produce according to their preference. In the study it was found that the respondents were selling cotton to five different destinations. It was found that majority of farmers nearly 58 percent of them sold their cotton to the cooperative society and about 17 percent to retailers. The remaining 25 percent of the farmers opted to sell their cotton to commission agents, local merchants and to wholesalers.

TABLE 4: Wastage or damages to cotton during the post-harvest period

| Wastages and Damages | Frequency | Percentage |
|---|---|---|
| Yes | 83 | 79.0 |
| No | 22 | 21.0 |
| Total | 105 | 100.0 |

Source: Primary data

Cotton is highly susceptible to cause of damage during the post-harvest period. The price of cotton largely depends upon the staple length, the fine texture and colour. There is also possibility of wastages during picking, storing, packing, loading and unloading during the transportation process. A question was raised to the farmers about the prevalence of damages and wastages during the post-harvest management and the result showed that about 79 percent of farmers revealed the possibility of damage while only 21 percent exposed that of no damage or wastage.

## IX.    RESULT OF HYPOTHESIS TESTING

For the purpose of testing the hypothesis simple regression was applied and the output of the result is depicted in the following table. It is clear the below table that the predicted model is fit as it is statistically significant at 1 percent level of significance. As far as the R square value is concerned it shows low value which means the impact of damage of cotton during the post-harvest period has got less influence in the income from cotton.

TABLE 5: Model Summary of Regression Analysis

| Model Summary[b] | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson | F | Sig. |
| 1 | .346[a] | .119 | .111 | 2360.264 | 1.405 | 13.974 | .000[b] |
| a. Predictors: (Constant), Is there any wastage or damages to cotton during the post-harvest time period | | | | | | | |
| b. Dependent Variable: Income from Cotton | | | | | | | |

The result of Durbin Watson test shows that it is quite obvious that the value is little far from the optimum threshold level but it is acceptable since only one independent variable is taken into consideration.

TABLE 5a: Regression Coefficients

| Coefficients[a] | | | | | |
|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | B | Std. Error | Beta | | |
| (Constant) | 5427.656 | 722.284 | | 7.515 | .000 |
| wastage or damages to cotton during the post-harvest time period | 2115.717 | 565.985 | .346 | 3.738 | .000 |
| a. Dependent Variable: Income from Cotton | | | | | |

In the analysis it is evident from the above table that the wastages or damages of cotton during the post-harvest period tends to reduce the level of income to certain level. This emphasizes that care should be taken during the post-harvest period in the reduction of wastages or damages which might boost up the income level of the farmers. The beta value of .346 shows that nearly 36 percent due to damage or wastages contribute to the net loss in income to the farmer from the sale of cotton.

## X.    CONCLUSION

Postharvest management of cotton is a set of post- production practices that includes picking of cotton, separation from its stalk, selection, grading, drying, packing, storage and transportation. It is felt that new technologies are to be investigated to overcome postharvest losses of cotton. One way of achieving this could be by developing feasible technology to extend the postharvest process. This study gives an outline picture of the impact of post-harvest damages or wastages which results in loss to the farmers cultivating cotton. A proper care should be taken and government need to provide adequate storing facility, new technology in picking, grading and standardization of cotton.

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