

**RESEARCH ARTICLE :**

Personal and economic characteristics of Bt cotton farmers

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SUMMARY : Cotton is a major commercial crop in India, but has substantial problems particularly from extensive pest damage and poor yields. Bt cotton offers a promising solution to these serious problem. It may prove beneficial to know socio-economic characteristics of the Bt cotton cultivators as well as their attitude towards Bt cotton. Generally, it is found that all the farmers residing in the same community do not adopt improved agricultural technology to the same extent. This may be because of several reasons such as personal, economic characters which are related to the adoption of improved agricultural practices. Factors which affect these phenomena are age, education, size of family, size of landholding, annual family income. The results of the study revealed, majority of the respondents was middle aged and more number of farmers had studied upto high school, nearly three fourth of farmers having nuclear family. Majority of the Bt cotton farmers had medium farming experience in Bt cotton with small landholdings. Majority of the Bt cotton farmers belonged to medium annual income.

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KEY WORDS :

Land holding, Annual income, Bt cotton

BACKGROUND AND OBJECTIVES

Many countries have reported positive experiences with Bt cotton. This includes USA, China and Australia. Bt cotton has spread very rapidly in China. There is good demand for it from the farmers, since it reduces the cost of pesticide applications as well as the exposure to pesticides. Cotton is a major cash crop of India. It is grown under rainfed as well as irrigated conditions and the major cotton producing States include Maharashtra, Gujarat, Andhra Pradesh, Punjab, Karnataka and Madhya Pradesh. The productivity of cotton in India is, very low. The pest problem in cotton is one of the worst

among all crops. The main pest is boll worms and the largest quantity of pesticides among all crops is applied to control pests in cotton – often with little success. In China the government has played a major role in providing GM technology to the farmers Since chemical control of insects and pests is one of the most costly aspects of crop production of crop against insect damage through use of Bt gene has proven to be quite effective. The adoption of Bt cotton would be closely related to its benefits to the farmers and therefore it is important to examine the impact of Bt cotton on the economics of cotton cultivation (Carl *et al.*, 2001). What is seen as a

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significant milestone for Indian agriculture at the end of March, 2002 is that the Central Government allowed commercial cultivation of the country's first ever genetically engineered crop, the controversial Bt cotton developed by the Maharashtra hybrid seed company (MAHYCO) in collaboration with the US based life science major Monsanto Bt cotton has several advantages over non-Bt cotton. Important advantages of Bt cotton include increase in yield, protection from bollworms, reduction in pesticide use, reduction in cost of cultivation, reduction in environmental pollution, genetic resistance, eco-friendly, no adverse effect on parasites, predators and beneficial insects and no health hazards. It also induces earliness.

RESOURCES AND METHODS

The research study was conducted in Dharwad, Belagavi and Haveri districts of north Karnataka during the year 2016-17. The study area was purposively selected as it falls under the jurisdiction of University of Agricultural Sciences, Dharwad. Further two talukas from each district were selected which having highest production under Bt cotton. List of villages coming under selected talukas was obtained from Zilla Panchayat. From each taluk two villages (*i.e.* total 12 villages) were selected randomly. From each village 15 farmers were selected by random sampling procedure to form a sample of 180. The data was collected using pre-tested structured interview schedule personally. The collected information was analyzed using appropriate statistical tools like frequency, percentage, mean, standard deviation and correlation etc.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Age :

The data presented in Table 1 indicates that majority

of the respondents 82.22 per cent belonged to the middle age group followed by old aged (13.33 %) and young aged (4.44 %). Usually farmers of middle aged are enthusiastic, moderately experienced in farming and have more work efficiency than older and younger ones. Further, middle aged farmers possess more physical vigour and shoulder more family responsibility than younger ones. Followed by old (13.33 %) and a small proportion of farmers (4.44 %) belonged to young age. One of the reasons for less number of young farmers is that farmers have become aware of importance of education and hence encouraging their children to go for higher education and find suitable jobs. These results are line with the findings of Sain (2008) Sabi (2012) and Shankrappa (2013).

Education :

With regard to education, it is clear from the data presented in the Table 2 that 31.67 per cent of the farmers studied upto high school. While 27.78 per cent of the farmers studied upto middle school and 19.44 per cent of them were illiterates. The results also revealed that 12.22 per cent had upto primary school and 5.00 per cent of the farmers were studied upto PUC and a meager 3.89 per cent of them had Graduation level of education. In recent past changes were observed in education level of rural India due to availability of proper and free basic educational facilities in the study area and Few of them opted higher education reflecting on their affordability and interest to learn more and gain good knowledge. The distance of higher study centers from the village might have contributed for only few being educated above high school. These results are line with the findings of Ragavendra (2007) and Shankrappa (2013).

Family type :

It was noticed in Table 3 that majority (72.78 %) of the members belonged to nuclear family and a few (27.22 %) belonged to joint family. The predominance of nuclear family due to realization of the advantages of nuclear families in terms of running the family, less responsibilities,

Table 1 : Distribution of Bt cotton growers according to their age

| | | | (n=180) |
|---------|-----------------------|-----------|------------|
| Sr. No. | Age group | Frequency | Percentage |
| 1. | Young (upto 30 years) | 8 | 4.44 |
| 2. | Middle (31-50 years) | 148 | 82.22 |
| 3. | Old (>51 years) | 24 | 13.33 |
| Total | | 180 | 100 |

Table 2: Distribution of Bt cotton growers according to their education

| Sr. No | Level of education | Frequency | Percentage |
|--------|--|-----------|------------|
| | Education | | |
| 1. | Illiterate | 35 | 19.44 |
| 2. | Primary(1-4 th) | 22 | 12.22 |
| 3. | Middle school(5 th -7 th) | 50 | 27.78 |
| 4. | High school(8 th -10 th) | 57 | 31.67 |
| 5. | PUC (11 th -12 th) | 9 | 5.00 |
| 6. | Degree (>12 th) | 7 | 3.89 |
| | Total | 180 | 100 |

Table 3 : Distribution of Bt cotton growers according to their family type

| Sr. No | Family type | Frequency | Percentage |
|--------|-------------|-----------|------------|
| 1. | Nuclear | 131 | 72.78 |
| 2. | Joint | 49 | 27.22 |
| | Total | 180 | 100 |

privacy also urbanization, people prefer to live in nuclear family for the sake of independence, satisfaction of basic needs and wish to lead happy life. The findings of the present study are in line with Siddaram (2015).

Experience in Bt cotton cultivation :

The data in Table 4 pertaining to experience in Bt cotton cultivation revealed that about 38.33 per cent of the respondents had medium level of farming experience followed by high (36.67 %) and low (25.00 %) level of farming experience. Majority of Bt cotton growers were middle and old aged and they might have started Bt cotton cultivation in their early age itself. So majority of respondents had medium level experience in Bt cotton cultivation. Since agriculture is the main occupation of

large majority and the need of support of family members. The findings get support from the studies of Thiranjangowda (2005).

Land holding :

With respect to land holding it was observed from the Table 5 that 41.67 per cent of farmers belong to medium land holding category followed by 28.33 per cent were semi medium farmers. Whereas, 18.33, 8.34 and 3.33 per cent of them had small farmers, big farmers and marginal farmers, respectively. This could be due to fragmentation of ancestral land from generation to generation because of increased population day by day might have led to smaller size of land holdings. However, 41.67 per cent of the respondent who had land holding

Table 4: Distribution of Bt cotton growers according to their experience in Bt cotton

| Sr. No. | Experience | Frequency | Percentage |
|---------|------------|-----------|------------|
| 1. | Low | 45 | 25.00 |
| 2. | Medium | 69 | 38.33 |
| 3. | High | 66 | 36.67 |
| | Total | 180 | 100 |

Table 5 : Distribution of Bt cotton growers according to their size of land holding

| Sr. No. | Land holding | Frequency | Percentage |
|---------|-------------------------------|-----------|------------|
| 1. | Marginal (upto 2.5 acre) | 6 | 3.33 |
| 2. | Small (2.51-5.00 acre) | 33 | 18.33 |
| 3. | Semi medium (5.01-10.00 acre) | 51 | 28.33 |
| 4. | Medium (10.01-25.00 acre) | 75 | 41.67 |
| 5. | Big (>25.00 acre) | 15 | 8.34 |
| | Total | 180 | 100 |

Table 6 : Distribution of Bt cotton growers according to their annual income

| Sr. No. | Annual income | Frequency | Percentage |
|---------|---------------|-----------|------------|
| 1. | Low | 55 | 33.56 |
| 2. | Medium | 80 | 44.44 |
| 3. | High | 45 | 25.00 |
| Total | | 180 | 100 |

above 10 acres. The possible reasons that could be attributed to this were those who had agriculture as the main occupation of the family almost depended on their land for their livelihood. Since the size of land holding will be generally high. This finding was in line with the findings of Sureshkumar (2009) and Manjunath (2010)

Annual income :

It was found in Table 6 that 44.44 per cent of the Bt cotton growers had medium annual income. While 33.56 per cent and 25.00 per cent of Bt cotton growers belonged to low and high annual income category. The possible reason might be the large land holdings coupled with taking up two crops in a year *i.e.* Both *Kharif* and *Rabi* crops and they get more profit. All these factors could have favourably influenced the respondents to obtain better income.

These results are in line with the results of Manjunath (2011) and Shankrappa (2013).

Conclusion :

Majority of the Bt cotton growers 82.22 per cent belonged to middle age group nearly one third of them had education upto higher secondary level. Majority of Bt cotton growers 72.78 per cent belonged to nuclear family. Nearly forty (38.33%) of the respondents had medium level of farming experience. Majority of the Bt cotton growers 41.67 per cent of farmers belong to medium land holding. More than two fifth 44.44 per cent of the Bt cotton growers were found in medium annual income group. It is hoped that this study will be much useful to different categories of personnel concerned with development of agriculture.

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