



Assessment of Livelihood Security and Constraints Encountered by Small and Marginal Cotton Growers

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ABSTRACT

The study examines the constraints faced by cotton growers in achieving livelihood security in the Guntur district of Andhra Pradesh, India. The investigation used a Livelihood Security (LS) index comprising seven elements, including food security, economic security, health security, educational security, social security, institutional security, and infrastructural security. Data were collected from 120 cotton farmers using structured interviews, and statistical analysis was employed to assess the level of livelihood security and identify constraints. The findings indicate that a substantial proportion of farmers have medium to high levels of livelihood security, but certain challenges persist. Among the constraints, lack of knowledge of technical skills and relevant technologies, low market prices for products and inadequate knowledge of marketing stand out as significant obstacles. Addressing these challenges can contribute to enhancing the overall well-being and livelihood security of cotton growers in the region.

INTRODUCTION

Livelihood is the means of earning a living to meet basic needs, often associated with poverty and vulnerability. It involves capacities, resources, and activities for subsistence. Livelihoods focus on obtaining resources to achieve survival and well-being goals, reducing vulnerability (Young et al., 2002). During achieving livelihood security by the household, certain problems or constraints come in the way. These may differ from person to person and region to region. These may be related to various aspects like related to credit facilities, during the marketing process, technical guidance or may be some related to infrastructure setup. So an attempt was made to enumerate the various constraints faced by cotton growers of the Guntur district of Andhra Pradesh in achieving livelihood security. No such study regarding constraints faced by cotton growers to achieve livelihood security had been conducted in the Guntur district. Therefore, it becomes necessary to find out the problems faced by farmers.

METHODOLOGY

The investigation was conducted in the Guntur district of Andhra Pradesh. The district comprises 18 blocks namely Thullur, Tadikonda, Medikonduru, Phirangipuram Guntur, Prathipadu, Pedhanandipadu, Kakumanu, Vatticherukuru, Ponnur, Chebrolu, Pedakakani, Duggirala, Thenali, Kollipara, Mangalagiri and Tadepalle. Out of which, the Ponnur and Tadikonda 2 blocks were selected randomly. Using a straightforward random selection procedure, three villages were randomly chosen from each of the two blocks. Each village produced a number of 10 marginal and 10 small farmers. For the experiment, a total of 120 farmers were chosen. Using a set schedule that had been evaluated in advance, data were gathered through in-person interviews. Numerous statistical techniques were used to analyze the data. A Livelihood Security (LS) index established by Lal et al., (2017) was used to assess the family of cotton growers' level of livelihood security. In this manuscript, the Livelihood Security (LS) index consists of

seven elements: food security, economic security, health security, educational security, social security, institutional security, and infrastructural security. These elements were selected through a literature review, and their weights were determined with input from 32 knowledgeable judges. The judges ranked the seven indicators from 1 to 7, and the rankings were converted into weightage using the Alfares methodology (Alfares & Duffuaa, 2009).

The following formula was used to determine the standardized scores for each sub-indicator in this study:

$$Z \text{ Ind } i = \frac{X_i - X_{\min}}{X_{\max} - X_{\min}}$$

Where, X_i , X_{\max} and X_{\min} - Were the original values for indicator i ,
 $Z \text{ Ind } i$ = value of standardized indicator i

The Garret ranking method (1969) was employed to evaluate the obstacles to obtain livelihood security. It includes economical, communicational, technical and miscellaneous-related constraints;

- Thus, the respondents' order of merit was transformed into a % position using the following formula:

$$\% \text{ position} = \frac{100 (R_{ij} - 0.50)}{N_j}$$

- The terms N_j and R_{ij} , respectively, stand for the quantity of constraints ranked by the j^{th} individual and the position assigned by the j^{th} individual to the i^{th} constraint.
- To translate the % position for each rank so acquired into scores, Garrett (1969)'s table was consulted.
- For each constraint, the mean scores were computed, and the corresponding rank was then determined.

RESULTS AND DISCUSSION

Livelihood security

Table 1 shows that among the small and marginal cotton growers surveyed, a significant proportion (69.17%) had a medium level of food security. Additionally, (20.00%) and (10.83%) of cotton growers reported low and high levels of food security, respectively. These findings revealed that 80.00% of the respondents in the study area had medium to high levels of food security, indicating a relatively favourable food security situation among them. The agricultural based commodities like paddy, bhendi, cucumber and brinjal crops grown by them and food distribution systems providing rice, red gram and sugar, enhancing the food security among small and marginal cotton growers in the study area.

A majority of cotton growers (64.17%) reported having a medium level of economic security. Overall, 85.84% of cotton farmers in the study area fell into the low and medium levels of economic security. These findings indicate a significant need to enhance economic activities among cotton growers in the study area to improve their economic security. A significant proportion of cotton growers in the study area (43.34%) reported having a high level of health security. According to the conclusions, most cotton growers showed a high level of health security, indicating the significance of health awareness and proactive health practices among cotton growers in the study area. Most of the cotton growers (65.00%) reported having a medium level of educational security. The results suggest that the level of educational security among cotton growers was lacking. Almost 87.00% of cotton growers had medium and low levels of educational security, indicating a need to improve educational facilities and opportunities in the study area. Enhancing educational access and quality can contribute significantly to increasing the livelihood security of these individuals. A majority of cotton growers (56.67%) reported having a medium level of social security. It can be inferred that around 25.00% of the selected cotton growers feel "socially secure," while approximately 75.00% reported feeling "socially insecure." This suggests that a significant proportion of cotton growers in the study area face social vulnerabilities and challenges that impact their overall livelihood security. A significant proportion of cotton growers (66.67%) reported having a medium level of institutional security. The findings underscore the need to focus on bolstering institutional support and engagement, cotton growers can benefit from improved livelihood security and better access to resources and services. A majority of cotton growers (70.83%) reported having a medium level of infrastructural security. The findings highlight the majority of cotton growers believed that having sufficient infrastructure provisions positively impacts their well-being and livelihood security.

These research findings are consistent with the outcomes reported in earlier investigations carried out by Parmanand (2012); Dhakade (2019) & Jhamb (2020). These prior studies also revealed that the majority of respondents possessed a medium level of food security, economic security, educational security, social security, institutional security, and infrastructure security. Moreover, they indicated a high level of health security among the respondents.

The values in Table 2 clearly demonstrate how cotton growers are categorized into three groups based on their overall livelihood security: low, medium, and high. The overall Livelihood Security score for each cotton grower was determined by considering scores from different domains of livelihood security. A majority (60.84%)

Table 1. The current status of different indicators of livelihood security of cotton growers

Category	Indicators of livelihood security						
	Food security (%)	Economic security (%)	Health security (%)	Educational security (%)	Social security (%)	Institutional security (%)	Infrastructural security (%)
Low	20.00	21.66	18.33	22.50	17.50	11.67	19.17
Medium	69.17	64.17	38.33	65.00	56.67	66.67	70.83
High	10.83	14.17	43.34	12.50	25.83	21.66	10.00
Mean Score	0.707	0.549	0.609	0.518	0.588	0.531	0.641

Table 2. Overall livelihood security of small and marginal cotton growers

Overall livelihood security level	Frequency	Percentage	Mean
Low (< 0.484)	25	20.83	0.594
Medium (0.484-0.704)	73	60.84	
High (> 0.704)	22	18.33	
Total	120	100.00	

were classified as having medium Livelihood Security, and 81.67 per cent of respondents lived in medium to high levels of livelihood security in the selected area. In terms of their living standards, this is a good sign. These research findings are consistent with the conclusions made by previous studies conducted by Parmanand (2012); Roy et al., (2012); Saha (2018); Mahadik & Sawant (2012); Sathwika et al., (2019); Dhakade (2019) & Jhamb (2020) which also noted that most respondents had a medium level of overall livelihood security. The study indicates that a substantial number of cotton growers enjoy a medium to high level of livelihood security, suggesting an encouraging sign for their well-being and quality of life. However, it also highlights the importance of continued efforts to address the livelihood security concerns of those in the low category to further enhance overall well-being in the selected area.

As seen in Figure 1, various indicators supported the livelihood security of cotton growers in the research area. From the security score for each indicator, it was discovered that out of the 7 sub-indicators, food security had the greatest index value of 0.707 due to the predominant focus on cultivating agricultural commodities such as paddy and brinjal among cotton growers and due to the presence of an efficient food distribution system in the research

area and educational security had the lowest index value of 0.518. Due to the prevalence of low literacy levels among cotton growers within the research area. Dhakade (2019) came to a similar conclusion that food security had the greatest index value of 0.725, whereas Lal et al., (2015) discovered a different conclusion that educational security had the highest index value of 0.560.

Perceived constraints by the cotton growers

Table 3 presents the data on technical constraints perceived by the respondents, along with their corresponding rank patterns. Among the five constraints identified by the respondents, the highest rank was assigned to the constraint “Lack of knowledge of technical skills and relevant technologies to increase crop output” with a (mean score - 67.33). This result suggests that a significant number of respondents were not adequately informed about the latest advancements in agricultural production techniques and technologies, which could potentially enhance their crop yields and overall agricultural output, thereby leading to better financial returns. The remaining constraints were listed by the cotton growers in order of decreasing importance.

Among economic constraints experienced the foremost rank was assigned to the constraint “Products with low market prices” with a (mean score - 72.74). This result highlights a crucial issue faced by the respondents, where the costs of agricultural inputs have significantly increased over time, leading to higher cost of production; however, in contrast, the prices of various agricultural products have not risen proportionately, resulting in substantial losses for the respondents in their agricultural endeavours. The second rank was attributed to the constraint of “huge expenses regarding farming inputs such as seeds, fertilizers, pesticides, and other essential resources”. This suggests that the financial burden

Figure 1. Mean score of different indicators of livelihood security of cotton growers

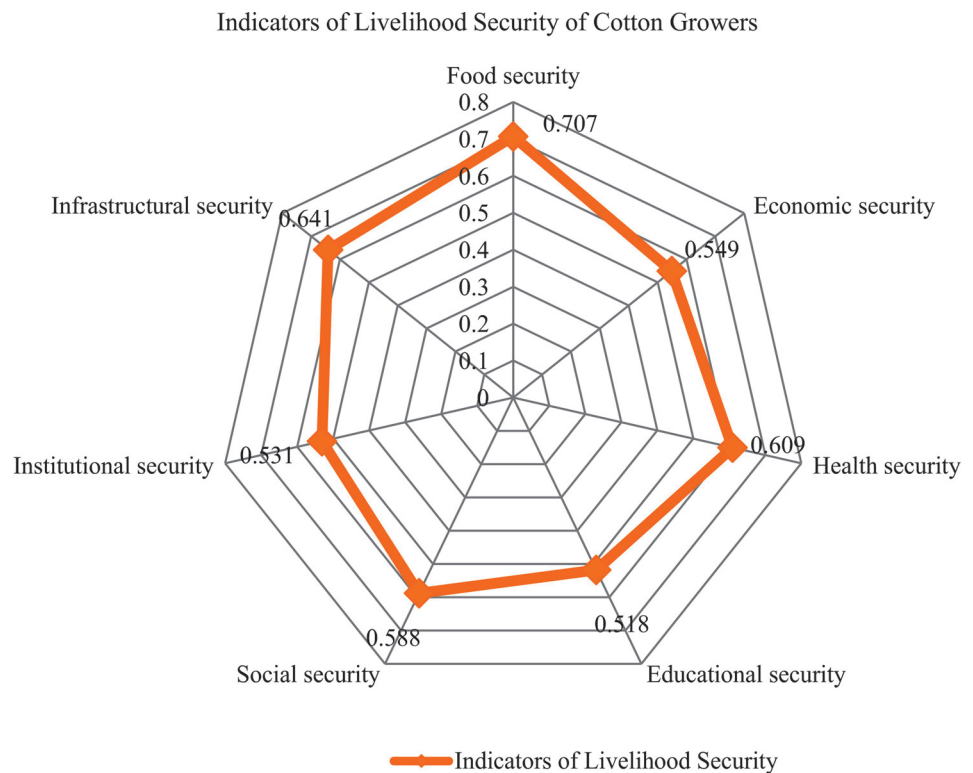


Table 3. Constraints encountered by the cotton growers

S.No.	Statement	Mean	Rank
Technical Constraints			
1.	Lack of knowledge of technical skills and relevant technologies to increase crop output.	67.33	I
2.	Lack of knowledge of the programmes and subsidies for agriculture and animal husbandry.	54.00	II
3.	Lack of proper supervision or training of workers before any new initiatives are launched.	48.62	III
4.	Lack of knowledge about scientific crop management techniques including avoiding fertilizer, pesticides, and insecticides, as well as preparing the soil for cultivation.	42.71	IV
5.	Absence of agricultural equipment such as tools and machines.	31.67	V
Economic Constraints			
1.	Products with low market prices.	72.74	I
2.	Huge expenses regarding farming inputs. (Like seeds, fertilizers, pesticides, etc..)	62.57	II
3.	Lack of credit available to the farmers.	58.76	III
4.	In case of a delay getting insurance if crops are damaged or livestock loses.	41.85	IV
5.	Labourers' high wages.	37.09	V
6.	Lack of employment opportunities within the village during the off-season.	26.75	VI
Communicational Constraints			
1.	Lack of knowledge of the marketing of the products.	68.05	I
2.	Farmers don't participate enough in various initiatives like kishanmela, demonstrations, training, community gatherings, etc.	55.72	II
3.	Absence of extension workers for disseminating newly acquired information about emerging technology.	43.18	III
4.	Field issues have not received sufficient attention during discussions by the scientists and higher authorities during KrishiGoshti.	33.38	IV
Miscellaneous Constraints			
1.	Repeated failures of the crops.	72.79	I
2.	Higher interest rates are paid for taking a loan from institutions that lend money.	63.63	II
3.	When taking out a loan or debt from the bank, the bank employees reacted improperly or incorrectly.	57.37	III
4.	Farm inputs like seeds, feeds, fodder, insecticides, etc. are scarce or unavailable.	42.73	IV
5.	Lack of reliable irrigation sources.	36.37	V
6.	Farmer's unwillingness to know any new livelihood practice.	27.29	VI

of investing in these inputs has been a significant challenge for the respondents, impacting their ability to achieve livelihood security. The remaining economic constraints were ranked in descending order of perceived importance by the respondents.

Among the communicational constraints experienced top-ranked constraint, with the highest (mean score - 68.05), was "Lack of knowledge of marketing the products". This result indicates that a majority number of respondents faced challenges in understanding effective marketing strategies for their products. Insufficient knowledge in this area may have hindered their ability to reach broader markets, secure fair prices, and maximize their returns, impacting their overall livelihood security. On the other hand, the last ranked constraint was "Field issues have not received sufficient attention during discussions by the scientists and higher authorities during KrishiGoshti". Despite being an important constraint perceived by the respondents, it received the lowest rank. This suggests that there might be a lack of attention or emphasis on addressing practical on-field issues faced by farmers during agricultural conferences or discussions led by scientists and higher authorities.

Among miscellaneous constraint, "repeated failures of the crops" with a (mean score of 72.79) was most serious. Agriculture's heavy reliance on nature exposes farmers to numerous unforeseen calamities, leading to substantial and unexpected losses. As a result, their livelihoods are at risk due to these uncontrollable factors. Following this, other constraints were identified by

respondents in descending order of importance. However, the last rank was assigned to the constraint of the "Farmer's unwillingness to know any new livelihood practice". While challenges in adopting new practices may exist, it appears to be of relatively lesser concern compared to the formidable issue of crop failures and their devastating consequences on the farmers' livelihood security. The constraint analysis by Yadav et al., (2019); Gireesh et al., (2019); Kobba et al., (2020).

CONCLUSION

The study reveals a positive picture of livelihood security among small and marginal cotton growers in the study area, with a majority having medium to high levels of food, economic, health, institutional, and infrastructural security. However, challenges in educational and social security warrant attention to further improve overall well-being. The findings emphasize the significance of agricultural-based communities and effective food distribution systems in enhancing food security and the need to enhance economic activities and educational opportunities among cotton growers. Addressing technical, economic, communicational, and miscellaneous constraints will play a crucial role in sustaining livelihood security and prosperity in the selected area. Overall, the study provides valuable insights for policymakers and stakeholders to develop targeted interventions and support systems to uplift the livelihoods of cotton growers and promote sustainable development in the region.

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