Assessing Farmers Livelihood Security through Integrated Farming Systems in Uttar Pradesh District

ABSTRACT:

The aim of the present investigation was to determine the degree of livelihood security experienced by farmers study problem not well presented? in the Sultanpur region of Uttar Pradesh. Kurebhar and Dhanpatganj blocks were selected based on having the maximum acreage under an Integrated Farming System. Both primary and secondary data were used in the investigation research design not very clear? To achieve the objectives of the study, primary data were collected from 150 randomly (true representation and instruments/tools?) selected farmers for the years 2021–2022. Six distinct measures of livelihood security were developed based on the conditions of the farmer households in the research location. The index score range for the indicators was 0 to 1. A household that has a higher indication number is likely to be more financially secure and well off how did you analyses, attributed to?. The security of both health and education is under grave danger. The overall household livelihood security index was found to be 0.54. present your data, what it means and conclusion from based on the study should be explicit

Keywords: *Household Livelihood Security Index, Educational Security, Financial Security*

INTRODUCTION

The Green Revolution increased grain yields dramatically throughout the world during the past 40 years, and individual animal output levels followed a similar trajectory. The current agricultural production system faces a tremendous challenge in providing food security for the rapidly expanding global population. This challenge is made more difficult by India's declining average farm size and financial restrictions on further agricultural investment because 80% of farm families fall into small and marginal farmer groups cite. Increasing productivity might be a key strategy to guarantee the security of food and nutrition for a sizable population. This calls for the use of contemporary agronomic techniques and technology, which should boost the productivity of conventional agricultural systems. In the 20th century, agronomic practices such as the liberal application of inorganic fertilizers and pesticides greatly increased productivity; however, unfavorable environmental degradation and rising operating costs in

agriculture raised concerns about the industry's viability and sustainabilitycite. The livelihood of millions of small farmers is threatened by environmental degradation resulting from unsustainable farming practices. The agricultural production systems in developing countries need to be enhanced for better sustainability and higher economic returns to increase income and food and nutritional security. A system known as integrated farming (IFS) focuses on the strategic pairing of two or more agricultural enterprises and the efficient recycling of residue waste for better resource management with small and marginal farmers to increase income and provide employment for family laborers during the off-season cite. These businesses not only assist farmers in boosting their income but also aid in year-round employment for family members.

METHODOLOGY

In Uttar Pradesh, which has 75 districts, agriculture employs most of the rural people, with dairy farming being their primary source of income after crop cultivation. Sultanpur was specifically chosen for the study because it is one of the districts where dairy farming is mostly performed in addition to the agricultural system. Two blocks, Kurebhar and Dhanpatganj, were purposefully chosen based on the largest area under this agricultural technique. A list of all 14 blocks in Sultanpur district was ordered in increasing order based on the area under cultivation in the area.

The farmers' major information was gathered through personal interviews with the help of a pretested questionnaire~~interview schedule~~. A variety of sources, including books, diaries, reports, and records of district and block headquarters, such as research papers, articles, and district statistical reports, were used to gather the pertinent secondary data.

Six livelihood outcomes were rated using a five-point grading system based on status, quality, and accessibility to construct a livelihood security index. Relevant indicators were chosen from the CARE USA/Program Division/PHLS standard menu by averaging the resultscite. Next, indicators of livelihood security (food, economic, health, education, and social network) were calculated.

$$\mathbf{Z_{index}} = \frac{\mathbf{Actual\ value - Minimum\ value}}{\mathbf{Maximum\ value\ -\ Minimum\ value}}$$

As a result, the range of each index is 0 to 1. If the variable's real value is the minimum, the index is 0. One of the real numbers that matches the maximum value is the index. The

standardized indicators were averaged to generate the Household Livelihood Security Index (HLSI).

$$\mathbf{HLSI} = \frac{\sum_{j=1}^{J} \mathbf{Z_{index}}}{\mathbf{J}}$$

were

J = number of indicators

-statistical analysis tools?

The livelihood security index is essential for determining whether a livelihood is successful in helping people achieve their goals. A total of all the scores of the selected indicators were used to determine the livelihood security indicators, which included food, economic, health, education, housing, and social security. The livelihood indices were calculated using the standardized value of the indicators of the relevant variable. The indicators employed in this inquiry were derived from the literature reviews conducted by previous researchers.

RESULTS

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Economic Security Index

The economic security index for farmers in the research region was calculated to be 0.48. This index was determined based on the farmers' average yearly agricultural income, which was noted as Rs. 109,438.66 (Table 4).

Food Security Index

The food security index score for farmers in the research region was 0.45. This index was derived from the monthly average food consumption expenditure of the farmers, which was Rs. 12,918.66 (Table 4).

Health Security Index

The health security index for farmers in the study region was calculated to be 0.85. This index indicates a relatively high level of health security, possibly due to the presence of primary healthcare facilities in the gramme panchayats within the research area (Table 1).

Table 1: Accessibility of farmers under the IFS to primary (basic) health care centers in the study area

Accessibility (km of Distance)	Index
0-2	**70**
2-4	**48**
4-6	**32**
6-8	-
8-10	-
10 & above	-
Total	**150**
The Health Security Index	**0.85**

Source: Computed from field survey 2021-2022

Index of Habitat Security

The farmers in the research region received a habitat security index score of 0.43. This index reflects the quality and adequacy of housing, with the average value of farmhouses being Rs. 567,894.67.

Educational Security Index

The educational security index for farmers in the study area was computed to be 0.59. This index reflects the educational attainment levels of farmers, with a significant proportion having completed education up to the twelfth standard or above (Table 2).

Table 2: Farmer Education Levels in the Study Area Under the IFS:

Literacy Status	Index
Illiterate	18
Elementary School	16
Middle School	22

Senior High	23
The Twelfth Standard	37
Graduate & above	34
Total	150
Index of Educational Security	**0.59**

Source: Computed from field survey 2021-2022

Index of Social Security

The social security index for farmers in the research region was determined to be 0.46. This index considers factors such as participation in social groups, access to communication devices such as phones and televisions, and the availability of support from friends and neighbors (Table 3).

Table 3: Farmers' Social Security Status under the IFS

Particulars	**Index**
Availability of friends' and neighbor's support	22
Availability of a phone	43
Availability of TV	35
Participant at the village level	32
Participant in the block	18
Total	150
Index of Social Security	**0.46**

Source: Computed from field survey 2021-2022

Household Livelihood Security Index

The overall livelihood security index for farmers in the current study was 0.54 (Figure 1). This index summarizes the combined scores of economic, food, health, habitat, educational, and social security indices, indicating the overall level of livelihood security among farmers in the research region (Table 4).

Table 4: Livelihood Security Indices of Farmers under the IFS

Indicators	**Index**

Economic Security	00.48
Food Safety	00.45
Security of Health	00.85
Security of Habitat	00.43
Safety in Education	00.59
Social Security	00.46
Index of Household Livelihood Security	**00.54**

Source: Computed from field survey 2021-2022

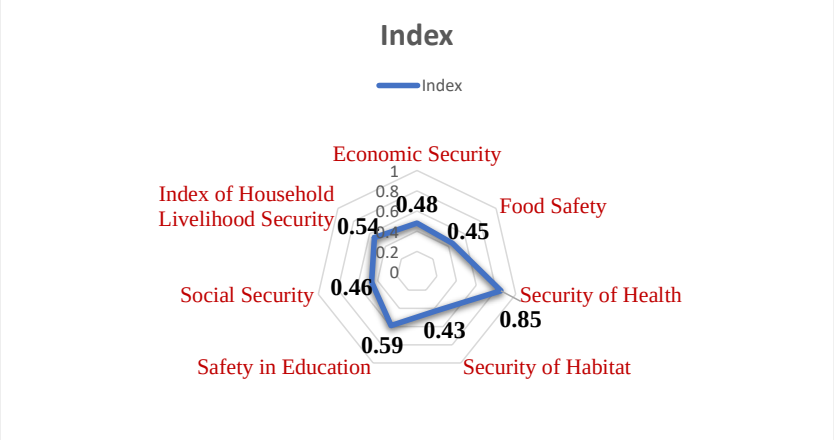

Figure 1: Index of Household Livelihood Security

DISCUSSION

Farmers in the research region have differing degrees of livelihood security, according to the findings. Indexes of social security, health, and education show comparatively greater Insert scores) levels of security than do those of economic and food security, which point to moderate levels insert scores. Due to the availability of basic healthcare services, health security stands up as the most robust component of livelihood security in the study region. The Situation Assessment Survey (SAS) conducted by the National Statistical Office was noted in the previous research cite. Average agricultural incomes are still low, according to this poll, and price swings, unpredictable weather, and restricted market access frequently jeopardize food

security. These patterns show that structural obstacles continue to obstruct meaningful advancement even when earnings are progressively rising.

These results highlight how livelihood security is complex and includes aspects related to the economy, society, health, education, and environment. In order to guarantee resilience and comprehensive livelihood development, it is imperative to attend to the various demands of farmers in these regions. Additionally, recent research by the National Statistical Office's Situation Assessment Survey (SAS) revealed that income is still a vital but precarious pillar of livelihood stability. Modest indicators in related studies show that tiny landholdings, irregular agricultural yields, and restricted access to financing frequently impede economic stability.

Additionally, areas that might use development and assistance were highlighted by the comparatively lower rankings for habitat and economic security. Attempts to improve housing conditions and increase farmers' income-generating options may help to improve livelihoods in the area of interest as a whole. According to the National Statistical Office's most recent Situation Assessment Survey (SAS) report, farmers continue to face considerable challenges due to low and inconsistent agricultural revenues; in 2019, the average monthly income for agricultural families was Rs. 10,218. There have been suggestions for measures to increase economic resilience, including crop diversification, improved market access, and non-farm work options.

Overall, the study highlights varying levels of livelihood security among farmers, with moderate economic and food security indices but relatively higher health, education, and social security indices. Health security, attributed to accessible primary healthcare, emerges as the strongest dimension. These findings align with the National Statistical Office's *Situation Assessment Survey (SAS)*, which identified modest agricultural incomes and vulnerable food security as persistent challenges due to price fluctuations, weather instability, and limited market access cite. The lower scores in economic and habitat security indicate areas for targeted intervention, such as enhancing income-generating opportunities through crop diversification, improved market access, and non-farm employment, alongside addressing housing and sanitation deficits. Addressing these interconnected dimensions is vital for fostering holistic livelihood development and resilience. Discuss results presented by looking at extreme scores and why, compare well with existing literature

~~CONCLUSION~~ should capture well the causes of extreme results only while accepting/rejecting your objectives

A thorough evaluation of the many indices pertaining to the security of farmers' livelihoods is given by the research. The chapter looks at important aspects that go into the farmers' overall livelihood security index (LSI), providing important insights into their struggles and living circumstances. The results showed that farmers had a modest level of economic stability, with an economic security index of 0.48. Their work prospects, credit availability, and income levels are all highlighted in this index. A Food Security Index of 0.45 indicates that there are difficulties in guaranteeing regular access to a healthy diet. The farmers' capacity to either grow or buy enough food for their families and themselves is reflected in this score. The Health Security Index, on the other hand, was 0.85, indicating that farmers often have decent access to medical facilities and services. This high ranking denotes good health outcomes and easy access to healthcare. At 0.43, the Habitat Security Index was lower, suggesting problems with housing and living conditions. This rating draws attention to any deficiencies in access to clean water, sanitary conditions, or shelter. With a score of 0.59 on the Educational Security Index, moderate access to education and educational resources is indicated. This points to various obstacles in terms of farmers obtaining literacy and educational growth. Finally, the Social Network Status Index resulted in a score of 0.46, indicating a low level of community support and social capital. This high ranking denotes good health outcomes and easy access to healthcare. At 0.43, the Habitat Security Index was lower, suggesting problems with housing and living situations. This rating draws attention to any deficiencies in access to clean water, sanitary conditions, or shelter. With a score of 0.59 on the Educational Security Index, moderate access to education and educational resources is indicated. This points to various obstacles in how farmers obtain literacy and educational growth. Finally, the Social Network Status Index resulted in a score of 0.46, indicating a low level of community support and social capital. This high ranking denotes good health outcomes and easy access to healthcare. At 0.43, the Habitat Security Index was lower, suggesting problems with housing and living situations. This rating draws attention to any deficiencies in access to clean water, sanitary conditions, or shelter. With a score of 0.59 on the Educational Security Index, moderate access to education and educational resources is indicated. This points to various obstacles in terms of farmers obtaining literacy and educational growth.

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HIGHLIGHTS

- **Economic and Food Security Challenges:** The farmers' modest Economic Security Index (0.48) and Food Security Index (0.45), which reflected their restricted access to finance, unstable income, and difficulties guaranteeing a steady supply of wholesome food, were indicative of these issues.
- **Strong Housing Conditions but Weak Health Security:** While a high Habitat Security Index (0.43) showed serious problems with housing, sanitation, and access to clean water, a high Health Security Index (0.85) suggested strong access to healthcare.
- **Educational Barriers:** Partial access to education was emphasized by a modest Educational Security Index (0.59), which also included challenges with literacy development and the accessibility of educational materials.
- **Weak Social Networks:** The Social Network Status Index (0.46) revealed low levels of social capital and little community support, which affected farmers' capacity to pool resources.

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