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Buffalo-included farming strategy for sustainable livelihoods of farmers in Prakasam district of Andhra Pradesh

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Abstract

The present research aims to study the role of buffalo farming in providing secured livelihood. It was obtained by comparing between livelihoods of only-agriculture and buffalo-included rearing as their primary occupation or as their livelihood in highest buffalo populated district of Andhra Pradesh in India. The data was collected by using a pretested interview schedule through direct questioning. A multistage random sampling technique was followed. A total of 120 buffalo farmers and 30 agriculture farmers from three mandals and six villages of Prakasam district were selected. A composite of livelihood security index was developed for the study and the index values were further analyzed. The comparison was achieved through performing Z- test at various levels of significance. The results indicated that there was a significant difference in the livelihood security of the buffalo-included (Mean=0.609) and only-agriculture practices (Mean=0.513) and its economic, farming, social and institutional security dimensions at 1% level of significance between the two categories. So, the buffalo-included rearing was significantly contributing towards increasing overall livelihood security of the respondents when compared to only-agriculture practicing farmers indicating sustainable livelihoods.

Keywords: Buffalo farming, livelihood, Z-test, economic security, food security, farming security, social security

Introduction

Buffalo rearing is one of the common practices in India; it plays a distinct role in the economy of the buffalo farmers. Buffaloes can well adapt to climate like hot and humid. They provide quality milk and meat. Despite these inherent physiological and rearing advantages, this livestock is a pool of opportunities and challenges (Balhara *et al*., 2022) [1]. The buffalo population increasing trend was observed since green revolution in Andhra Pradesh. The outcome of progress in this sector will be a balanced development of the rural economy particularly in reducing the poverty amongst the weaker or below poverty line section (Kumar *et al*., 2012) [2]. Shifting to livestock-based livelihoods is increasingly recognized as a barrier to recover from crop yield and income losses. This similar transition trend is observed in other developing countries in Southeast Asia (Devendra, 2012) [3].

Livestock contributes 4.11 per cent to GDP and 25.6 per cent to total agriculture GDP. India stands at 1st place in world's highest livestock population with 535.7 million. India stands first in the total buffalo population in the world with 109.85 million buffaloes (20th livestock census) [4]. The agriculture of small and marginal holdings is important to improve agriculture growth, food and livelihood security in India. Agricultural system integrated with buffalo rearing should be adopted in a planned manner to achieve sustainability which may lead to greater individual as well as social gains. Additionally, buffalo milk, which accounts for over 50% of India's total milk production, plays a significant role in nutritional security (FAO, 2020) [5]. Employment generation through buffalo rearing can also bridge rural-urban income gaps (Birthal and Jha, 2005) [6]. Addressing challenges like veterinary care, market access, and feed resources will further enhance the productivity of buffalo-based systems (Rao *et al*., 2016; Singh *et al*., 2021) [7, 8].

Materials and Methods

The current survey adopted ex post facto type of research design, this research was carried out in Prakasam district which is a high buffalo populated area according to 20th livestock census. Further three mandals each from three revenue divisions (Ongole, Kanigiri, Markapuram) of the Prakasam district were selected randomly, two villages from each mandal was selected through random sampling method. A multistage random sampling technique was followed. 20 buffalo farmers and five only agriculture practicing farmers from each village were selected

randomly. Thus a total of three mandals, six villages and 120 buffalo farmers and 30 agriculture farmers were selected for conducting the present research. The data was collected by using a pre tested interview schedule through direct questioning. The collected data was tabulated and analyzed by applying statistical operations i.e., Z- test and the analyzed results were interpreted.

Results and Discussion

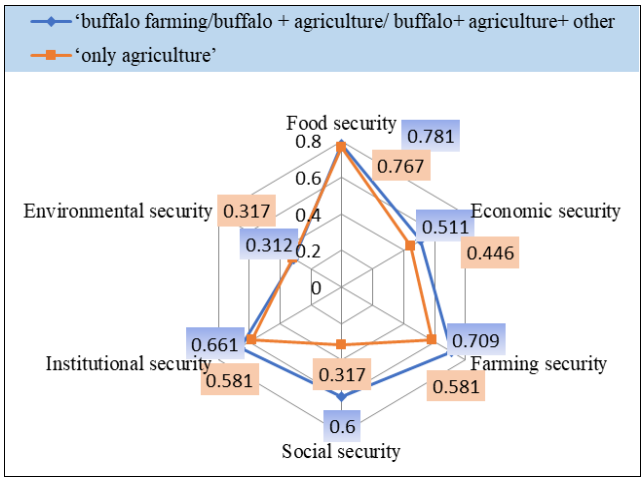
The role of buffalo farming in providing secured livelihood is obtained by comparing two groups, one group who were following buffalo farming/ buffalo + agriculture/ buffalo+ agriculture+ other and the other group who were following only agriculture as their primary occupation or as their livelihood. This was achieved through performing Z- test for establishing the comparison between two groups at various levels of significance. The means and Z value were estimated and compared between them and their significance was established. The results indicated that there was a significant difference between livelihood security values of 'buffalo farming/buffalo + agriculture/ buffalo+ agriculture+ others (0.609) and only-agriculture practicing respondents (0.513) and its economic, farming, social and institutional security dimensions at 1% level of significance. The economic security is more in first group (0.511) when compared to other (0.446) which is in line with findings of Talathi *et al*. (2007) [9], Hadole and Pachpor (2009) [10], Nagreet *et al*. (2017) [11] and Singh and Dubey (2014) [12].

So, it can be inferred that the buffalo rearing was significantly contributing towards increasing the overall livelihood security of the respondents. The is achieved due to the more significance of economic security, production security, institutional security and social security of buffalo rearing farmers when compared to only-agriculture practicing farmers. Further, this establishes the point that buffalo farming practices were providing better livelihood security in comparison with only agriculture practicing farmers in the study area. Studies have shown that livestock-based systems, particularly buffalo rearing, offer year-round income, reduce vulnerability to crop failure, and improve food and nutritional security in rural households (Frankenberger, 1996; Kumar *et al*., 2012) [13, 2]. Moreover, buffaloes serve as an asset during economic stress, contributing to resilience and long-term sustainability of livelihoods in semi-arid and rainfed regions (Devendra, 2012; Singh & Dubey, 2014) [3, 12].

Role of buffaloes in livelihood security based on comparison between "buffalo-included" and "only- agriculture" as perceived by farmers in the study area

S. No.	Livelihood security dimensions	'Buffalo farming/buffalo + agriculture/ buffalo+ agriculture+ other	'Only-agriculture'	Z value
1.	Food security	0.781	0.767	0.481
2.	Economic security	0.511	0.446	2.593**
3.	Farming security	0.709	0.581	4.847**
4.	Social security	0.60	0.317	12.88**
5.	Institutional security	0.661	0.581	5.135**
6.	Environmental security	0.312	0.317	0.273
	Livelihood security	0.609	0.513	4.569**

Livelihood security and its dimensions of two groups



Conclusion

The comparison of livelihood security between two groups was established and the results indicated that buffalo rearing/ buffalo rearing+ agriculture/ buffalo rearing+ agriculture+ other enterprises was contributing significantly in improving the livelihood security of the respondents in comparison with only- agriculture farmers in the study area. This research unveiled that livelihood of buffalo farmers was secured in comparison to only-agriculture practicing farmers. Therefore, there is a need for motivating more number of farmers towards carrying out more buffalo rearing activities or up scaling the buffalo rearing for improving their overall livelihood security.

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