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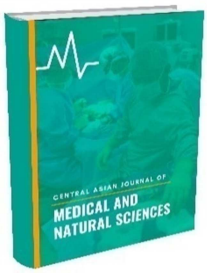

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Role of Livestock in Human Nutrition and Health for Poverty Reduction in Eastern Uttar Pradesh

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Abstract: Livestock keeping is critical for many of the poor in the developing world, often contributing to multiple livelihood objectives and offering pathways out of poverty. Livestock keeping also affects an indispensable asset of the poor, their human capital, through its impact on their own nutrition and health. There are linkages between livestock keeping and the physical well-being of the poor, and also a number of commonly held beliefs that misrepresent livestock development issues related to these linkages. These beliefs limit the scope of intervention programs to promote livestock and limit their potential contribution to poverty reduction. Recognition of the complexity of the role livestock play in household decision-making and of the opportunities foregone due to these misconceptions can enhance the ability of livestock to contribute to human well-being in Eastern Uttar Pradesh in India. Livestock contribute to food supply by converting low-value materials, inedible or unpalatable for people, into milk, meat, and eggs; livestock also decrease food supply by competing with people for food, especially grains fed to pigs and poultry. However, livestock directly contribute to nutrition security. Milk, meat, and eggs, the "animal-source foods," though expensive sources of energy, are one of the best sources of high quality protein and micronutrients that are essential for normal development and good health. But poor people tend to sell rather than consume the animal-source foods that they produce in the Eastern Uttar Pradesh in India. Livestock have the potential to be transformative: by enhancing food and nutrition security, and providing income to pay for education and other needs, livestock can enable poor children to develop into healthy, well-educated, productive adults. The challenge is how to manage complex trade-offs to enable livestock's positive impacts to be realized while

minimizing and mitigating negative ones, including threats to the health of people and the environment.

Key words: eastern Uttar Pradesh, poverty, poultry, human, livestock, reduction, health, nutrition.

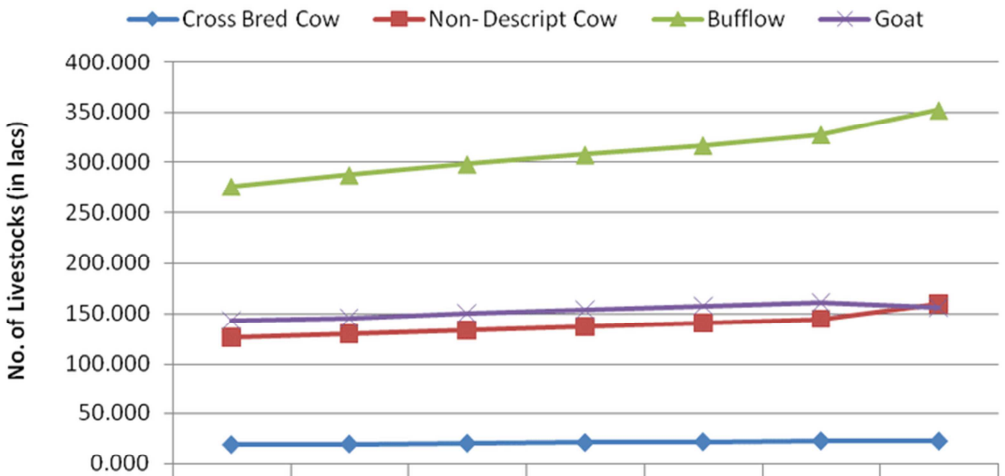
Introduction

The potential to use large-scale dietary transformations to meet nutritional needs of the poorest populations in Uttar Pradesh, India may have been largely overlooked. The food nutrient supplies in Uttar Pradesh within the context of their growing demand for livestock-derived food (LDF) is neccessitated. For almost all states and under a range of scenarios of economic and climatic change further, we find that per capita protein supply from LDF will increase relative to that from plant sources in Eastern Uttar Pradesh. The higher LDF consumption, up to 22%, among children in households that keep livestock compared to others are in Uttar Pradesh. However, projections that eastern part of Uttar Pradesh in India will import at least 40% of their LDF protein highlight the opportunity to increase livestock sector production and the potential to develop smallholder inclusive policies in future.[1,2]

Implementation of animal husbandry and dairy schemes in Eastern U.P., India

Micronutrient deficiencies and stunting rates are high in many low-income states of India. Increasing and diversifying food intake are often challenging for small-scale farmers in lowland areas as flooding often results in crop losses and drowning of livestock. The assessment of the impact of human mortality, sales and consumption, and on dietary diversity of household members has been studied in the eastern part of Uttar Pradesh.[3,4] The consumption and sales of livestock increased and hence more purchasing and consumption of milk products, contributing to an improved households' dietary diversity occurred in eastern Uttar Pradesh, India. Thus, improving livestock rearing can provide a suitable and sustainable alternative to maintain and improve dietary diversity of households in eastern

Uttar Pradesh.[5] Good health depends on good nutrition. Good nutrition, in turn, depends on agriculture to provide the foods. Most livestock in Indian states, especially ruminants, convert human-non-edible feeds, including crop residues, household wastes and forage, into high value meat, milk, and eggs. In large parts of the Uttar Pradesh, population and income growth are leading to increasing overall food consumption and changes in dietary composition, particularly food of livestock origin with considerable implications for food production, processing and retail systems. Among other parts, there is lack of interdisciplinary approach and knowledge/skill on food system and productivity. Therefore, sustainable livestock derived food production is necessary and utilization through case study approach including document analysis and interviews. In addition, it also serves as a basis to define specific areas in Uttar Pradesh, viz. Eastern Uttar Pradesh which enhance the role of livestock in food production and nutrition. [6,7] Interviews and extensive literatures of Eastern Uttar Pradesh on livestock and food/nutrition situation scenario were made and it also captured experiences of collaboration across disciplines elsewhere and finally highlights future prospects. All of the respondents reported consuming livestock products with 34.7% consume greater than four types of products (meat, milk, eggs, butter, etc.) and 32.7% consume once a day. 71.4% reported that there is supply problem and the main reasons they claimed include lack of agriculture and unscientific husbandry practices. Among the strategies to enhance livestock role in eastern Uttar Pradesh, in India, in food system challenges/ security and nutritional benefits, it is essential that livestock/crop agriculture, and nutrition sciences and their related research/intervention activities by the Indian scientists who need to work together in an integrated manner.[8,9] Narrowing the nutrition gap also requires "nutrition-sensitive" food and agriculture systems in eastern Uttar Pradesh, India, that explicitly incorporate nutrition objectives altogether. A growing market demand in eastern Uttar Pradesh has significant opportunity for improving productivity even though there are challenges in the increasing urbanization and limited livestock support services although India.[10,11]



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Cross Bred Cow	19.509	20.040	20.801	21.493	22.266	23.111	22.915
Non- Descript Cow	126.173	129.747	133.791	137.380	140.966	144.665	159.938
Bufflow	275.225	286.828	297.648	307.162	316.526	327.172	351.906
Goat	142.476	145.055	149.959	153.815	157.527	161.066	155.731

Trend of livestock population in U.P.

Discussion

The livestock farms in eastern uttar pradesh, within a 10 km radius of the original site, were put under quarantine in order to quell the spread of the virus. Efforts to quarantine the farm turned out to be insufficient as two weeks later, bird flu was discovered on a farm that was in the quarantine zone less than 3.2 km away. An additional 55,000 birds were culled in an attempt to contain the virus' spread.Avian influenza outbreaks have been found to become more and more common. Recently, in total, 42 commercial farms and 11 backyard flocks became infected. Nearly thousands of birds were slaughtered as a result, representing almost 90 percent of the poultry population in the eastern Uttar Pradesh area. A high income gross economic costs loss occurred. [12,13]

Bird flu is not isolated to east U.P. in India, but news demonstrates that the threat to livestock production and food security from transboundary animal diseases, also occurs there.When it comes to food supply issues resulting from animals diseases, the developing Uttar Pradesh area is especially susceptible. The overall herd fertility, and direct losses due to limited livestock productivity. This causes food security issues and leads to malnutrition. Another transmissible and fatal disease, Bovine Spongiform Encephalopathy (BSE)–more commonly referred to as Mad Cow Disease–affects the central nervous system of adult cattle. BSE is an infectious agent called a prion. These prions are thought to be caused by a protein that has adopted an abnormal form, causing neurodegenerative diseases.[14,15]

Type of industry	Location
Meat and fish	Saharanpur, Pilibhit, Muzaffar Nagar, Merrut, Gaziabad, Gautambudh Nagar, Buland Shahar, Bareilly Nagar, Sahjanpur, Kanpur, Etawa, Lucknow, Unnao, Raibareilly, Sitapur, Hardoi, Fatehpur, Allahabad, Jalaun, Basti, Gonda, Behraich, Barabanki, Faizabad, Varanasi, Chandauli, Jaunpur *etc*
Dairy cooperatives and products	Saharanpur, Muzaffar Nagar, Merrut, Gautambudh Nagar, Buland Shahar, Bareilly, Moradabad, , Raibareilly, Sitapur, Hardoi, Allahabad, Kaushambi, Jhansi, Gorakhpur, Faizabad, Barabanki, Sultanpur, Chandauli *etc*
Cattle feeds	Saharanpur, Bijnore, Pilibhit, Shrarasti, Muzaffar Nagar, Merrut, Gaziabad, Gautambudh Nagar, Jhanshi, Banda, Gorakhpur, Maharajganj, Gonda, Behraich, Deoria, Balrampur, Faizabad, Barabanki, Sultanpur, Chandauli, Mirzapur *etc.*
Leather	Agra, Kanpur, Noida and Unnao
Woolen textile	Kanpur, Shahjahanpur, Mirzapur, Varanasi, Agra, Modi Nagar, Tanakpur
Carpet	Shahjahpur, Mirzapur, Sant Ravidas Nagar, Agra
Jute	Gorakhpur, Kanpur

(Source: - Annual Report 2013-14, MSME - Development Institute, Kanpur) [1]

Location of livestock based industries in Uttar Pradesh

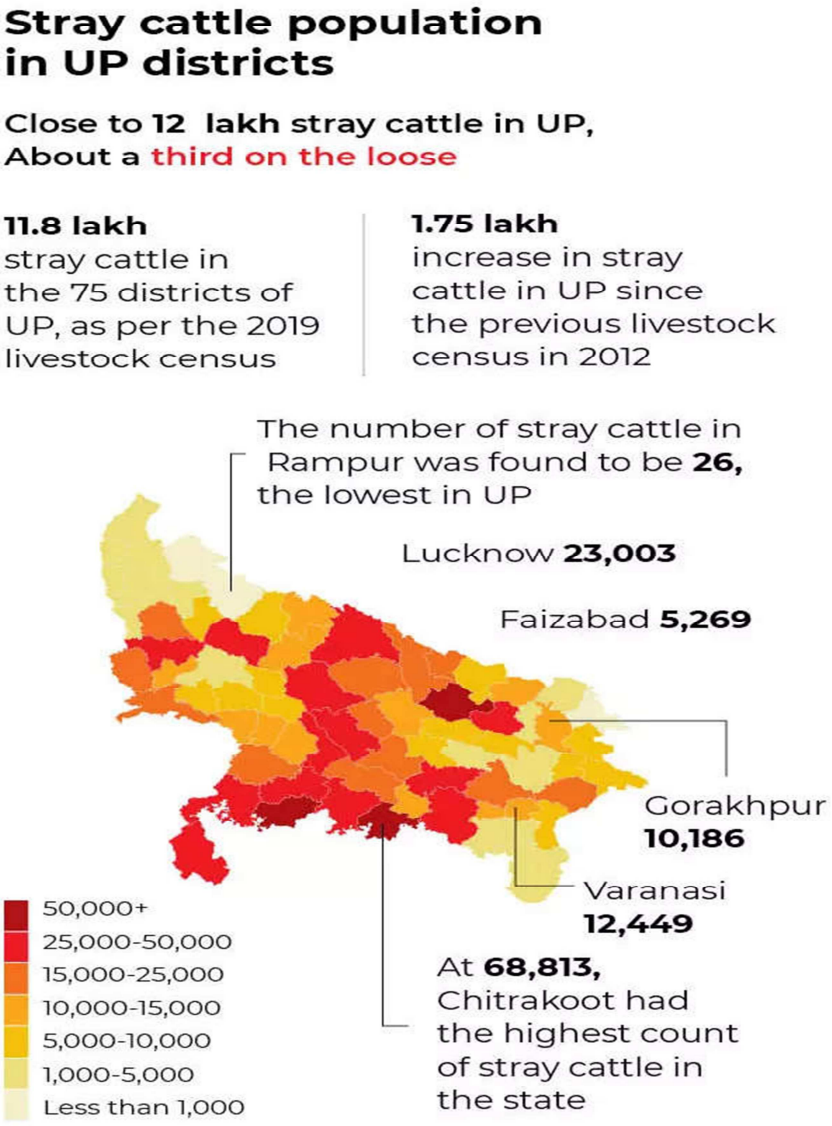
After BSE identified, many cattle have been slaughtered in order to stop the BSE from spreading. However the disease still kills 2-3 cattle each month in Uttar Pradesh regions.

To understand the effect animal diseases have on the food supply, it's important to understand just how much animal protein is consumed and relied upon for daily caloric intake. According to the Organization for Economic Co-operation and Development, the average adult consumes 30 kilograms of meat recently. This means that the average diet consists of almost 10% meat and animal by-product. According to studies, the average individual in India total meat intake averaged 15 g/day. In Uttar Pradesh eastern part the subsistence and agriculture based communities are highly dependent upon livestock for milk and meat. Livestock kept by impoverished peoples can produce a regular supply of protein; a critical supplement and diversity to plant-based diets. This is particularly true for milk and eggs, which can help mitigate the effects of often large seasonal fluctuations in grain availability.[16,17]

Results

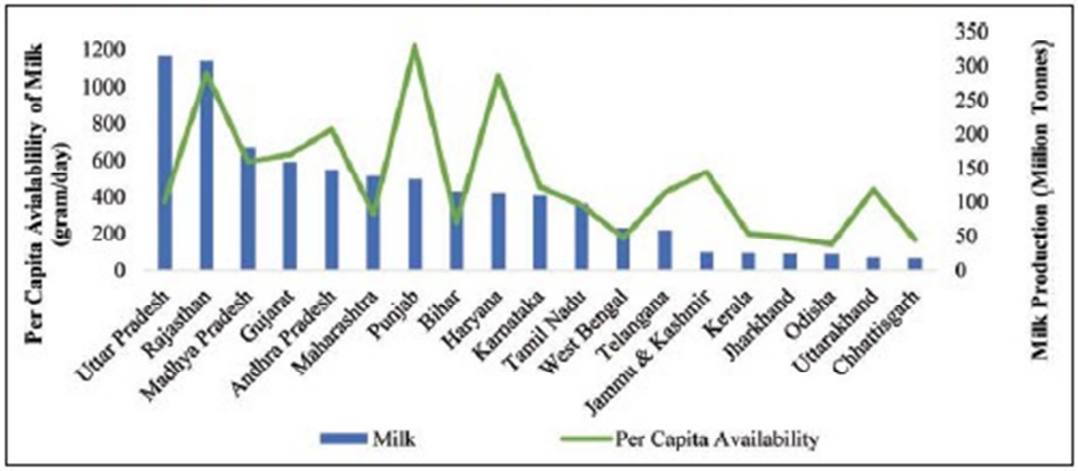
Livestock rearing is a key livelihood and risk mitigation strategy for small and marginal farmers, particularly across the rain-fed regions of Uttar Pradesh, India. Livestock products comprised enormous per cent of the total value of agriculture and allied activities which was a noticeable increase further and upto latest it represented as the agricultural gross domestic product. The livestock sector has therefore been growing faster than many other sectors of agriculture and if this trend continues then the sector will be the engine of growth for Indian agriculture that many have predicted especially in the eastern regions of Uttar Pradesh in India.[18]

Most often we see livestock as providers of essential food products, draught power, manure, employment, household income and export earnings. However, it is a very important fact that livestock wealth is much more equitably distributed than wealth associated with land. Thus, when we think of the goal of inclusive growth, we should not forget that from equity and livelihood perspectives, livestock rearing must be at the centre of the stage in poverty alleviation programmes in eastern Uttar Pradesh where poor status of farmer and breeders is more confined as compared to other states.[19]



There are two other important aspects: firstly, livestock rearing at the household level is largely a women-led activity, and therefore income from livestock rearing and decisions related to management of livestock within the household are primarily taken by women in Uttar Pradesh which is easy for them and allowed according to their culture. Interventions in Eastern Uttar Pradesh, India have demonstrated that support for livestock rearing has contributed significantly to the empowerment of women and an increasing role in decision making at both the household and village level because women there are more uneducated and unemployed. Secondly, livestock rearing, particularly in the rain-fed regions of the country especially eastern U.P. is also emerging as a key risk mitigation strategy for the poorest because the poor can be fed easily by cheap food source which is livestock and poultry meat. They face increasingly uncertain and erratic weather conditions which negatively impact crop productivity during high rainy seasons and wage labour in the agriculture sector, hence the crops are comparatively expensive for poor people of Eastern Uttar Pradesh, India.[20]

Figure 22: Inter-State Variability in Milk Production (in million tonnes) & Per Capita Availability of Milk (gram per day) during the Year (2020-21*).



A global analysis of the livestock sector highlighted three overarching messages, firstly, although livestock products make important contributions to food security and poverty reduction for many low-income rural families, the policy and institutional framework there has failed to serve the needs of these poorest households and to get them onto the conveyor belt of development. A lack of public services in animal health that reached out to the poorest in rural areas and a failure to link small holder livestock keepers to better paying markets were but two examples of common failings. The institutional and policy frameworks tend to support intensive and commercial livestock rearing, both in the provision of services and also in facilitating access to markets there especially in eastern U.P., India.[21]

Secondly, livestock producers, including traditional pastoralists and smallholders, are both victims of natural resource degradation and contributors to it. Corrective action most likely lies in a mix of public goods related to environmental protection, ecosystem services and through incentives for private investment to improve animal productivity, particularly in eastern U.P. regions of India. However there are also numerous examples of community-led interventions where community management and sustainable use of natural resources have positively impacted small holder livestock rearing in rural areas in eastern U.P.

Third, animal health services not only combat animal diseases that cause mortality and reduce animal productivity, they also protect human health because of the risk of animal to human disease transmission. [20,21]

Poultry farm in Uttar Pradesh

Animal health systems have been neglected in eastern U.P. regions of India and this has led to institutional weaknesses that in turn lead to poor delivery of animal health services and higher risks to livelihoods and human health in almost all cities and towns of Uttar Pradesh in India. In correcting this situation it must be recognised that the poor face different risks and have different incentives and capacities to respond than do intensive commercial farmers. Therefore, animal health service providers have the additional challenge of recognising the differences between their stakeholders and developing mechanisms to reach them all.Moving forward on these key findings is not possible by relying either on individuals alone or a single string of actions. Progress requires attention from all actors in the social, environmental, animal health, human health and agriculture sectors; that means public, private and community organisations being actively engaged together not only in Uttar Pradesh but also in all states of India. [19,20]

Conclusions

Food security is positively correlated to food availability stability and accessibility. Food availability and stability are interdependent. But food availability is reducing mainly due to the transformation of cereal crop cultivation into commercial cropping. Food stability may be reduced due to changing land use pattern associated with Industrialization, commercialization and globalization. Food accessibility merely depends on the purchasing power of inhabitants and is different from food availability and stability. It is mainly due to the fact that, with industrialization, urbanization, commercialization and technological innovation in agriculture, farmers tend to cultivate cash crops for quick earning. The large scale cultivation of cash crops severely hampers the production of food grains and subsequently, food grains availability is gradually reduced.[20]

Hence it is essential that unlike crops the food security in the form of livestock products and poultry provides completion for the poor population in eastern Uttar Pradesh in India. We have notified more poor inhabitants in eastern Uttar Pradesh who are dependent on livestock products and poultry ie. Goat meat, cattle meat, beef, cow milk, buffalo milk, hen, chicken, eggs, and duck and their eggs etc. dairy development has also led an impact on feeding poor rural population of eastern Uttar Pradesh in India as compared to high status population in other places who are dependent on fruits and crops.[21]

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