



Livestock and Nutrition

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Livestock are ubiquitous in low income communities across the developing world. An estimated 68% of resource-poor rural households keep some type of livestock (Pica-Ciamarra et al. 2011). Livestock are a source of income and food, support crop production and provide insurance and social status for these households (Figure 1). Recently, there has been more focus on the potential for nutrition-sensitive¹ agriculture and livestock interventions to improve human nutrition including the release of technical guidance by the Food and Agriculture Organization (FAO 2020).

Contribution of animal source foods to nutrition and dietary diversity

Animal source foods (ASF) are rich in micronutrients and proteins. As such, consumption of even small amounts of milk, meat, blood and eggs can contribute substantially to ensuring

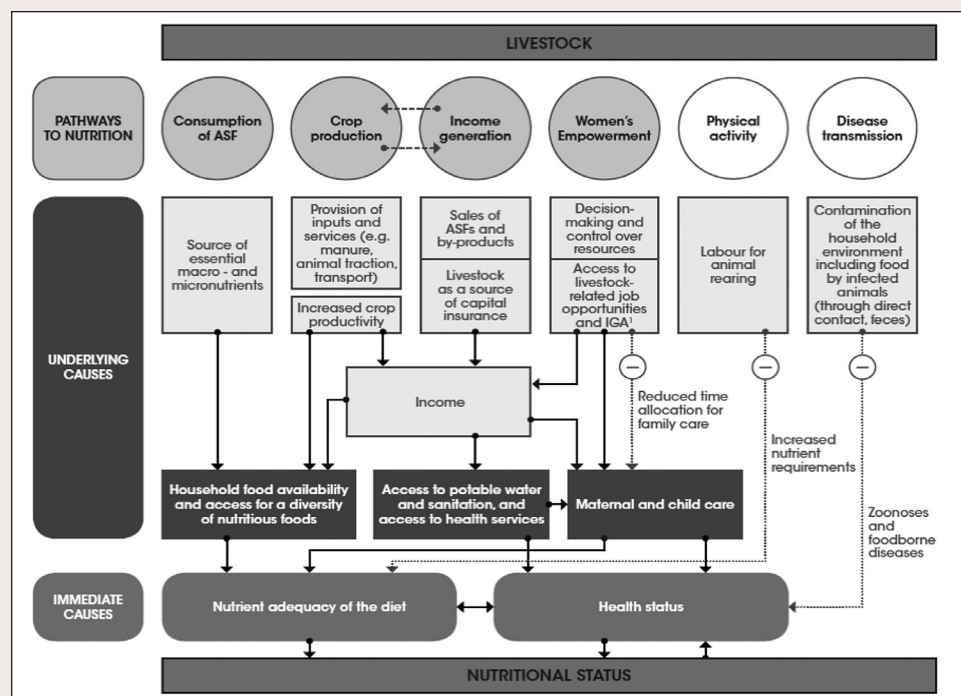
adequate nutrition. Organisations like the World Health Organization (WHO) recommend that they are included as part of balanced diets for nutritionally vulnerable groups. While ASF have traditionally made up a large part of the diet of some minority groups such as pastoralists, for most rural low-income households they are rarely eaten because they are relatively more expensive than foods from other food groups. There have been many studies in the past 10 years that have found positive associations between livestock ownership and dietary quality (at household, child and/or women level) and, when measured, with increased intake of essential micronutrients such as vitamin A and iron. Evidence of associations between livestock ownership, intake of ASF and nutritional status outcomes (i.e. stunting and wasting)² is however more limited. Much of the evidence comes from observational cross-sectional studies which do not allow for causal inferences. In addition, most studies only examine

stunting as an outcome which is usually less relevant for examining the impact of emergency interventions because it changes more slowly than wasting. The strongest evidence is seen for the positive association between milk intake and improved linear growth (height) in children and, in some contexts, the magnitude of associations was greater for households that had limited access to markets and/or were poorer or affected by conflict – all factors particularly relevant for emergencies.

Factors that influence associations between livestock and nutrition

Women's empowerment has been considered a strategy to enhance household food security and nutrition for some time and work has shown that women's control over livestock assets and income can be positively associated with individual dietary diversity (quality), as it increases women's ability to produce or purchase more diverse nutritious foods. This suggests that opportunities to enhance gender equity can be particularly important for nutrition in vulnerable communities.

Figure 1: Impact Pathways from Livestock to Nutrition



⊖ represents a negative influence

Source: Food and Agriculture Organization (FAO, 2020)

The final two pathways (physical activity and disease transmission) in Figure 1 are highlighted white because they are likely to have negative consequences for nutritional status of those affected: physical activity because it increases the nutrient demands of those involved and disease because it can impair nutrient absorption and/or cause the body to lose nutrients, such as through diarrhoea.

1 Nutrition-sensitive interventions are designed to address the underlying causes of malnutrition. As nutrition is affected by access, availability and quality of food, a nutrition-sensitive intervention may focus on increasing agricultural productivity for own-consumption or sale.

2 Children with a low body weight for their height (i.e. too thin) are classified as wasted and those who are short in height for their age as stunted. Wasting has been described as an 'acute' condition given its relatively rapid onset and recovery period and stunting as a 'chronic' one given the condition's slower onset and limited opportunities for recovery.

Knowledge can shape attitudes and behaviour towards improved family and child feeding habits. However, knowledge can only translate into improved nutrition if those acquiring that knowledge have some control over resources. Increasing the knowledge of those making consumption choices and empowering them to have more control over their resources has been found to be key to realising the potential of livestock production on nutrition. In addition, the availability of animal milk in low- and middle-income countries may sometimes support sub-optimal child-feeding practices. Although WHO does not recommend animal milk for young children before 9 to 12 months of age, there is considerable evidence in the literature that shows that cow and other milk is often given to infants. This has been found to be linked to a perception by mothers that their breastmilk is not sufficient in quantity/quality because they themselves feel sick and/or fatigued.

There is on-going debate around the theory that child nutrition and health outcomes in developing countries may be adversely affected by *exposure to animals and their faeces*. The thinking behind this risk stems from several factors including the widespread ownership of livestock and pets in low income countries, the lack of housing and enclosure structures for livestock that separate animals from household members and, of course, the very high concentration of potentially harmful bacteria in animal faeces. Whilst research that demonstrates this direct link remains weak, WHO and other guidance recommends that, given the association between diarrhoeal infection and nutrition, improving access to sound water, sanitation and hygiene (WASH) practices, including those related to livestock management, is important for programmes to ensure optimal impact on human nutrition.

Factors prevalent during *emergencies*, such as armed conflict and drought or flooding that result in animal loss through sales, raids, death and disease, have been shown to disrupt the positive impact pathways between livestock and nutrition. This is known to have a direct negative impact on the nutrition of communities that are dependent on livestock.

References

FAO 2020, *Nutrition and Livestock - Technical guidance to harness the potential of livestock for improved nutrition of vulnerable populations in programme planning*, FAO, Rome.

Pica-Ciamarra, U., Tasciotti, L., Otte, J., & Zezza, A. 2011, *Livestock Assets, Livestock Income and Rural Households. Cross country evidence from household surveys*, the World Bank, FAO, ISS, Washington D.C..

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About LEGS

The Livestock Emergency Guidelines and Standards (LEGS) are a set of international guidelines for improving the quality of livestock programmes in humanitarian crises. LEGS provides standards and guidance based on good practice from around the world to help decision-makers and practitioners to improve their support to livestock keepers affected by crisis. LEGS is a non-profit entity registered in the United Kingdom, managed by a Board of Trustees, and supported by a small central secretariat.

Lessons learnt

In summary, this review has highlighted that, while the evidence for the direct impacts of livestock interventions on nutritional status is limited, there is considerable evidence that such interventions can improve household access to nutritious foods and the quality of mothers' and young children's diets. Evidence increasingly suggests that agriculture and livestock interventions may be more impactful when they are focused on improving access to, and consumption of, nutritious food and diverse diets than on reducing malnutrition (stunting and wasting) directly. Learning for nutrition that can be applied to livestock interventions in emergency contexts includes:

- Designing interventions to maintain and/or improve access to ASF, especially for nutritionally vulnerable populations
- Minimising exposure to the pathogens associated with livestock and livestock excreta
- Incorporating aspects of gender and women's empowerment for income generation and choices around expenditure
- Supporting nutrition knowledge and recommended care practices, particularly in relation to infant feeding

Conclusions

In conclusion, greater integration between the livestock and nutrition sectors is necessary to ensure livestock livelihoods and ASF contribute to addressing malnutrition. This should include the use of a 'nutrition lens' throughout the programme cycle that examines both the positive and negative potential impacts of livestock interventions for nutrition, as well as the measurement of nutrition impacts through improving access to, and consumption of, nutritious food and diverse diets. Not using livestock as a pathway out of malnutrition would be a missed opportunity and, as such, the recommendations outlined in this paper could play an important role in helping to achieve global nutrition goals.



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