

# CONSTRAINTS AND OPPORTUNITIES IN INDIGENOUS CHICKEN PRODUCTION AND MARKETING IN MASHURU AND LOITOKTOK DIVISIONS OF KAJIADO DISTRICT

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## Abstract

Although Kenyan rangelands are best suited for extensive livestock production, recent trends in land subdivision coupled with increasing human population and influx of farming communities from neighbouring areas have made this production system untenable. This has led to increased land degradation and food insecurity. Indigenous chicken is an appropriate livestock for the rangelands when viewed in terms of its scavenging for most of its nutritional requirements and being hardy, well adapted to the rangeland conditions and surviving with minimal inputs and still producing. However, in spite of this potential, many households in the rangelands do not keep chicken. The hypothesis of this study is that increasing food and income through chicken production, the Maasai households will start keeping fewer cattle sheep and goats hence reducing the pressure on the rangelands. This baseline survey was conducted with the objective of identifying constraints and opportunities in chicken production in Mashuru and Loitoktok divisions of Kajiado District and by extension the Maasai community. Data analysis was done using Microsoft excel data management tools and the Statistical Package for Social Sciences (SPSS). Predation was ranked the most important constraint in the District followed by diseases and pests. The opportunities identified include developing and promoting appropriate housing structures, strategies for scaring and/ or controlling predators and capacity building within the community on general management.

## Introduction

There is considerable evidence of a major crisis in pastoralism in Africa, with Kenya being no exception (RELMA, 1999). Kenyan rangelands are best suited for extensive livestock production, however, recent trends in land subdivision coupled with increasing human population and influx of farming communities have made this production system untenable (Lesorogol, 1998). These changes have also been accompanied by changing feeding habits where pastoralists are currently slaughtering fewer animals for home consumption (Grandin, 1991).

Indigenous chicken is an appropriate livestock for the rural farmers when viewed in terms of its scavenging for most of its nutritional requirements (Nzioka 2000) and are hardy; well adapted to the rangeland conditions and survive with minimal inputs and still produce (Ndegwa and Kimani, 1996). Chicken therefore can provide the much-needed source of protein for the vulnerable groups in the pastoral households and at the same time generate income from sales of surplus birds and eggs (Tuitoek *et al.*, 1998). However, in spite of this potential, many households in the rangelands do not keep chicken (Nzioka, 2000). The hypothesis of this study is that increasing food and income through chicken production, the Maasai households will start keeping fewer cattle sheep and goats hence reducing the pressure on the rangelands. The objective was to identify constraints to chicken production and opportunities for improvement in Mashuru and Loitoktok divisions of Kajiado District and by extension the Maasai community.

## Materials and methods

The survey was carried out in Mashuru and Loitoktok divisions of Kajiado District. In Mashuru division, 4 out of 9 locations were covered by selecting one sub-location in each. Research and extension staff administered a semi-structured questionnaire with assistance of community members and leaders. The sub-locations covered were Kiboko, Merueshi, Mashuru and Emarti. In Loitoktok Division, 3 out of the total 6 locations were covered. The 5 sub-locations covered in the 3 locations were, Kimana, Oltiasika, Olgulului, Mbirikani and Lenkisim. In addition to households in these areas, 4 markets were surveyed in the 2 divisions. These were, Mashuru, Isara and Emali in Mashuru division and Kimana in Loitoktok division.

Responses from the survey were verified in one-day community feedback workshops held at Mbirikani and Kimana sub-locations in Loitoktok division and Mashuru, Emarti and Merueshi sub-locations in Mashuru division. The constraints were then ranked in terms of their importance using the pair-wise ranking comparisons. Data analysis was done using Microsoft excel data management tools and the Statistical Package for Social Sciences (SPSS).

## Results

A total of 242 households were interviewed with an equal number in each division. Sixteen traders were interviewed with 7 buying and 9 selling in all the 3 markets. Only 3 of the traders were women and were all selling chicken from their homes.

### *Constraints and Opportunities*

The constraints and their rankings in each of the Sub-locations are presented in table 1.

**Table 1**—Constraints to indigenous chicken production and their rankings in Mbirikani, Kimana, Emarti, Mashuru and Merueshi Sub-locations of Kajiado District

Constraints	Rank of the constraints in each Sub-Location						Rank
	Mbirikani	Kimana	Emarti	Mashuru	Merueshi	Mode	
Diseases and pests	2	2	2	1	4	2	2
Predation	1	5	1	2	1	1	1
Marketing	3	1	3	4	3	3	3
Shortage of feeds	5	-	-	6	2	-	5
Lack of knowledge	4	3	4	-	5	4	4
Lack of drugs	-	-	-	3	-	-	6
Poor chicken breeds	-	4	-	5	-	-	7

Key: - Not mentioned as a constraint in this Sub-location

### *Predation*

Predation through both aerial and terrestrial predators was ranked as constraint number one in 3 out of the 5 sites. The common predators identified are the wildcats, honey badgers, mongooses, snakes, and hawks. Opportunities identified for managing of predation are; searching for and promoting appropriate chicken housing structures, exploring and promoting strategies for scaring and controlling common predators that attack during the day. Other opportunities identified are; keeping fierce and active dogs to control the predators, hosting pieces of clothes on masts to scare aerial predators, engaging children in monitoring and rescuing the chicken and eggs in case of an attack and constructing chicken enclosures for keeping the predators away and restraining the chicken, especially the chicks during daytime.

### *Diseases and pests*

Pests and diseases were ranked number 2 in 3 out of the 5 sites. The common diseases are fowl typhoid, Newcastle Disease (NCD), coughing, Chronic Respiratory Disease (CRD), coccidiosis and eye infections. The common pests are the fleas, ticks mites and intestinal worms. Opportunities identified to address these constraints are; capacity building to empower community members to identify and manage common diseases and pests, exploring and promoting appropriate diseases and pests management strategies and carrying out an inventory and occurrence of prevalent diseases and pests with the aim of formulating appropriate management strategies. Other opportunities identified are; encouraging local agro-vet stockists to stock chicken disease and pest management drugs and chemicals, exploring and promoting herbal concoctions for chicken diseases and pests management. Carrying out an inventory of the herbal concoctions being used by the Maasai and the neighbouring communities with the aim of promoting appropriate herbal concoctions for disease and pest management was recommended.

### *Marketing*

Marketing was ranked number 3 out of the 5 sites. The major factor affecting marketing is the low buying prices being offered by traders in the local markets. Opportunities identified are; exploring and promoting strategies for increasing the size of the eggs and the growth rate and mature size of the chicken, crossbreeding with exotic breeds and upgrading the local chickens by using selected indigenous types. Other opportunities are; facilitating the formation and empowerment of marketing groups and organizations, improving the local marketing infrastructures and exploring and promoting strategies for increasing the consumption of both eggs and chicken meat in local markets. Exploring and promoting appropriate strategies for sourcing and disseminating marketing information on eggs and chicken from within and without the district was also identified as an opportunity.

### ***Shortage and/or high cost of chicken feeds***

Low availability and high cost of chicken feeds was lowly ranked except in Merueshi sub-location where it was ranked second most important constraint. Opportunities identified for increasing the availability and reducing the cost of feeds are; exploring and promoting appropriate technologies for formulating chicken feeds from locally available materials, exploring and promoting strategies for increasing and/or collecting seeds, worms and insects for feeding the chicken.

### ***Low and/or lack of knowledge on chicken production***

The Maasai pastoralists have low and/or lack knowledge on basic chicken production requirements. This was ranked moderately with one site ranking it third and 2 sites ranking it fourth most important constraint. Opportunities identified to increase the community's knowledge on general chicken production are; building the community's capacity in chicken production, processing and marketing strategies, conducting demonstrations, exchange visits and holding workshops and field days.

### ***Low availability and/or lack of drugs for disease and pest management***

Low availability and/or lack of drugs for disease and pest management strategies was ranked highly (third) but was only mentioned at one site, Mashuru. Opportunities identified are; exploring and promoting strategies for encouraging local agro-vet stockists to stock chicken diseases and pests management drugs and chemicals, exploring and promoting locally available herbal concoctions for diseases and pests management and facilitating farmers to form groups for sharing the cost of buying equipments, drugs, chemicals and vaccines.

### ***Poor chicken breeds***

The constraint was ranked lowly being placed at the bottom of the rank. Opportunities identified are; crossbreeding with appropriate exotic breeds and selected indigenous chicken breeds and rotational use of different cocks in a village cockerel exchange programme.

Other constraints identified by the community but not ranked are; *Socio-cultural beliefs and negative feeling towards chicken keeping, nuisance of the chicken within the homestead such as scratching the walls of the houses and disturbing the ladies in the kitchen as they look for feeds and incompatibility of chicken production with the nomadic lifestyle.*

## **Discussions**

Predators reduce the number of birds hence discourage the community from keeping chicken. They also eat eggs hence reduce the number that can be used for producing chicks, sale and home consumption. The housing structures currently being used by the Maasai community are not appropriate for deterring common night time predators. Improved housing will increase productivity, as it will reduce losses through predation and unfavourable environmental factors. Also if not properly housed, most birds lay eggs and sit on them in spots unknown to a farmer, and often end-up being eaten by wild animals or stolen (Ndegwa *et al.*, 1998).

Recurrent disease out breaks often wipes out whole chicken flocks in many parts of Kajiado District. This is a major cause of low numbers being kept and the chicken population not increasing gradually over the years. Pests also lower the production of the chicken and cause many deaths especially of the chicks. Since conventional disease and pests management drugs and chemicals are either unavailable and/ or expensive, there is need to promote herbal concoctions in disease and pest management.

Low prices given for both eggs and the birds by the traders discourage the pastoralists from engaging, and investing in chicken production enterprises. Also of major concern is the low consumption of chicken meat in local markets. There is need to explore and promote strategies for increasing local consumption of both chicken meat and eggs within the community.

Although most of the chickens are raised through the free-range system, they need supplementation especially during the dry seasons. Carrying out an inventory to document the types and quantities and qualities of the range of plant seeds, worms and insects available to the chickens during their free ranging expeditions is an important research area in improving chicken production in the District. Other technologies of availing more feeds to the chickens should also be explored.

## **Conclusion and recommendation**

There is need to evaluate and modify both the local and traditional knowledge with the aim of developing appropriate strategies for improving chicken production in Kajiado District. The way forward is to mobilise all stakeholders involved in promoting chicken production, consumption and marketing in the district to plan the way forward.

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### **References**

Grandin B.E. (1991). The Maasai: Socio-historical context and group ranches. In: Solomon B., P.N. de Leeuw, B.E. Grandin and P.J.H. Neate (Eds.). Maasai herding; an analysis of livestock production system of Maasai pastoralism in eastern Kajiado District, Kenya. International Livestock Center for Africa, Addis Ababa, Ethiopia.

Lesorogol C.K. (1998). Life on the margins: Perspectives on the pastoralism and development in Kenya. A paper submitted to USAID/Kenya.

Ndegwa J.M., Kimani C.W., Siamba D.N., Mukisira E.A. and Jong R. de. (1998). Characteristics of rural poultry production in different Agroecological zones in Kenya. In: Agronom Services Ltd (Eds). Agricultural Research and Development for Sustainable Resource management and Increased Production. Proceedings of the 6<sup>th</sup> KARI Scientific Conference. 9-13 November 1998. KARI Headquarters, Kaptagat road, Loresho, Nairobi, Kenya.

Ndegwa J.M. and Kimani C.W. (1996). Rural Poultry production in Kenya: Research and Development strategies. In: Fungoh, D.O. and G.C.O. Mbandi (Eds). Focus on Agriculture for Sustainable Development in a Changing Economic Environment. Proceedings of the 5<sup>th</sup> KARI Scientific Conference. 14-16 October 1996. KARI Headquarters, Nairobi, Kenya.

Nzioka M. (2000). Indigenous poultry production in the Katumani mandate area. In: Margo Kooijiman and E. Mukisira (Eds). Netherlands support to the National Agricultural Research Project Phase II. Proceedings of the end of project conference. 29<sup>th</sup> Nov.-1<sup>st</sup> Dec. 2002. KARI Headquarters, Nairobi, Kenya.

Regional Land Management Unit (RELMA). (1999). We Work Together. Land rehabilitation and household dynamics division in Chepareria Division, West Pokot District, Kenya.

Tuitoek J.K., Chemjor W., Ndegwa J.M. and Ottaro J.M. (1998). Morphological characteristics and protein requirements of Kenyan indigenous chicken. In: Agronom Services Ltd (Eds). Agricultural Research and Development for Sustainable Resource management and Increased Production. Proceedings of the 6<sup>th</sup> KARI Scientific Conference. 9-13 November 1998. KARI Headquarters, Kaptagat road, Loresho, Nairobi, Kenya.