

Rabbit production practices among smallholder famers in Kenya

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Abstract

Rabbit production is gaining popularity in Kenya owing to its significant contribution to nutrition and income among smallholder households. Rabbit farming is a viable option because of their prolificacy, fast growth rate and maturity, high genetic potential and feed conversion efficiency and economical utilization of space. However, there is limited information on farmers' practices among rabbit producers. Therefore this study documented rabbit production practices and their importance on food protein source and income generation among smallholder farmers of Elgeyo Marakwet and Kakamega counties, Kenya. Purposive sampling was done among farmers keeping rabbits and data were collected through a field survey, questionnaires and personal observations. Results showed that 3.2% of livestock keepers rear rabbits. Chinchilla (38.5 %) was the most common rabbit type kept. A majority of farmers (76.9%) obtain parent stock from fellow farmers. On average, smallholder farmers have kept rabbits for three to five years. Over 90% depend on seasonal green wild forage feed. The respondents valued rabbits as a source of food and income generating enterprise (46.2 % and 53.8 % respectively). Rabbit drops are perceived by farmers to improve soil fertility (92.3 %). Market access and skills on rabbit production were the outstanding challenges faced by farmers. It is recommended that technologies be developed on suitable rations to enhance rabbit production and improve nutrition and household income generation.

Key words: Farmer practices, market access, questionnaires, rabbit production

Résumé

La production de lapins devient de plus en plus populaire au Kenya en raison de sa contribution significative à la nutrition et le revenu des ménages de petits exploitants. L'élevage de lapins est une option viable en raison de leur prolificité, le rythme rapide de la croissance et la maturité, le potentiel génétique élevé, l'efficacité de la conversion alimentaire, et l'utilisation économique de l'espace. Cependant, il y a peu d'informations sur les pratiques d'élevage parmi les producteurs de lapins. Par conséquent cette étude a documenté des pratiques de production de lapins et leur importance en tant que source de protéines alimentaires et de revenus parmi les petits agriculteurs d'Elgeyo Marakwet et comtés de Kakamega, Kenya. L'échantillonnage raisonné a été fait chez les éleveurs des lapins et les données ont été

recueillies en utilisant une enquête sur terrain, des questionnaires, et des observations personnelles. Les résultats ont montré que 3,2% des fermiers élèvent des lapins. Chinchilla (38,5%) était la race de lapin la plus communément élevée. La majorité des agriculteurs (76,9%) obtiennent les géniteurs à partir d'autres éleveurs. En moyenne, les petits agriculteurs ont élevé des lapins pendant trois à cinq ans. Plus de 90% dépendent des herbes sauvages saisonnières comme fourrage. Les répondants ont évalué les lapins comme une source de nourriture et une entreprise génératrice de revenus (46,2% et 53,8% respectivement). Les crottes de lapins sont perçues par les agriculteurs comme étant capable d'améliorer la fertilité des sols (92,3%). L'accès au marché et les compétences dans la production de lapins ont été les défis majeurs auxquels sont confrontés les éleveurs. Il est recommandé que les technologies soient développées sur les rations appropriées pour améliorer la production de lapins et améliorer la nutrition et la génération de revenus des ménages.

Mots clés: pratiques agricoles, l'accès aux marchés, des questionnaires, la production du lapin

Introduction

Rabbit production in Kenya is gaining popularity as an economic undertaking. This can be attributed to decreasing per capita landholdings due to increasing human population density; in addition, the rising awareness on the great advantages of rabbit keeping has also contributed to its popularity (Hungu *et al.*, 2013). These advantages include: early maturity, highly prolific and high genetic selection potential (Borter and Mwanza, 2010). According to Cheeke (1986) rabbits are promoted as small livestock of significance in poverty alleviation and as an alternative source of livelihood among smallholder households. Rabbits are justified for this function because they have fast growth, short generation interval, low investment requirements, low income risks and contribute to family nutrition, income generation and gender empowerment (Jaetzold and Schmidt, 1982; Jaetzold and Schmidt, 2010). Further, rabbits improve the nutrition of smallholder families as a source of animal protein with an added advantage of alternative income through their sales (Luyen and Preston, 2012). Rabbits are fed on different kind of forages, tree leaves, fruits (bananas), roots and tubers (e.g.; cassava and sweet potatoes) and agricultural by-products. Maintaining forage feed security for rabbits on farm ensures production all year-round (Lukefahr, 2008; Lukefahr, 2011).

Kenya is estimated to have reached a total population of 600,000 rabbits with higher concentrations in Central, Western and Rift valley regions of the country. Socio-cultural factors remain among the major constraints to the wider adoption of rabbit production. Rabbit keeping has for some time now been relegated to the youth with other social groups giving it limited attention (Border and Mwanza, 2010; Borter, 2013).

According to Serem *et al.* (2014), most of the consumed animal protein is from large ruminants, poultry and pigs. This calls for some interventions due to decline in household land holdings which do not favor raising large ruminants and as such rabbits are a viable option because of their prolificacy, early maturity, fast growth rate, high genetic potential, high feed conversion efficiency and economical utilization of space. Thus, the objective of this study was to

Fifth RUFORUM Biennial Regional Conference 17 - 21 October 2016, Cape Town, South Africa 805
 establish farmer practices on rabbit production among the small holders in Elgeyo Marakwet and Kakamega counties Kenya.

Materials and methods

The study was carried out at Cheptebo Elgeyo Marakwet County which lies between latitude 1° and 18' and 0° 10' N and longitude 35° 42' and 35° 09' east at midland 5 agro ecological zone. The second site of the study was Makunga location, Kakamega County, which lies at longitude 0.3001 N and latitude 34.6239 E longitudes. Questionnaires were pre-tested prior to administering to ascertain their reliability and validity. Data were collected through a field survey using administration of structured questionnaire and personal observations between January and February 2016. For Cheptebo the data were collected from 27-29 January while for Makunga from 9-12 February, 2016.

Information was collected on the general farm details and farming practices including rabbit breeds, breeding materials, housing structures, common feeds and feeding practices, constraints to production and ways to address the challenges were collected. The farmers (respondents) were purposively selected based on the nature of farming. The sample size based on population density was 42 respondents at Kibargoi location in Elgeyo Marakwet County and 110 in Makunga location, Kakamega County. The difference in sample size was due to the county population densities which were low at Elgeyo Marakwet but high at Kakamega County. The collected data were coded and analyzed by use of Statistical Package for Social Sciences (SPSS) version 18.0.

Results

Characterization of livestock kept by respondents. The respondents reared a total of seven livestock types (Table 1). Rabbit farming is slowly entering into the livestock production system in Kenya, but still at a relatively low level (3.2%, Table 1). Respondents reared up to eight rabbit types (Table 2). The Chinchilla (38.5 %) type was the most common among all

Table 1. Types of livestock kept by respondents

Animal kept	Percent
Chicken	33.90%
Cattle	32.90%
Goats	17.40%
Sheep	12.30%
Rabbits	3.20%
Pigs	0.99%
Fish	0.74%
Total	100.0 (407)

Table 2. Breeds of rabbits reared by the respondents

Breed of the rabbit	Percent
Chinchilla	38.50%
New Zealand/Dutch	15.40%
California	7.70%
Chinchilla, Dutch	7.70%
Chinchilla, New Zealand white	7.70%
Local	7.70%
New Zealand white	7.70%
Newcastle	7.70%
Total respondents	100.0%

the rabbit breeds. The majority of the farmers sourced their breeding stock mainly from other farmers (76.90%) and 23.1% sourced from family members and Bukura Agricultural Institute. The mean time duration farmers have kept rabbits was 2.5 ± 1.5 years (Table 3). This was however disaggregated by categories with some farmers having kept rabbits now for five years (Table 3).

Rabbit feeds, perceived benefits and challenges. Feeds used by the smallholder farmers comprised of home accessible feeds and commercial feeds as shown in Figure 1. The main feed used by smallholder farmers composed of home accessible forage (92.3%) which comprised of wild green forage that appear mostly in the rainy season and leaves of trees or bananas during the dry season. Furthermore, Figure 1 showed that a small percentage (7.7%) purchase commercial feeds to supplement the home accessible feeds.

Table 3. Time period in years of rabbit farming among the respondents

Time	Valid percent
Two years	38.5%
One year	23.1%
Three years	23.1%
Five years	7.7%
Six years	7.7%
Total	100.0%

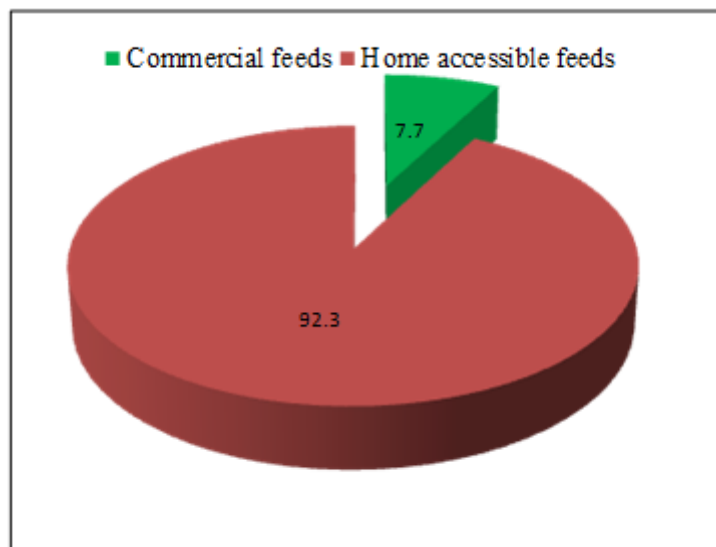


Figure 1. Rabbit feed among the respondents

The interviewed respondents indicated the significance of rabbit production (Table 4). The small herbivore was considered as a source of food by 46.2 % of the respondents. The other respondents sell the rabbits to get an income (53.8%).

The other importance of rabbit farming was the utilization of it's by products which include urine and faeces. The by-products was used to improve soil fertility as well used to fertilize crops hence, increase crop yield. Majority of the respondents (92.3 %) perceived that faeces improve soil fertility while 7.7% of the respondents perceived that the faeces increased crop yields as shown in Table 5.

The main challenges faced by smallholder rabbit farmers are market access and skill deficiency. Market access and skill deficiency each represented 38.5% of the challenges reportedly by respondents. Other challenges included diseases (7.7%), environmental conditions (7.7%) and predators (7.7%) as indicated in Table 6.

Table 4. Significance of rabbit keeping among respondents

Source	Frequency	Valid percent	Cumulative percent
Food source	6	46.2%	46.2%
Income sources	7	53.8%	100.0%
Total	13	100.0%	

Table 5. Significance of rabbit droppings

	Frequency	Valid percent	Cumulative percent
Improves soil fertility	12	92.3	92.3
increase crop yield	1	7.7	100.0
Total	13	100.0	

Table 6. Challenges faced by rabbit keeping farmers

	Frequency	Valid percent	Cumulative percent
Lack of market access	5	38.5%	38.5%
Diseases	1	7.7%	46.2%
Environmental conditions	1	7.7%	53.8%
Skill deficiency	5	38.5%	92.3%
Predators	1	7.7%	100.0%
Total	13	100.0%	

Discussion

This study has shown that rabbit production in Kenya is fairly recent (on average 2.5 years) which may explain the relatively small number of farmers keeping them. However, rabbit production is slowly gaining ground in the livestock production system in Kenya. According to Borter and Mwanza (2010), for rabbit production to gain hold in a new production systems, it takes on average 7 years given the right attitude and parent stock availability. It therefore appears that part of the constrain to the expansion in rabbit production is the limited source of parent stock as the majority of farmers obtained their parent stock from fellow farmers. Such practices have been known to constrain productivity as well as quality (Mailu *et al.*, 2013).

In order to increase awareness on the importance of rabbit farming, there is a need to disseminate information on rabbit farming so as to enhance adoption and encourage improved production. According to Yakubu *et al.* (2013), both the researchers, extension staff and farmers should use communication and information technologies available to disseminate agricultural information in order to close the existing gap of information inaccessibility.

The respondents indicated that they feed their rabbits with locally available materials and rarely use commercial feeds. This reflects the attempt by the respondents to reduce the cost of production by use of locally available resources. The data in this study concur with those reported by Lukefahr (2011) and Iyeghe *et al.* (2006) who recommended that all year-round available rabbit feeds within a farmers reach should be planned for. Furthermore, the findings in the study confirmed that rabbit keeping can be a source of food as well as income generation. These results concur with those of Luyen and Preston (2012). Though rabbit farming is gaining popularity among smallholder farmers, there exist challenges that need to be addressed. The research findings indicated that market access and skill deficiency on rabbit production were the main challenges to be addressed.

Conclusion

A smaller percentage of respondents rear rabbits pointing out the need to promote the enterprise among the smallholder farmers given the significance of the practice in terms of being a source of food and income generation. There is need to develop feed ratio aimed at all year round provision of feed to the rabbits within the reach of the farmers. Thus, research be carried out in this regard to enhance rabbit production, improve family nutrition and income generation. Challenges in the production rabbits need to be addressed and this should be picked up by the Ministry of Agriculture at both County and National level to help alleviate these problems and provide market access for the enterprise.

Acknowledgement

Support for implementation of the study was made possible through a capacity building competitive grant (RU 2015 GRG -126) provided by Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). This paper is a contribution to the 2016 Fifth African Higher Education Week and RUFORUM Biennial Conference.

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