

## **RABBIT PRODUCTION IN KENYA, CURRENT STATUS AND WAY FORWARD**

**Daniel K Borter and Rosemary N. Mwanza**

**Animal Production Division**

### **ABSTRACT**

This paper expounds on the rabbit industry in Kenya by outlining the historical background, the current status and challenges facing the industry. It describes in detail the husbandry practices applied, including housing, feeding, breeds and breeding and health management practices. Recent interest in rabbit production including burgeoning of rabbit producer associations is articulated. As a way forward, the paper suggests six strategies to fast track the rabbit industry among them promotional campaigns, extension and capacity building, research, adoption of modern production techniques and deliberate efforts towards making the sector attractive for private sector investment.

### **INTRODUCTION**

Rabbit population in Kenya is estimated at about 600,000 with the higher populations in Central, Western and Rift Valley regions of the country (MOLD, 2010). The last three years has seen interest in rabbit keeping reach unprecedented level. Previously, rabbit keeping was a preserve of certain social groups as a hobby especially among the youth. This has changed thus gender and sociological bias associated with its production is quickly becoming a matter of history especially in Central Kenya.

Though rabbit keeping dates back to the colonial days, deliberate efforts to promote rabbit production in Kenya was heralded by national rabbit development program of 1980 following a bilateral agreement between the Government of Kenya and German International Development Agency (GTZ). The National Rabbit Breeding Centre was then established at Ngong Veterinary Farm with an objective of providing breeding material for farmers throughout the country. To start off the Centre, breeding stock was imported from the then West Germany. Later other multiplication stations like Machakos, Embu, Wambugu F.T.C., and Kilifi were established. This program made rabbit keeping as one of the component of Animal Production

Division and was instrumental in training of staff and farmers.

Despite these efforts to promote the rabbit industry, socio-cultural factors remained a hindrance to widespread adoption of rabbit keeping. This stemmed from the fact that rabbit keeping was traditionally a 'thing' for young boys. Rabbit keeping was effectively relegated to the youth, other social groups having given it little or no attention at all (MOLD, 2004). Youth clubs such as the 4K club played important role in sustaining rabbit keeping and though the Ministry of Livestock Development (MOLD) maintained its commitment to promote rabbits, the poor response from farmers led to the closure of other Rabbit Multiplication centres in the country except for the Ngong Rabbit Breeding Centre.

Things have however changed. Numerous rabbit keeping groups with membership stretching through different gender groups have sprung up, many of them now registered among them the Rabbit Breeders Association of Kenya (RABAK) based in Thika. There has also been a steady growth of Individual potential rabbit keepers seeking information in the MoLD offices with regard to rabbit production. This paper attempts to shed light on the ongoing rabbit related activities, outlining challenges and suggesting a way forward.

### **Status of Rabbit Production**

Rabbit production is now one of the fastest growing livestock enterprises in the country. Though there has been no study yet to ascertain the reasons for this, it is speculated that reduction in land-size holdings has pushed farmers to choose livestock enterprises such as rabbit production which have low demand on land and feed resources. For this reason and the fact that they are noiseless, rabbit keeping is particularly suited to peri-urban farmers who may choose to raise their rabbits without fear of being a nuisance to neighbours (Omole, 1998).

In addition, a rising awareness of the advantages of rabbit production is also likely to contribute to its popularity. These advantages include being highly prolific, early maturity, fast growth rate, high

genetic selection potential, efficiency in feed conversion and economic utilization of space (Lukefahr & Cheek, 1990). Rabbits also have limited competition with humans over food sources and can be fed successfully on leftover vegetables and other foods.

Despite the growing interest, rabbit production in Kenya is still dominated by ultra small and small scale producers with minimal investment in housing, feeding and other management practices (APD, 2010). Production is not structured, hence farmers are unable to clearly project the number of rabbits they are able to avail to the market at any given time. Market is also not clearly defined as many people are oblivious of the fact that rabbit meat can adequately replace other protein sources.

Before the recent burgeon in rabbit production, traditional rabbit keepers were non-commercial oriented and mostly geared their production towards family consumption. This has since changed as rabbit keepers are currently least motivated by home consumption. Selling rabbits as breeding stock to other upcoming rabbit keepers now ranks high in motivation and is also the most lucrative as rabbits are able to fetch prime prices averaging Kshs. 3,000 with prices going up to Kshs. 10,000 (APD, 2010). Meat market now ranks second in motivation with the opening up of rabbit meat outlets such as the Gilgil butchery, New Mugwathi Motel in Nyeri and Tana View Tavern, Muranga.

#### **Housing**

Housing constitutes one of the most important factors in rabbit production (Mailafia, Onakpa & Owoleke, 2010). The standard practice promoted by the MoLD is to build either indoor or outdoor hutches with cages measuring 12cm x 60cm x 60cm; each doe or buck on its own cage while up to 4 weaners can be kept in a single cage. Often, expectant does will each have a 30cm x 30 cm nesting box attached to their main cages in preparation for kindling. Though ideally weld-mesh wire cages are recommended, most Kenyan rabbit keepers would opt to use wood or combination of wood and weld-mesh because of its availability.

Since most rabbit keepers are small scale and take up rabbit keeping from their neighbours, friends or relatives, standard cage measurements are not adhered to. To be economical on available space, some rabbit keepers especially those who keep their rabbits in the peri-urban and urban areas have designed and developed multi-tier cages for their

rabbits. There are concerns however, when cages are more than two tiers because of difficulties in routine management especially drainage and disposal of waste. Poorly lit hutches are common among some rabbit keepers, sometimes complicated by poor waste management. Some farmers have complained that locally available weld-mesh wire preferred in cage construction is not durable giving in to rust and the corrosive nature of the rabbit urine. On the other hand, cages made of wood are difficult to clean as they retain the wetness from urine hence disastrous hygienically.

#### **Feeds and Feeding**

Like most parts of developing countries (see Mailafia, Onakpa & Owoleke, 2010), rabbit feeding in Kenya is based on locally available feed materials with little supplementation using commercially available rabbit pellets. Green succulent fodders including common vegetables, potato vines, certain weeds and hay are utilized. Farmers are also encouraged to use fodder crops such as Lucerne where available. Rabbit keepers harvest forages to feed their rabbits a day before, allowing them to wilt to reduce the moisture content before feeding them on rabbits. This is because fresh forages, high in moisture content can result in digestive complications.

Rabbits primarily on forages are fed on adlib basis. To avoid rabbits trampling on the feed, the forage is tied to hang from the roof of the cage at a comfortable height for rabbits to feed. Though not common, the MoLD advises farmers who wish to use commercial feeds only to provide adult rabbits with 130g of rabbit pellets daily. Making this choice escalates the costs of production significantly yet it remains a necessity to include some forage in their diet to assist in gut motility and digestion. In place of feeders for feeding concentrates, farmers have improvised and adopted the use of clay bowls which are also used as drinkers. These clay bowls are cheap and being heavy, they do not tip easily to cause spillage. Conventional feeders and drinkers utilized in developed countries are expensive to acquire, especially for small and ultra small-scale producers. Pasture cultivation, specifically for rabbits is not in practice and considerations should be made to formulate cheap feed rations that are of little direct value as human food.

#### **Breeds and Breeding**

According to the American Rabbit Breeders Association (ARBA), there are over 47 distinct

rabbit breeds (ARBA, 2011). Only a handful of these are reared in Kenya, the most common being New Zealand White, Californian white, Chinchilla, French lop, Dutch, Checkered Giant, Giant Flemish, Angora and Rex. A survey conducted by Animal Production Division in November 2010 indicated that New Zealand White and Californian White breeds of rabbits are the most popular in Kenya. These two medium sized rabbit breeds (3.6 – 5.9kg) are also rated the most popular for meat elsewhere in the world because of their good growth characteristics (Mailafia, Onakpa & Owoleke, 2010; Oseni, 2008; Shaeffer, Kime, & Harper). Other breeds that are popular in Kenya include the Giant Flemish, the French Lop and Checkered Giant mainly because of their large size.

Most farmers keep bucks to doe ratio of 1:5, yet the optimal ratio is 1:8 or 1:10 (Grannis, 2002). Renting out bucks for serving in other farms is not common but with establishment of associations of rabbit keepers, this is expected to take place. Organized rabbit breeding programmes are rare but most are aware of the perils associated with inbreeding. They therefore attempt, (if it is within their knowledge) to prevent indiscriminate mating. Unfortunately, those who sell rabbits for breeding do not have written records of their stock hence a new buyer may end up unknowingly buying related rabbits and proceed to breed them.

Breeding of young growing rabbits is at the age of between 5-6 months, though between 4 and 5 months has also been possible. This age will depend on the rabbit breed and the level of feeding and management. The average theoretical number of litters/year according to kindling intervals is estimated at 8.7 yet in Kenya this is practically estimated at between 4-5. This may be because of allowing kids a longer time before weaning them (mating done 6-8 weeks after parturition). No Artificial Insemination is practiced.

#### **Diseases and their Control**

With good management, rabbit diseases are uncommon. Most deaths reported are usually nutritionally related, either through feed contamination, indigestion/bloat and change of diet, especially at weaning. Nevertheless, knowledge on rabbit diseases is an important gap among existing veterinary practitioners in Kenya. Indeed, in the past when rabbits died in large numbers farmers have been frustrated because they are unable to obtain satisfactory explanation from their veterinary

service providers. The University of Nairobi, through the Department of Veterinary Pharmacology and Toxicology has however offered to undertake post-mortems on rabbits from farmers to establish causes of death. At least one reported mass death (from Mukuruweni, Nyeri) was found to be as a result of aflatoxin poisoning.

Other common diseases include coccidiosis, ear canker and pneumonia. Coccidiosis mostly affect young. Use of coccidiostats has been found to be effective in the control of this disease. Ear canker results from poor hygiene and mite attack on ears. Farmers are usually advised to regularly de-worm their rabbit every 3 months to avoid worm infection. Pneumonia is a result of exposure of young rabbits to draft. Proper housing is therefore important.

#### **Rabbit producer Associations and Stakeholders**

The number of registered rabbit groups is not known. However, there is a likelihood that most of the Districts in the Mt. Kenya region of Kenya and parts of South Rift, covering Nakuru, Naivasha and other neighbouring areas have at least one registered rabbit group. The most vocal and visible of these groups is the Rabbit Breeders Association of Kenya (RABAK) based in Thika. This group boasts of a membership of 800 and holds meetings monthly at the Thika Stadium because of its huge membership.

Apart from assisting producers lobby for better services including marketing, associations are becoming useful as forums through which members learn from each other hence bettering their skills in rabbit production. Working in groups also makes it easier to access certain markets that may require regular volumes of rabbits at frequency that cannot be implemented by a single farmer. Already, RABAK is planning on building own rabbit slaughter facility in Thika. Other groups such as Maisha rabbit group in Nyeri Central and Nyeri South Rabbit Farmers Association have already been launched successfully. The Gilgil rabbit group has also been instrumental in aiding members market their rabbits. Due to the usefulness of groups in helping strengthen the rabbit industry, the MoLD has been supportive and encouraging individual rabbit keepers to form groups.

In addition to producer associations, Rabbit Development Stakeholders' Forum (Kenya) has been established and subsequently registered in November 2010. The aim of RDSF(K) is to

spearhead a national campaign to promote rabbit production and consumption amongst Kenyans. The Forum draws its membership from rabbit keepers, breeders, rabbit meat processors, researchers and the Ministry of Livestock development. In order to achieve its aims, the Forum has established an interim steering committee that will assist in laying down the foundations for a strong rabbit industry in Kenya.

This forum is yet to attract other key stakeholders in rabbit industry and is little known across the country. For it to execute its mandate of mounting countrywide promotion campaigns to promote rabbit production and consumption, it must develop a reputation of sorts as well as have passionate and strategic membership. It will also require enormous resources, which can only be available through vigorous fundraising.

#### **Current initiatives of the Ministry of Livestock to promote rabbit production**

The Ministry continues to support rabbit production through provision of livestock extension services throughout the country. Some of the activities that the ministry has undertaken in pursuit of this include promotion of rabbit production as commercial activity across age groups, provision of rabbit production information to interested farmers through its offices across the country and provision of Rabbit breeding material through the National Rabbit Multiplication Centre at Ngong.

The Ministry has also undertaken to support formation of Rabbit farmers associations for purposes of organizing production and marketing. In January 2010 for example, the Permanent Secretary of the Ministry of Livestock Development participated in the launch of Rabbit Breeders' Association of Kenya in Thika. Similarly in June 2010, the ministry sponsored a rabbit stakeholders meeting in which the Rabbit Development Stakeholders Forum (Kenya) was formed. This forum is meant to popularize rabbit production and eating in the country.

Currently, work is ongoing to rehabilitate National Rabbit Breeding Centre, Ngong a process of importing rabbit breeding stock from South Africa is underway. There is hope that in the coming financial year, the Ministry will secure funds from Treasury to expand the Ngong Rabbit Breeding Centre and rehabilitate four others across the

country. It is envisaged that with imports of rabbit breeding stock, various associations will be enlisted in multiplication of breeding stock for other farmers to access. The Ministry is also concerned with marketing issues and is keen on supporting for farmer associations initiatives to develop markets. The Ministry is also ready to provide its technical advise on the setting up of slaughter facilities that meet international standards.

#### **Rabbit Marketing**

Kenyans are yet to be described as having a culture of eating rabbits. This is largely because of the cultural hindrances and lack of familiarity of the rabbit meat in comparison to other sources of meat. Unlike in South Africa where the demand for rabbit meat exceeds supply (Hoffman, 2004), Kenyans are not fully aware of the healthy aspects of rabbit meat and the convenience with which rabbit meat can be utilised as a source of protein. Only three butcheries in Nairobi are known to occasionally stock rabbit meat. Rabbit meat has therefore not been able to completely penetrate the Kenyan conventional meat market dominated by beef, chicken and mutton. Indeed, a sizeable percentage of people who have eaten rabbit meat have done so through being freely offered the opportunity by their friends or relatives. Though the meat outlets may differ on prices, those producing rabbit meat should expect prices that compare favourably with other meats. On this basis, a price of between 250 and 400 is therefore reasonable.

While the meat market is yet to gain ground, most producers have focused on the 'breeding stock' market. These 'breeding stock' producers while not qualifying to be breeders because of their inadequate breeding knowledge, sell their rabbits at exorbitant prices. Consequently, rabbits at weaning age of 4-10 weeks sell at prices ranging from KShs. 1,000 to KShs 5,000 with an average of KShs. 3,000 in the areas surrounding Nairobi.

The breeding stock market phenomenon in Kenya has many similarities to the 'rabbit craze' experienced in Uganda more than 20 years ago. At that time, enthusiasts promoted rabbit production as a *'get rich quick business opportunity with unlimited potential market both locally and abroad'* (Lukefahr, 1998 p. 331). Many aspects of this can be observed in the Kenyan situation currently as many people are venturing into rabbit production based on inadequate information about its

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SOME BREEDING STOCK PRODUCER PRICES		
'Breeder'	Location	Average price
Mr. Muthamia	Karen, Nairobi	3,500
Mr. Doods	Laikipia	2,000
Mr. Wachira	Makadara	5,000
Mr. Nyaga	Lenana, Nairobi	3,000
International Livestock Research Institute (ILRI)	Kabete, Nairobi	2,020 (US\$ 25)
MoLD (Rabbit Breeding Centre)		500
Consolata Seminary	Langata, Nairobi	3,000
Gilgil Rabbit Farmers	Gilgil, Naivasha	4,000

profitability without concrete knowledge on husbandry practices and market dynamics.

From the table above, breeding rabbits should be available at prices not exceeding 2,500 (see ILRI and Mr. Doods prices). Unfortunately, most potential farmers go ahead to purchase their breeding stock before adequately checking prices elsewhere (e.g. MoLD's Rabbit breeding centre sells breeding rabbits at 500).

When farmers purchase breeding stock exorbitantly as is the case, they expect to access similar market for their produce. This is not often the case for two reasons. First, the 'breeding stock' market is easily exhaustible and cannot be sustained. Newly enrolled rabbit producers are therefore less likely to benefit from it and are thus better placed not to bank on it. Secondly, these prices do not reflect the real value of the rabbits. Instead, it constitutes some kind of a business exploitation for which farmers attempt to recover from by passing on higher prices to the consumers. This results in dampened market demand and eventual discouragement of production.

The third market opportunity is the export market. Reports indicate high rabbit meat consumption in parts of Europe, especially Italy, France, Spain and Portugal. In Italy for example, though it is the world-leading producer of rabbits, its local production does not meet its demand (Cozzi & Ragno, 2003). Indeed, immigrants from these countries living elsewhere are reported as an important market niche (e.g. see Hoffman *et al.* 2004 p. 27). Because of the superior nutritional qualities of rabbit meat, nutritionists in Europe recommend it and current research efforts aim at further improving its nutritional value (Petracci, Bianchi & Cavani, 2009).

There are also indications that there is high rabbit meat consumption in China and other countries of the Far East and South Africa as reported earlier (Hoffman, 2004). These potential external markets are however not well understood – especially in terms of sanitary and phytosanitary requirements and feasible volumes. European market is known to require strict adherence to specific standards. External market therefore remains a potential one that will require certain production standards as well as establishment of export compliant slaughter facilities.

### **CONCLUSION AND WAY FORWARD**

From the foregoing, rabbit production in Kenya offers great opportunity for food security among households as a cheap source of protein and an income source. There are also opportunities for other players in the rabbit value chain to benefit including meat and pelt processing and sale of manure. The superior nutritional value of rabbit meat is appealing to the changing diet and health concerns of Kenyans where incidence of lifestyle related diseases is on the increase. Experts incriminate many livestock species as contributing to climate change with exceptions made for non-ruminants which include rabbits. With escalating grain prices, rabbits are also the most suitable livestock species because of their lower demands on grain as compared to other livestock species. For future of rabbits in Kenya to be well-secured however, there is need to put in place deliberate strategic measures that differ from those that outlined previous programmes based on two points:

- i) Rabbit production is not only a food security initiative but also a choice product that can be promoted on its strengths as a healthy source of nutrition
- ii) With investment on market systems development it is possible for this

enterprise to transcend the level of a food security product and sustainably join other livestock and livestock products that are cropped purposely to generate income and profit.

The following strategies are thus proposed:

#### **Promotional campaigns**

Promotional activities should target production but more specifically consumption. As indicated before cultural factors and non-familiarity to rabbit meat has cut off a sizeable portion of potential consumers of rabbit meat who would otherwise become a lucrative market. The basics of the promotional campaigns should identify rabbit meat as a food security initiative that will help Kenyans, including producers improve their protein intake and in the process remove an attitude of producing for 'others'. The next level would be to captivate on the rabbit meat's nutritional advantages and the growing fascination about health and healthy products including food – that food should provide more than traditional nutritional benefits. Promotional campaigns should also enlist support of nutritionists and health workers to recommend rabbit meat for dietetic management of patients with coronary diseases.

To accomplish this, there will be need to utilise print and electronic media, field days and agricultural field days. Stakeholders should also organize educational activities where rabbit meat cooking and testing is done to target those unaware of its existence and viability to replace other meats. It must be reckoned that the cost for this exercise would be enormous yet the benefits would be equally justifiable.

#### **Extension and capacity building**

An effective extension service and availability of veterinary services should back up promotional campaigns. This will invariably require capacity building of the relevant staff on issues of rabbit husbandry and health. On the other hand, farmer groups including the RDSF will require empowerment to access appropriate services including markets and breeding stock and be able to articulate issues that require policy intervention.

#### **Breeding and genetic improvement**

Currently there are no recognized rabbit breeders in Kenya and no rabbit has so far been registered in the Stud Book. A few rabbit keepers have however

excelled in their practice and won prizes in competitions organized during the Agricultural Shows. Unfortunately, since 1982 when rabbits were imported during the GTZ Rabbit Development Programme, there has hardly been any officially reported import of meat rabbits for breeding. There is therefore a general concern within the MoLD that the genetic diversity of the rabbit population in Kenya cannot be ascertained. Importation efforts must thus be pursued in earnest and a national rabbit breeding programme be set in motion to guarantee potential rabbit keepers availability of high quality breeding stock.

While plans to rehabilitate Ngong Rabbit Breeding Centre are welcome, there will also be need to encourage a few private investors to go into rabbit breeding. Such breeders will be required to work closely with the government to develop standards of practice and registration of pure breed stock with the Studbook.

#### **Support for research**

There is great need for research in rabbit husbandry, feeds and feeding, health and disease control, breeding and genetics. Being small stock, rabbits could be considered unattractive to veterinary practitioners who find specializing on larger livestock species more lucrative. There is therefore need to pursue an affirmative action-like policy in funding research on rabbits.

#### **Promotion of investment in rabbit sub-sector**

For the rabbit value chain to stabilize as a sustainable source of nutritious food and income, it will require the participation of a robust private sector in form of investment. Critical areas that have potential to benefit the rabbit industry positively include rabbit breeding, establishment of slaughter facilities that meet international standards and establishment of restaurants and 'eating places' that specialize in rabbit cuisine.

#### **Modernizing production and targeting export market**

Continued growth of the rabbit industry will require a vision for the export market where production that meets international standards and certification is of necessity. This requires upgraded rabbit production methods, including adoption of up to date equipment, something that is possible only for elite rabbit keepers with required resources. Also of importance will be the scale and structure of production.

Use of artificial insemination and other modern breeding techniques will result in efficiency in production in terms of time and labour savings. For example, it takes two people 3 -5 hours to inseminate 300 - 500 females while it would take a whole day for same number of people to take 160 does for natural mating. With A.I, a rabbit unit with 500 does of hybrid stock can produce close to 35,000 rabbits annually.

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