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Assessment on Status and Challenges in Rabbits Farming in Rwanda

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ABSTRACT

The survey was carried out in all Provinces of Rwanda. Using a stratified sampling, one district was chosen from each Province and a purposive sampling was used based on the higher number of rabbits per District; those are: Gakenke, Muhanga, Ngororero, and Bugesera. To select the respondents, a snowball sampling method was used and rabbits farmers were interviewed if they possess at least 10 rabbits and have been in rabbit farming for at least a year. A set of questions were answered by the respondents and data on breeds, feeding, demand/supply, and challenges were collected using telephone/face to face interviews. Using SPSS software version 20, data from survey were analyzed by descriptive statistics. The study found out that respondents have few years of experience in rabbit farming and keep less number of rabbits because they are demotivated by some challenges like diseases and death of young rabbits. Most of respondents mainly raise crossbreeds from New Zeland white, Calfornia, American Chinchilla, Angora, Mini Lop and local breeds. The feeding is mostly based on local forage and kitchen residues and the maturity of rabbits among respondents varies from 4 to 12 months. The demand of rabbit products is higher than the supply and all respondents said that rabbit farming is a profitable business. Identification and training of rabbit farmers was recommended; import pure breeds and initiate specific programs that will work closely with rabbit farmers in the entire value chain was also recommended at the end of this study.

Keywords: Feeding, rabbit breed, forage, challenges, rabbit farming.

INTRODUCTION

The Rwanda's vision of the National Agricultural Policy is to become "a nation that enjoys food security, nutritional health and sustainable agricultural growth from a productive, green and market-led agricultural sector." [1]

The focus of the first priority for current strategic plan for agriculture transformation is improving agronomic knowledge and technology in terms of basic research and innovation, especially aimed at developing improved varieties and breeds. It is also crucial to highlight the importance of data that will inform farmers, researchers and decision makers. Moreover, the PSTA 4 aligns to the Vision 2050 of East African Community of Increased investment and enhanced agricultural productivity for food security and a transformation of the rural economy. [2] It was revealed that rabbits are herbivores which efficiently convert fodder to food by converting plant proteins of little or no use to people as food into high-value animal protein [3]. The fact that rabbits can be fed on local forage and kitchen residues and being prolific makes a good reason to testify that rabbit farming is a profitable business. When rabbits are raised with appropriate technologies can contribute effectively to improve the diet of large numbers of families in rural and urban area, especially it is very important to those landless and low-income ones, providing such families with employment and a source of regular income [4]

A situational analysis shows that strong demographic and natural forces are to undermining the national objectives of improved livelihoods and food security. Rapid population growth causes a constant need to increase food production while it is encroaching on agricultural land and accelerating land-fragmentation and the pressure on the already scarce land resources is increasing. [1]

In Rwanda, rabbits are raised for meat and manure but the level of investment in rabbit production is still low compared to the demand. As such, eateries such as hotels and restaurants who would wish to have rabbit meat on their menus still cannot make it because of inadequate supply as reported by a Rwandan rabbit farmer [5].

The aim of this study was to assess the status of rabbit farming and highlight the challenges faced by rabbit farmers in Rwanda. To propose the solutions to highlighted challenges and draw the best recommendations for further improvement of that sector were the specific objectives.

MATERIALS AND METHODS

Area of the Study

The survey was carried out in four Provinces of Rwanda. In each Province, one district was chosen based on the high number of rabbits according to geographical distribution (by Districts) of rabbits in Rwanda done in 2008; those are: Gakenke, Muhanga, Ngororero, and Bugesera.

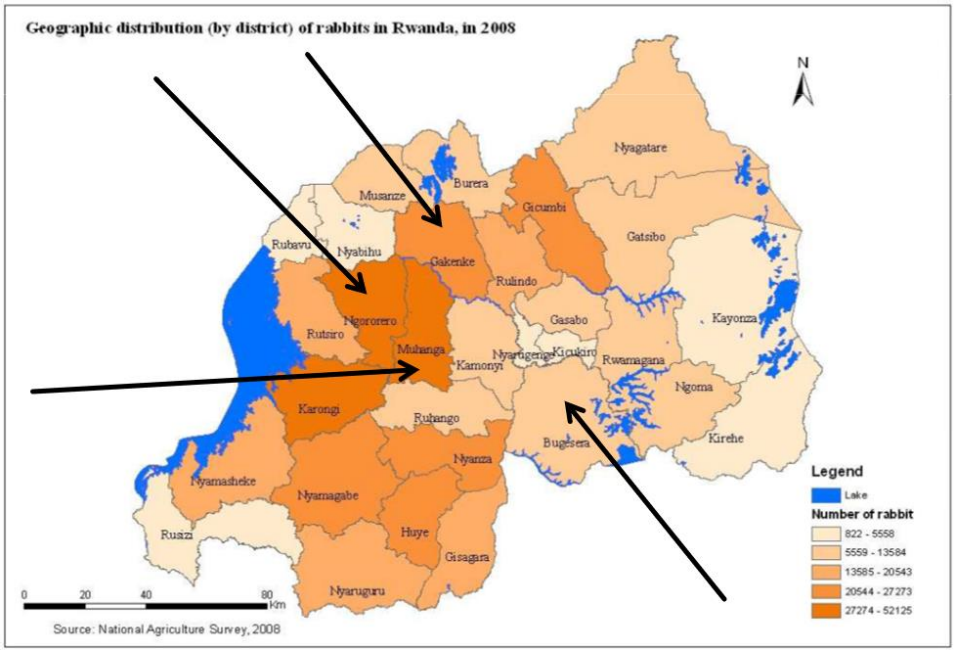

Figure 1:Geographical distribution (by Districts) of rabbits in Rwanda, 2008.

Data Collection

The survey was carried out in all Provinces of Rwanda. Because of lack of information about the exact number of rabbits' raisers, it was difficult to use a probability sampling. Using a stratified sampling, one district was chosen from each Province and a purposive sampling was used based on the higher number of rabbits per District. To select the respondents, a snow ball sampling method was used and rabbits farmers were interviewed if they possess at least 10 rabbits and have been in rabbit farming for at least a year.

Data Analysis

Statistical analysis was done using the Statistical Package for Social Sciences (SPSS) software, version 20. Descriptive statistics was used to present the results from the survey.

RESULTS

The results include the background information of the respondents, rabbit production, market (demand/supply) and the challenges faced by farmers in rabbit production from the study area.

Identification of Respondents

The sample consisted of 16 (76.2%) male and 5 (23.8%) female (N=21). The age range among respondents is between 21 and 63.

Table 4.1.1 Sex among respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	5	23.8	23.8	23.8
	Male	16	76.2	76.2	100.0
	Total	21	100.0	100.0	

Source: Primary data

Males are more involved in rabbit farming than females as it is shown on above table.

Table 4.1.2 Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	17	81.0	81.0	81.0
	Single	4	19.0	19.0	100.0
	Total	21	100.0	100.0	

Source: Primary data

81% of the respondents is married while 19% is single as it is shown on the following table.

Table 4.1.3 Main occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Casual labor	2	9.5	9.5	9.5
	Civil employment/Private institution	5	23.8	23.8	33.3
	Farming	14	66.7	66.7	100.0
	Total	21	100.0	100.0	

Source: Primary data

The main occupation among the respondents is farming (66.7%), followed by civil employment (23.8%) and lastly casual workers (9.5%).

Table 4.1.4 Education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	College	3	14.3	14.3	14.3
	None	1	4.8	4.8	19.0
	Primary	4	19.0	19.0	38.1
	Secondary	5	23.8	23.8	61.9
	University	8	38.1	38.1	100.0
	Total	21	100.0	100.0	

Source: Primary data

Many respondents have completed university (38.1%) while 23.8% completed secondary school, 19.0% completed primary level,14.3% attended colleges and 4.8% did not attend any school as showed by the following table.

As most of respondents attended a certain level of the school, this means that they could easily understand rabbit farming and give a clear answer to the interview questions.

Experience in Rabbit Production

This section presents the number of years(experience) that respondents have been in rabbit farming, the range of rabbits they possess by the time of interview and the type of other livestock they raise if any.

Table 4.2.1 Number of years in rabbit production activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	14.3	14.3	14.3
	2	6	28.6	28.6	42.9
	3	4	19.0	19.0	61.9
	4	2	9.5	9.5	71.4
	5	3	14.3	14.3	85.7
	7	1	4.8	4.8	90.5
	10	2	9.5	9.5	100.0
	Total	21	100.0	100.0	

Source: Primary data

The above table shows that many respondents have been in rabbit farming for one up to five years (14.3%, 28.6%,19%,9.5% and 14.3% respectively) and few of them have been in that activity for 7 and 10 years. Few numbers of years/low experience in rabbit farming is linked to some challenges faced by farmers such as diseases and death of babies in rabbit production which makes that the activity becomes non-profitable and demotivate them to continue that activity.

Table 4.2.2 Number of rabbits by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between 10-20	9	42.9	42.9	42.9
	Between 20-40	6	28.6	28.6	71.4
	Between 40-60	1	4.8	4.8	76.2
	Between 80-100	1	4.8	4.8	81.0
	More than100	4	19.0	19.0	100.0
	Total	21	100.0	100.0	

Source: Primary data

The above table shows that many respondents have between 10 and 20 rabbits (42%), followed by those having between 20 and 40 (28%) and only 19% have more than 100 rabbits. The limited number of rabbits is explained by different challenges in this activity such as inadequate housing, diseases and death of babies in rabbit production. Inadequate housing is due to farmers' poverty and lack of skills which can cause diseases and also death of babies. [6] said that habitat or housing system has an influence on the rabbit growth. When rabbits were reared in open environment, where they can run and jump, with access to sunlight, their growth was significantly different from the one of the rabbits reared in cages where the movement and exposure to sunlight are limited.

Table 4.2.3 Other livestock apart from rabbits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	19.0	19.0	19.0
	Cattle	2	9.5	9.5	28.6
	Pigs	6	28.6	28.6	57.1
	Poultry	9	42.9	42.9	100.0
	Total	21	100.0	100.0	

Source: Primary data

From the table above, 81% of respondents has other livestock apart from rabbits while 19% has only rabbits. The mostly types of livestock raised with rabbits are poultry (42%) and pigs (28%). This factor of raising other livestock can be an insurance in case rabbit farming alone is not profitable but it can also be a reason of not focusing on rabbits and makes it non profitable.

Table 4.2.4 Main breeds raised by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cross breed	15	71.4	71.4	71.4
	Local	6	28.6	28.6	100.0
	Total	21	100.0	100.0	

Source: Primary data

Most of the respondents (71.4%) raise the crossbreeds while the rest of them (28.6%) raise the local rabbits. Among those breeds there are Calfornia, New Zeland white, American chinchilla, Angora and Mini lop. One of the challenges faced by rabbit farmers in Rwanda is the lack of pure breeds as highlighted by many respondents. The exotic rabbits breeds found in Rwanda are mainly from New Zealand and California. Those breeds were introduced over past decades and there are no more pure breeds because of several uncontrolled crossings [2]. Some farmers are more interested in finding pure breeds so that they can cross them with the local ones for better growth yield.

Table 4.2.5 Rabbit feeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	concentrates+grass	4	19.0	19.0	19.0
	Grass	16	76.2	76.2	95.2
	pellets+grass	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

The above table shows that most respondents feed grass/forage and kitchen residues to their rabbits (76.2%) while 19% of them feed concentrates and grass/forage; only few of them (4.8%) feed pellets with grass/forage. Many respondents said that they don't have where they can buy pellets for rabbits when they need them during dry season as they suffer from lack of forage. Rabbits seem to perform better when fed on pellets than when they are fed mixed grains or other different types of feeds or forage, because as animals, they are not able to pick out preferred items [7]. It is also important to highlight that farmers are not aware of the forage that can be fed to rabbits and also the fact that farmers possess small plots of land makes them lack the capacity to plant different forages in their fields. Feeding/nutrition was highlighted among main challenges in rabbit farming but few of the respondents only can afford to plant feeding stuff for rabbits.

Table 4.2.6 The maturity of rabbits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12 months	4	19.0	19.0	19.0

	4 months	3	14.3	14.3	33.3
	5 months	5	23.8	23.8	57.1
	6 months	2	9.5	9.5	66.7
	7 months	3	14.3	14.3	81.0
	8 months	3	14.3	14.3	95.2
	not yet	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

The above table shows the responses about the period that rabbits are kept/raised before being taken to the market. It shows that the period changes from 4 to 12 months, but the highest percentage is for 5 months (23.8%). Main factors influence the time to mature rabbits from one farmer to another.

Table 4.2.7 The weight of a mature rabbit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 Kg	10	47.6	47.6	47.6
	3 Kg	11	52.4	52.4	100.0
	Total	21	100.0	100.0	

Source: Primary data

From the above table, the weight of a mature rabbit (that can be sold for meat) varies from 2 to 3 kilogram as stated by 47.6% and 52.4% respectively. Referring to the previous table (Table 4.2.6) where the majority of respondents said that they keep rabbits for 5 months to mature, it shows that the weight gain per day is 20 g which are lower than the findings of [8] who said that growth rates of rabbits vary from 10 to 20 g/day in the tropical regions while in temperate countries the growth performance ranges between 35 to 40 g/day. These findings may have considered the same diet while in Rwanda, Farmers are struggling with the feeding challenge.

Rabbits Market

This section presents the information about the rabbit market, the number of rabbits that can be sold per month and the shortage, also the price of a mature rabbit.

Table 4.3.1 Rabbits sold per months by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	9.5	9.5	9.5
	2	2	9.5	9.5	19.0
	3	1	4.8	4.8	23.8
	4	1	4.8	4.8	28.6
	5	6	28.6	28.6	57.1
	6	1	4.8	4.8	61.9
	10	5	23.8	23.8	85.7
	15	1	4.8	4.8	90.5
	20	1	4.8	4.8	95.2
	40	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

All respondents have agreed that they have a market for their rabbits. The above table shows the number of rabbits that are sold per months by respondents. 28.6% which is the highest percentage said that can sell 5 rabbits per month. Few respondents agreed that they can sell 15 or 20 even 40 rabbits per months (4.8%). The number of rabbits sold per month is low not because clients are not enough but because of shortage in supply as it is shown in the tables below.

Table 4.3.2 Shortage in rabbits supply

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	6	28.6	28.6	28.6
	Yes	15	71.4	71.4	100.0
	Total	21	100.0	100.0	

Source: Primary data

This table shows that 71.4% of the respondents has shortage in rabbit supply which means that they are requested rabbits but they don't have them by that time, either because they are not yet ready to be sold or because they don't want to sell them (kept for reproduction). Only 28.6% of respondents agreed that they don't have shortage in rabbits supply. This higher percentage of shortage in supply translate the need of rabbit meat on the market and also much efforts in rabbit production.

Table 4.3.3 Shortage of rabbits supply in number

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		6	28.6	28.6	28.6
	10.	3	14.3	14.3	42.9
	100.	1	4.8	4.8	47.6
	20.	2	9.5	9.5	57.1
	3.	1	4.8	4.8	61.9
	4.	1	4.8	4.8	66.7
	5.	6	28.6	28.6	95.2
	not yet	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

From this table, the shortage of rabbits in number varies from 3 to 100, but 5 with the highest percentage (28.6%). This shortage in number means the number of rabbits that respondents are requested by different customers in a month but can't provide, which translate a higher demand than supply.

Table 4.3.4 Profitability of rabbit farming

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	1	4.8	4.8	4.8
	Yes	20	95.2	95.2	100.0
	Total	21	100.0	100.0	

Source: Primary data

All respondents agreed that rabbit farming is profitable but 4.8% was not very sure of the profitability because of many challenges faced by farmers while 95.2% was very sure of the profitability of rabbit farming. As said by [3], rabbits are herbivores which efficiently convert fodder to food. The whole point of meat production is to convert plant proteins of little or no use to people as food into high-value animal protein. The fact that rabbits can be fed on local forage and kitchen residues and being prolific makes a good reason to testify that rabbit farming is a profitable business. When rabbits are raised with appropriate technologies can contribute effectively to improve the diet of large numbers of families in rural and urban area, especially it is very important to those landless and low-income ones, providing such families with employment and a source of regular income [4].

Table 4.3.5 Price of rabbit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2500	2	9.5	9.5	9.5
	3000	4	19.0	19.0	28.6
	3500	3	14.3	14.3	42.9
	4000	3	14.3	14.3	57.1
	4500	4	19.0	19.0	76.2
	5000	3	14.3	14.3	90.5
	6000	1	4.8	4.8	95.2
	9000	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

This table shows the price of a mature rabbit as given by respondents. It shows that the price of rabbit ranges between 2,500 and 9,000 RWF. The average price is 4167 RWF. It was given in **table 4.2.7** above that the weight of a mature rabbit is between 2 and 3Kg (average:2.5Kg), by considering the weight of carcass (70% of live weight) it means that one kilogram of rabbit meat is (4167/1.75) 2,381 RWF when buying from the farm.

Challenges in Rabbit Production

This section highlights the main challenges faced by rabbit farmers and how they are handled.

Table 4.4.1 Challenges in rabbit production

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Death of young rabbits	4	19.0	19.0	19.0
	Diseases	5	23.8	23.8	42.9
	Nutrition	5	23.8	23.8	66.7
	Others.....	2	9.5	9.5	76.2
	Small land	4	19.0	19.0	95.2
	Theft	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Source: Primary data

All respondents highlighted the main challenge in their rabbit farming which include diseases and nutrition/feeding (23.8%) as the highest percentage, followed by death of young rabbits and small land (19%), poverty among others (9.5%) and lastly theft (4.8%). Some of the challenges can be handled by farmers but others are not handled and that makes them limit the number of rabbits they can keep. For the diseases, farmers consult vets and other farmers while for feeding, they plant some forage and or use concentrates.

Table 4.4.2 Availability of technician who advises rabbit farmers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Friends & farmers & neighbors/	9	42.9	42.9	42.9
	Own experience	12	57.1	57.1	100.0
	Total	21	100.0	100.0	

Source: Primary data

From the above table, most of respondents don't have someone/technician who can advise them in rabbit farming (57.1%) while others seek advises from friends, farmers and neighbors (42.9%). This challenge might be the reason why many farmers are leaving this activity as one respondent said" I don't want to continue with rabbit farming because it is very hurting to see my rabbits dying while I can't treat them; it is really sad to throw dead rabbits every day."

Importance of Rabbit Production

This section presents the findings on how important is the rabbit farming among respondents and how they wish to improve it in the future.

Table 4.5.1 Keeping records in rabbit farming

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	52.4	52.4	52.4
	Yes	10	47.6	47.6	100.0
	Total	21	100.0	100.0	

Source: Primary data

Among the respondents, 52.4% don't keep record of their farming while 47.6% keep them. Generally, those with a small number of rabbits don't record information of their farming but those with a higher number of rabbits do and are more specialized.

Table 4.5.2 Importance of rabbit farming among respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A way of saving money	7	33.3	33.3	33.3
	Income from manure	1	4.8	4.8	38.1
	Income from rabbit	13	61.9	61.9	100.0
	Total	21	100.0	100.0	

Source: Primary data

From the above table, 61.9% of the respondents raises the rabbits for income or as business, while 33.3% raises as a way of saving money, and this include also those farmers who keep rabbits for family consumption, and lastly 4.8% raises rabbits for manure because they need to use in their fields. Since the majority of respondents are raising rabbits for business, they need more efforts to improve that farming as it is mentioned in the following section.

The Expected Improvement of Rabbit Farming

The respondents highlighted what they wish to be improved in the future which include the construction of modern and better buildings and cages, look for pure breeds, planting forage for better feeding, increase the number of rabbits to be sold, collecting and use of rabbit manure and urine. As many respondents keep rabbits for business, they focused on increasing the number of rabbits to be sold which is related to the proper buildings and feeding.

CONCLUSION

Agriculture is the main sector in Rwandan population but it is run on a small land which is becoming smaller day by day as the population keeps increasing. The change on how that sector is managed is urgently needed from individual level to national level. Rabbit farming, once is well handled can be a good tool to change the whole agriculture sector by contributing to food security and creating jobs to youth and women. Few farmers are dreaming to take rabbit production activity to another level in the future which will make an opportunity for investment and earnings. Rwandan rabbit farmers are facing health and feeding related challenges and once addressed, that farming would be more profitable and boost the productivity of the entire agriculture sector in Rwanda.

RECOMMENDATIONS

From this study findings, the following recommendations have been addressed to the Institutions, Non-Governmental Organizations interested by agriculture and livestock development and to the Government of Rwanda:

- Investing and cooperation in rabbits production and marketing of its products in the country and outside of the country.
- Facilitating farmers in finding appropriate shops that sell rabbit feeds in different parts of the country.
- Identification and training of rabbit farmers at District level about construction of rabbit cages, feeding, diseases prevention and meat processing.
- Import pure breeds to make them available to farmers and initiate specific programs that will work closely with rabbit farmers in the entire value chain.

Declaration of Competing Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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References

[1]. GoR. 2018. National agriculture policy, Kigali

[2]. MINAGRI 2018. Strategic plan for agriculture transformation 2018-24, Kigali

[3]. Lebas et al. 1997. The rabbit - Husbandry, health and production (FAO Animal Production and Health Series No. 21 (new revised version)

[4]. Onuekwus G. C., Okezie C. A.2007. Youths' Adoption of Improved Rabbitry Technology in Umuahia, Medwell J. Res. J. Appl. Sci., 2(1): 65-69.

[5]. The new times. 2018 The untapped potential of rabbit farming in Rwanda. Available on www.newtimes.co.rw/business. Accessed on 12/12/2018

[6]. Rahman et al. 2018. Rahman S U, Wang X., and Yu L.2018. Observations on biotic parameters of Angora rabbit breed under controlled conditions in different housing systems

[7]. Cheeke, P. R. 1994. Nutrition and Nutritional Diseases. In: P. J. Manning, D. H. Ringler and C. E. Newcomer (ed.) The Biology of the Laboratory Rabbit. 2nd ed. p 321. Academic Press, New York.

[8]. Lukefahr S. D., Cheeke P.R. 1991. Rabbit project development strategies in subsistence farming systems. World Animal Review, 6, 60-70.