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Pig production in Kichwamba Sub-county, Rubirizi district, Uganda

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Abstract

A study was conducted to assess pig production with the aim of establishing the contribution of pigs to the household incomes in Kichwamba sub-county. A total of 60 respondents were used for the study in five parishes of the sub-county. Data were collected using structured questions, observations, and interviews. Secondary sources of data were also reviewed.

Majority of respondents who kept pigs were males; were above 50 years and peasants; had primary level of education. Poultry were the most kept animals, followed by pigs and goats, the least being rabbits. Pigs were ranked third populated livestock animal, the first being poultry and second goats. Most farmers kept 2-6 pigs per household. Low pig numbers was associated with characteristic bad odour of pigs and pens; not generally accepted by some cultural and religious sects. The bad odour could be reduced by use of Indigenous micro-organism (IMO), a liquid sprayed in pig houses to kill germs and reduce smell. Pigs were mostly fed on maize bran and yam leaves and these feedstuffs were given to pigs twice a day. Semi-intensive and tethering were the main management systems used by farmers and those (farmers) who housed pigs used mainly wooden floor and banana fibre-roofs. Floor made of litter would be less costly option compared to concrete or wood but this is efficient when IMO is used to prevent litter from decay. Most (87.8%) farmers dewormed their pigs at least once in year indicating that they had prior knowledge of this practice. All the respondents sold live pigs; sold the pigs to the local butchers and used body condition to determine the selling price. Despite the pigs being relatively fewer and less kept, they contributed more income to households than other livestock species and their production per hectare was also higher. Lack of feeds, parasites and diseases were reported as the major limitations to pig production. Community based organizations should be encouraged and well-coordinated to help farmers to: share and solve their problems such as buying good breeds; selling pigs as a group for better bargaining power; feed formulation and mixing using locally available feedstuffs. Improving extension service delivery is also a recipe for increased pig production.

Key words: *household incomes, indigenous microorganism, management systems, pork*

Introduction

Within the livestock industry in Uganda, pig sub-sector is least developed in terms of productivity per sow, pork supply per capita and proportion of industrially processed pig products. The annual per capita pork consumption per person was estimated at 3.4 kg, representing a ten-fold increase in the last 30 years (UBOS 2009). A large proportion of the nearly 3 million pigs produced annually are reared by smallholder mixed crop livestock farmers of whom more than 80% are concentrated in rural areas (MAAIF 2010). Uganda still imports more than 7 metric tons of processed pig products to fill the increasing gap between supply and demand for pork and to compensate for the low internal capacity to process domestically produced pork into finished products (UBOS 2008). However, Uganda registered an increase in pig population from 0.19 to 3.2 million pigs in the years 1980 -2008 (UBOS 2009). Tatwangire (2012) reported that the proportion of households rearing pigs is highest in the central (56%), followed by western (30.1%), eastern (28.8%) and northern (14.2%) regions of Uganda. The increase in pig numbers is attributed to the high demand for pig meat due to increased urbanization and purchasing power.

Pig production systems and management practices are influenced by the degree of dependence of households on pigs for income, cultural values and crop agricultural practices. A pig production enterprise can easily be integrated in the crop production system on many smallholder farms in Uganda and adjusted in size to make use of surplus family labour. In some areas, pigs are left to roam around on the range in search for food (Figure 1).



Figure 1: Scavenging pigs in Laroo division, Gulu district

However, new trends in modern pig farming are emerging though still relatively small. These trends are driven by the recent establishment of industries and butchers supplying quality pork cuts; growing population; current economic growth rate averaging to 7% per annum. Pigs have

the potential of sustaining livelihoods among the smallholder farmers because of their characteristic fast growth rate; can be kept on a small piece of land; produce many young ones; can feed on many different crop and animal products and by-product; have a ready market; can make use of kitchen waste; there is the desire in the people to keep pigs.

Despite the opportunities that pig rearing offer to smallholder farmers, increased production is limited by massive loss of animals to diseases particularly African swine fever (ASF), a viral disease to which there is no known vaccine or cure. The management system used by most smallholder pig farmers (Figure 1) does not make it possible to combat the outbreaks and spread of ASF. Most farmers have very small herds of 2-5 sows and do not normally keep a breeding boar. When a sow is observed on heat it is moved to the homestead which keeps a boar. In this way there is contact of animals from different herds and the danger is that infected animals transmit disease to the boar and the disease is spread throughout the community. There is a need to evolve a management system which recognizes that herds will remain small but eliminate movement of animals from herd to herd as this is the main culprit in the spread of diseases. The possible candidate innovation is to inseminate the sows artificially whereby a technician/farmer trained in pig artificial insemination (AI) keeps boars so that whenever a sow is reported to be on heat the owner of the boar collects semen to inseminate the sow using fresh semen. This practice gives farmers a chance to access good quality breeding males and eliminate incidences of contact between the boar and the sows hence eliminating this route of spreading of disease. Other limitations to pig production include: low litter index due to lengthy lactation period and poor heat detection; low litter numbers and poor growth rates due to poor access to improved genotypes/breeds; lack of diets suited to early weaned pigs; bad odour from pigs and pig pens. In modern pig production, it is recommended to wean piglets at 3-4 weeks of age in order to increase the litter index (Xue et al 1993). Sows by their nature do not become pregnant when they are still suckling their young and therefore the longer the lactation period the fewer times the sow will farrow per year. Piglets weaned as early as 4 weeks are often subject to a post-weaning growth reduction due to poor feeding. Appropriate diets suited for the early weaned pig should be devised to increase post-weaning growth rates. Therefore, less expensive ingredients that are locally available and are readily utilized by weaning pigs would benefit the farmers by eliminating the stunting that occurs after piglets are weaned.

Although pigs offer numerous benefits to smallholder farmers in Kichwamba sub-county, Rubirizi district, little documentation is available on the current status of pig production in the sub-county. The study was therefore conducted to assess pig production in Kichwamba sub-county, main focus being placed on management, marketing and limitations.

Methodology

A survey was conducted in Rubirizi district (00°15'54"S 30°06'00"E) in western region of Uganda. The data were obtained using structured questions, observations and interviews. Secondary sources of data were also reviewed especially from journal publications, district, and sub-county headquarters. A total of 60 households were selected in the five out of six parishes that make up Kichwamba sub-county. The parishes included Rumuri, Katara, Nyakasozi, Kichwamba and Kyambura.

Results and discussion

Social demographic characteristics of livestock farmers

Males were more involved in livestock production than women (Table 1). Male dominance was probably because domestic animals were the main sources of income and men as household heads tended to control financial resources. Also, livestock production being relatively less labour intensive in terms of management was better handled by men rather than women whose main activity was cultivation of food crops for their families. Most of the respondents were above fifty years because this age bracket could not afford intensive manual work such as cultivating land. A few respondents were below 18 years because this was a school going age. The majority of the farmers were married because this group of people had many responsibilities and therefore resorted to keeping animals as a source of income. Most respondents had primary level of education and were peasants.

Table 1: Social demographic characteristics of livestock farmers

Characteristics	No. of respondents (n=60)	% of respondents
Gender		
Males	37	61.7
Females	23	38.3
Age		
<18years	2	3.30
18-30 years	15	25.0
31-40 years	14	23.3
41-50 years	8	13.3
>50 years	21	35.0
Marital status		
Single	14	23.3
Married	41	68.3
Widowed	5	8.30
Level of education		
Not educated	10	16.7
Primary	26	43.3
Secondary	4	6.60
Tertiary	20	33.3
Occupation		
Peasants	38	63.3
Civil servants	6	10.0
Teachers	5	8.30
Students	4	6.70
Religious leaders ¹	4	6.70

¹ Mainly Protestant and Catholic priests and catechists

Pig rearing versus other livestock species

Poultry were the most kept animals, followed by pigs and goats, the least being rabbits (Table 2). This agrees with the results of UBOS (2009) where poultry were reported to be the highly kept livestock species. Poultry serve very many roles in households such as serving as a gift to in-laws; cultural rituals; slaughter for meat for abrupt visitors; provision of income for basic needs like paraffin, salts and other small domestic demands.

Table 2: Pig keeping in relation to other livestock species

Type of livestock	No. of respondent (n=60)	% of respondents
Poultry	42	70.2
Pigs	41	68.3
Goats	27	45.0
Cattle	6	10.0
Sheep	4	6.7
Rabbits	2	3.3

Pig population in relation to other livestock species

Poultry and goat numbers were higher than those of pigs (Table 3). This is in agreement with the results of UBOS (2009) where poultry were reported to be 27.5 million in 2008 compared to goats (8.50 million) and pigs (2.20 million). Most farmers kept 2-6 pigs per household.

Table 3: Pig population in relation to other livestock species

Livestock species	Population (n = 976)	Average/household	% of livestock species
Poultry	515	8.60	52.8
Goats	240	4.00	24.6
Pigs	168	2.80	17.2
Cattle	32	0.530	3.28
Sheep	11	0.180	1.13
Rabbit	10	0.170	1.02

Low pig numbers was probably because of their characteristic bad odour and not generally accepted by some cultural and religious sects. The issue of odour could be reduced by use of Indigenous micro-organism (IMO), a liquid produced by the following method: cook rice/any other carbohydrate source (2 kg); cool and mix with rock/common salt (0.25 kg); make balls (Figure 2) and rap each ball with a net/cloth; join the balls by tying them together (Figure 2); bury the set of balls 10 cm below the ground preferably under the shade/tree (manure, free from insect is a good environment for the balls); leave the balls underground for 5 days; remove the rapped balls from the ground and open the cover to remove the balls; smear the balls with 1kg of sugar; cover the mixture until brown liquid is observed (3-4 days); place the mixture in a 500 litter trough/drum; put 1kg of maize bran into the mixture and fill the trough/drum with clean water; every morning and evening, scoop some mixture and pour it back in the trough/drum and with stirring (to enable oxygen enter the system); after 5 days, sweet smell should be realized and product is ready for use; sprinkle IMO in the pig pens every morning to kill the germs, reduce smell and maintain hygienic conditions; when 90% of the mixture (IMO) is used up, put 1kg of maize bran and 0.5kg of sugar and fill the trough/drum again with clean water and then continue using the mixture. Measurements can be adjusted depending on the quantity of IMO to be made.

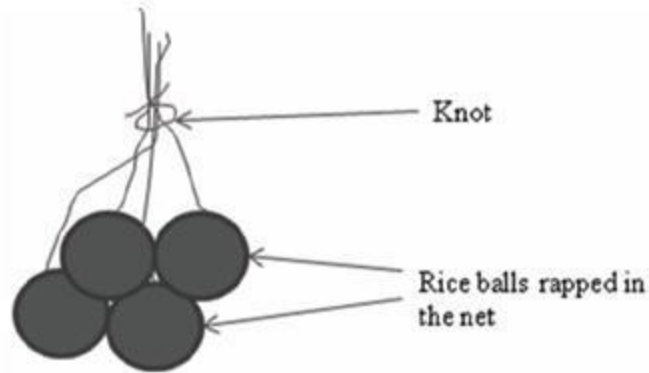


Figure 2: A set of balls tied together with a string

Despite the hindrances, pigs have the potential of being produced in high numbers because they grow faster (produce meat and reach sexual maturity in 6 months); can be kept on a small piece of land; produce many young ones (more than 8 piglets per litter); can feed on many kinds crop and animal products and by-products; have a ready market; can make use of kitchen waste.

Pig management

Management systems

Most farmers used semi-intensive system to manage their pigs, followed by tethering (Figure 3). This agrees with the results obtained by Muhanguzi et al (2012) who indicated that most pigs were raised under the semi-intensive system. No farmers were found practicing free-range system probably because they (farmers) carried out mixed farming and so, they had to protect their crops from being destroyed by roaming pigs.

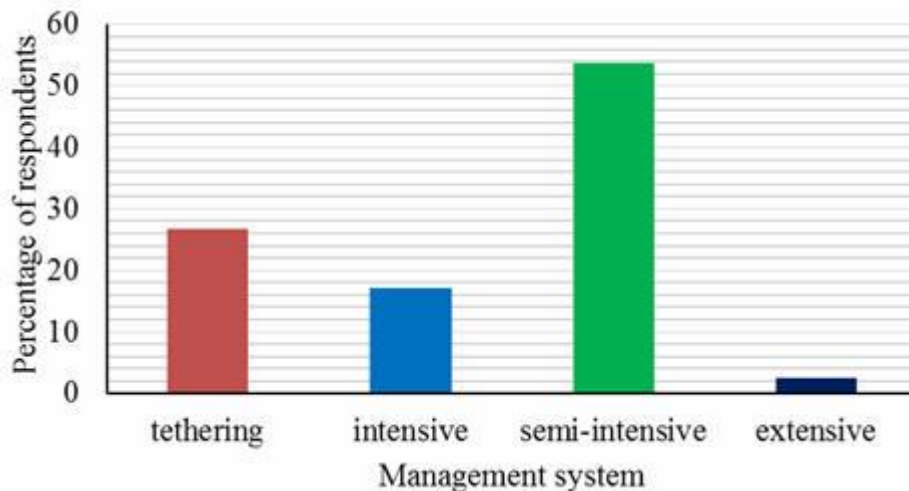


Figure 3: Pig management systems

Housing

Majority of farmers reared their pigs in houses made of wooden floor with banana fibre-roof (Table 4 and Figure 4). Mutetikka (2009) also reported that commonly used materials for pig

building were dry banana leaf bases, grass and timber. Regardless of roofing or floor types used, 56.1% of farmers roofed their pig houses and 29.3% farmers had unroofed houses making a total of 85.4% of farmers who housed pigs. The remaining 14.6% of farmers never housed pigs at all but only tethered them (Figure 4). Least respondents had concrete floors because they were costly to construct. Farmers should be advised to construct relatively less costly floors made of litter (wood shavings, saw dust or coffee husks) on which IMO (Indigenous microorganism) is applied to avoid decay. The IMO floor should be constructed by digging 1 m hole and filling the hole with litter (Figure 5). This type of the floor should always be protected by roofing the house to keep it dry.

Table 4: Pig housing

Housing structure	No. of respondents (n=41)	% of respondents
Wooden floor and grass roofed	14	34.1
Wooden floor not roofed	9	22.0
Concrete floor iron sheet roofed	6	14.6
Not housed at all (tethered)	6	14.6
Murram floor roofed	3	7.30
Murram floor not rooted	2	4.90
Concrete floor not roofed	1	2.40



Wooden floor roofed



Wooden floor not roofed



Not housed



Concrete floor roofed

Figure 4: Housing options used by respondents



A group of farmers preparing IMO floor



Pig floor made of litter

Figure 5: Pig floor with Inorganic Microorganism strategy

Feeding

Most farmers fed their pigs on maize bran and yam leaves, least being those who fed pigs on commercial concentrates (Table 5 and Figure 6). This is contrary the study conducted by Muhanguzi et al (2012) in Nangabo sub-county, Uganda who reported that 59% of the farmers fed their pigs on cassava, potatoes and crop residues. Although Muhanguzi et al (2012) indicated that some farmers (16%) fed their pigs on ruminal contents from the local abattoirs, none of the farmers was found feeding pigs on ruminal contents. This was because Kichwamba sub-county had no abattoir and all the cattle for slaughter were ferried to town centres where abattoirs were located. Maize bran was commonly used to feed pigs because of presence of maize milling machines in the area and it was less costly, hence affordable by most pig farmers.

Table 5: Feed stuffs commonly used by farmers

Feed stuff	No. of respondents (n = 41)	% of respondents
Maize bran	22	53.7
Yam leaves	21	51.2
Banana peelings and left overs	8	19.2
Potato vines and weeds	5	12.2
Commercial concentrate	3	7.3



Figure 6: Yam leaves commonly used to feed pigs

Majority of farmers provided feeds to their pigs twice a day (Table 6), agreeing with the results of Muhanguzi et al (2012) who reported that 94% of farmers provided feeds to pigs 1-2 times a day. Most farmers provided water to pigs at least twice a day and this disagrees with Muhanguzi et al (2012) who reported that 85.2% of the interviewed farmers watered their pigs at least once in a day. It is advisable to provide pigs with water *ad libitum* but this was not the case. However, none of the farmers was found not providing water to pigs.

Table 6: Pig feeding and watering schedule

Category	No. of respondents (n = 41)	% of respondents
Feeding schedule		
Twice a day	24	58.5
Thrice a day	17	41.5
Once a day	0	0.0
<i>Ad libitum</i>	0	0.0
Watering schedule		
Twice a day	25	61.0
Once a day	15	36.6
Thrice a day	1	2.4

Deworming

Majority (87.8%) of the farmers dewormed their pigs at least once a year (Table 7). This was because farmers had prior knowledge on the usefulness of deworming pigs through government programs such as National Agricultural Advisory Services (NAADS).

Table 7: Deworming schedule used by pig farmers

Schedule	No. of respondents (n=41)	% of respondents
After three months	26	63.4
After four month	8	19.5
Not at all	5	12.2
After two months	1	2.44
After six months	1	2.44

Marketing of pigs

All the respondents sold their pigs in live form and most of them sold the pigs to the local butchers for slaughter (Table 8). This was because farmers lacked technical skills and knowledge of adding value to pig and pig products. Tatwangire (2014) also reported that about 98% of pigs were sold as live animals and were slaughtered for pork that was consumed with limited or no value addition. Most farmers sold less than five pigs per year (Figure 7) because they generally kept few pigs (Table 3). Most respondents based on body condition to determine the price for the pigs (Table 9). Fatty and healthy pigs were associated with good quality and quantity (heavier) meat.

Table 8: Marketing of pigs

Category	No. of respondents (n=41)	% of respondents
Form of selling		
Live	41	100
Value-added products	0	0.0
Market		
Butchers	23	56.1
Animal traders	15	36.6
Other farmers	3	7.30

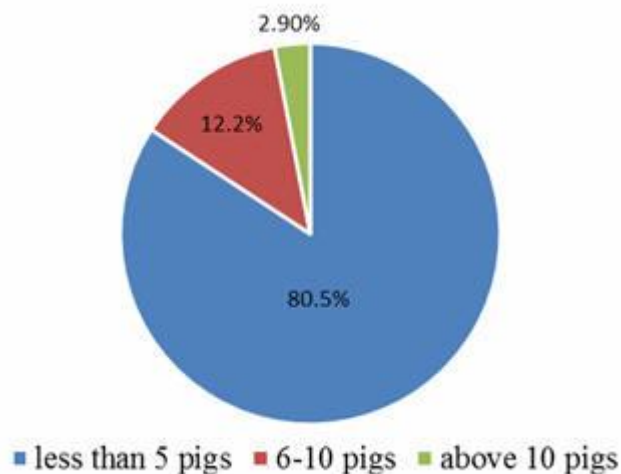


Figure 7: Number of pigs sold per year

Table 9: Price determinants used by the farmers to sell pigs

Price determinant of pigs	No. of respondents (n=41)	% of respondents
Body condition	29	70.7
Breed	5	12.2
Age	4	9.80
Sex	3	7.30

Income generation by piggery versus other livestock species

Pigs contributed more income to household than other livestock species and their production per hectare was also higher (Table 10). This was probably because households required little capital to start rearing pigs; used local feedstuffs for feed and local materials for housing (Figure 4 and Table 4). Pigs can feed on a variety of feed stuffs including kitchen refuse and weeds, so returns were high compared to what is invested in production (Tatwangire, 2014).

Table 10: Annual income generated by piggery and other livestock species

Animal species	Animal production per hectare	Price per unit (10 ³) (Uganda shillings)	Annual income per hectare (10 ⁶)
Pigs	25	200	5.00
Cattle	3	850	2.55
Poultry	85	20.0	1.70
Goats	10	130	1.30
Sheep	10	80.0	0.800
Rabbits	30	15.0	0.300

Limitations to pig production

Most respondents reported that lack of feeds; parasites and diseases were the major limitations to pig production (Table 11). Maize bran, the commonly used feed for pigs (Table 4) is seasonal and therefore not sustainable. Diseases such as African Swine Fever (ASF), worm burden and external parasites like mange were common. Farmers reported that AFS sometimes killed over 90% of pigs in the sub-county. Some farmers lacked capital to invest in piggery and this was made worse by unwillingness of some financial institutions to offer loans to the farmers. Lack of stable markets also discouraged farmers from pig production because some customers such as butchers bought pigs only on festive days like Christmas and Easter days. These results agree with Muhanguzi et al (2012) who reported that limitations to pig production were mainly parasites and diseases and nutritional deficiencies. Smell associated with pigs was the least in limitations because pig numbers were still low.

Table 11: Limitations faced by farmers in pig production

Limitation	No. of respondents (n = 41)	% of respondents
Lack of feeds	39	95.1
Parasites and diseases	11	26.8
Thieves	8	19.5
Poor housing	7	17.1
Limited capital	4	10.0
Piglet mortality	4	10.0
Unstable market	4	10.0
Shortage of water	3	7.30
Smell from pigs and pens	2	4.90

Conclusions

- Males were mainly involved in livestock production because domestic animals fetched more income than other agricultural activities.
- Pigs were the second most kept and third populated livestock species in Kichwamba sub-county indicating an increase in pigs' popularity among farmers.
- Pigs were mostly fed on maize bran and yam leaves and were given to pigs twice a day.
- Semi-intensive and tethering were the main management systems used by farmers and those who housed pigs used mainly wooden floor and banana fibre-roofs. However, floor made of litter would be the less costly option to using concrete or wood but this is efficient when Inorganic Microorganism is used.
- All the respondents sold their pigs in live form, sold the pigs to the local butchers and used body condition of the animals to determine the selling price.
- Piggery contributed more income to household than other livestock species and their production per hectare was also higher.
- Lack of feeds; parasites and diseases were reported as the major limitations to pig rearing.
- Community based organization should be developed and well-coordinated to help farmers share and solve their problems such as buying good breeds and sell of animals as a group for better bargaining power, feed formulation and mixing using locally available feedstuffs. Extension service delivery should be improved to increase pig production.

References

- MAAIF (Ministry of agriculture, Animal Industry and Fisheries) 2010** Statistical Abstract
www.agriculture.go.ug/userfiles/Statistical%20Abstract%202010.pdf
- Muhanguzi D, Lutwama V, Mwiine F N 2012** Factors that influence pig production in Central Uganda - Case study of Nangabo Sub-County, Wakiso district. *Vet. World*, 5(6): 346-351.
- Mutetikka D 2009** A guide to pig production at farm level. Fountain Publishers, Kampala, Uganda
- Tatwangire A 2014** Uganda smallholder pigs value chain development: Situation analysis and trends. Nairobi, Kenya: International Livestock Research Institute (ILRI).
- Tatwangire A 2012** Situation analysis of smallholder pig value chains in Uganda. www.livestock-fish.wikispaces.com/VCD+Uganda
- UBOS (Uganda Bureau of Statistics) 2008** Statistical Abstract
www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/abstracts/2008%20statistical%20abstract.pdf
- UBOS (Uganda Bureau of Statistics) 2009** Statistical Abstract
www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/abstracts/2009Statistical_%20Abstract.pdf
- Xue J L, Dial G D, Marsh W E, Davies R P and Mormont H W 1993** Influence of lactation length on sow productivity. *Livestock Production Science* 33: 253.

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