

# Indigenous pig management practices in rural villages of Western Kenya

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## **Abstract**

The management of indigenous pigs in rural villages of Busia and Kakamega district, Western Kenya, is discussed. Data on husbandry practices, challenges and farmers knowledge on *T. solium* taeniosis / cysticercosis were gathered using questionnaires administered in face-to-face interviews. Pigs were examined for cysticercosis using the lingual palpation method. Data were managed in Stata®.

Majority of the farmers were aged 30-50 years (44%), and were mostly women (69%). Years of pig keeping experience was higher in Kakamega (11.4±8.7) than it was in Busia (6.3±5.6) ( $P<0.05$ ). Pork (31%) and beef (51%) were the most preferred meat types in the villages. Families owned an average of 0.94±0.81 hectares of land. The mean number of pigs owned per farm was 5.0 (±3.4), 1.8 (±1.2) and 1.5 (±0.9) for the pre-weaned, growing and adult pig

categories, respectively. Constraints faced by the farmers included feeding (65%), diseases (46%), fewer breeding boars (60%), poor profits (61%) and conflicts with neighbours (53%). Parasite control was poor. The majority of farmers (73%) had no pig house. These farmers either lacked skills to build the houses (11%; 23/209) or had no money to purchase construction materials (45%; 93/209). Tethering of pigs was frequent (>50%) during the planting (91%; 263 / 290), growing (90%; 263 / 290) and crop harvesting seasons (78%; 227 / 290). Prevalence of pig cysticercosis was 4.5%. Piglets were significantly cheaper in Busia (Ksh 509±57) than in Kakamega (Ksh 777±174) ( $P<0.05$ ). Indigenous pig management in Western Kenya is reportedly poor. Improved knowledge coupled with changes in local husbandry practices would improve productivity, increase family incomes and safeguard the community from potential health risks associated with pig rearing.

**Key words:** Indigenous pigs, management practices, pig cysticercosis, pig production, pork consumption

## **Introduction**

Smallholder pig farming is an important livelihood source in many rural communities of Kenya. Pig population in Kenya stands at 334,689 (Census, 2009). The animals are sold to earn family income which is in turn used to meet basic needs such as buying food, medicine, clothing and payment of school fees. Indigenous pig population in Kenya constitutes a small percentage (13%) of the overall pig population, popular in the Western districts of the country. Pure and cross breed pigs are common in commercial farms in Central Kenya (Wabacha et al 2004, Kagira et al 2008). Indigenous (local) breeds are hardy and show better adaptation than the exotic breeds (Rodriguez and Preston 1997; Lekule and Kyvsgaard 2003; Chimonyo et al 2005; Nwakpu and Onu 2007). These traits could be utilised in promoting pig farming in Kenya. Farmers in Western Kenya either tether and or allow their pigs to free range on their own (Githigia et al 2005, Mutua et al 2007). There is little documented information regarding the management of indigenous pigs in Kenya. Data on the sector's constraints together with potential opportunities for improvement is further lacking. Such information is necessary to gain a better understanding of the sector, and in design of strategies for improvements in the pig industry. A study was therefore undertaken to investigate smallholder pig management practices in the districts of Busia and Kakamega, Western Kenya. Opportunities for improved production and reduced public health risks are explored.

## **Methodology**

### **Selection of the study farms**

Two Districts of Western Province, namely Busia and Kakamega were purposively selected for the study. They were selected because of their known popularity in indigenous pig farming. In each district, we identified two pig keeping sub-locations. A sampling frame of all small-scale pig keepers in each sub-location was established through the help of the local provincial administration. The village elders guided the researchers in locating the pig farms and played an important role in creating a strong

working relationship between the researchers and the pig farmers. Pig farms within each village were randomly selected proportionally to the number of farms to include between 65% and 75% of all farms in the village.

### **Data collection**

Three visits were made to each study farm 3-6 months apart for the period of June 2006 to October 2008. Farms were visited either once, twice, or thrice in the course of the study period. All farmers visited during the initial visit were visited again for the second time whether or not they owned a pig at the time of the visit. Those owning pigs during the second farm visit were interviewed a third time even if they did not own a pig during the visit. Those that did not own a pig at both the second and third visits were not interviewed a third time.

If the farmer was not at home when the researchers came to do the interview, the farm was revisited several other times until the farmer could be interviewed at an appropriate time. The researchers interviewed the person at the farm who was responsible for caring for the pigs i.e. the primary care taker of the pig. The person interviewed was not always the same from one farm visit to the next, thus farmers were interviewed either once, twice or thrice during the study period. Only 39% of the respondents in Busia were interviewed in all the three farm visits. Data on pig management practices were gathered during face to face interviews with the farmers. Information about livestock ownership, farming challenges and common routine practices was obtained during these interviews. Farmers were asked to classify challenges experienced as either 0 (not a challenge), 5 (a moderate challenge) or 10 (greatest challenge). Their knowledge about the *T. solium* cycle, transmission and risk factors was also ascertained. Questions asked included data on the farmer's knowledge of the infection in humans and in pigs and the perceived sources of the parasite. Pigs were examined for the lingual cysts of *C. cellulosae* using combinations of both visual and tongue palpation methods.

### **Analysis and management of the data**

Data from multiple farm visits were merged and analysed using Stata® (StataCorp LP, College Station, Texas). Not all questions were repeatedly asked during each interview and some farmers failed to answer all questions. Therefore, the denominator used for the analyses changed by question. During the interviews, farmers were asked whether they considered specific factors a moderate or great challenge to their pig keeping enterprise or not a challenge at all. These categorical variables were recoded as a dichotomous variable by merging the moderate and great challenge into one response. Farmers were also asked about the percentages of time during the day that pigs were housed, or tethered or left to range freely. These responses were regrouped into two categories, 0-50% and those >50%. We frequently used tables to describe the categorical variables in the data set. Data among the three farm visits and between the districts were compared using chi square statistics for the categorical variables. Continuous variables such as the cost of a weaned pig were compared using a Student's t-test. Values (*p*) of <0.05 were considered significant. The pig-level prevalence for cysticercosis was calculated from the total number of pigs testing positive divided by the

total number examined in the course of the study period. Farm-level prevalence was also determined. A farm was considered positive if any one pig examined on the farm was found to be positive for the larval cysts of *T. solium* upon lingual palpation examination.

## Results

### Description of the pig farmers

Female respondents formed the majority of those interviewed in Kakamega (69%) and Busia (68%) districts. Three categories of age were generated for the respondents, <30 years, 30-50 years, and >50 years; the age distribution of the respondents was 34% <30 years, 44% 30–50 years and 22% >50 years. Forty eight percent (374) of the respondents had attained some primary education, 90% of them had completed this education level. The percentage with no formal education was significantly higher in Busia (27%; 122 / 454) than in Kakamega (13%; 43 / 330) ( $P<0.05$ ). Only 2% had college education.

The majority of the respondents (393 / 783) were Catholics; the rest (44 %) included Protestants and those that did not belong to any specific denomination. The mean land size per farm was  $0.94\pm 0.81$  hectares, and ranged from 0.05- 4.05 hectares. Food crops grown on farms included maize (99%; 286 / 288), beans (97%; 278 / 288), millet (66%; 192 / 288), sweet potatoes (89%; 260 / 288) and sorghum (56%; 161 / 288). Cassava growing was more common in Busia District (98%; 161 / 164) than in Kakamega District (68% / 124; 55%) ( $p<0.05$ ). Sweet potato growing was also more common in Busia (97%; 159 / 164) than in Kakamega (81%; 101 / 124) ( $P<0.05$ ).

The mean number of pigs owned per farm was 5.0 ( $\pm 3.4$ ), 1.8 ( $\pm 1.2$ ) and 1.5 ( $\pm 0.9$ ) for the pre-weaned, growing and adult pig categories. Other livestock species kept by the farmers included; cattle (68%; 195 / 288), goats (33%; 96 / 288), chickens (84%; 241 / 288) and sheep (24%; 68 / 288) (Table 1). Farmers in Kakamega were more experienced in pig keeping than their counterparts in Busia ( $P<0.05$ ); keeping pigs for  $11.4\pm 8.7$  years and  $6.3\pm 5.6$  years respectively.

**Table 1.** Estimates of the number of animals owned by the 288 pig farmers in Kakamega and Busia districts, who were visited during 783 farm visits in 2006- 2008

Livestock Species	% of farms <sup>b</sup>	N <sup>a</sup>	Percentages			Mean ( $\pm$ )	Range
			25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>		
Pigs Adult	51	291	1	1	2	1.5 (0.9)	1 – 7
Growing	67	428	1	1	2	1.8 (1.2)	1 - 9
Nursing	14	97	2	5	8	5.0 (3.4)	1 - 15
Cattle	68	452	2	3	5	3.7 (2.8)	1 - 20

Poultry	84	571	5	8	15	11.5 (10.9)	1 - 69
Goats	33	264	2	3	5	3.9 (2.9)	1 - 20
Sheep	24	141	1	2	4	3.2 (2.9)	1 - 15

<sup>a</sup> Number of observations (analyses were based on farms that had at least one animal in that category of animals present at the time of the 783 farm visits)

<sup>b</sup> Percentage of the 288 farms owning each livestock species category during the initial farm visit

### **Pork consumption patterns**

Seventy-four percent of the families in the study consumed pork, variations in the consumption patterns were observed. Forty percent (85 / 212) consumed pork once a week, 40% once a month and 20% had irregular pork consumption patterns. The latter included families that consumed pork either once in a year, twice in a year or only when it was available. Pork was consumed more frequently (at least once in a week) in Kakamega (56%; 53 / 95) than it was Busia (27%; 32 / 117) ( $P < 0.05$ ). We asked farmers to rank pork, beef, chicken, goat and mutton, in order of their preference. Beef (51%; 143 / 278) and pork (32%; 91 / 278) were ranked as the meat “always preferred” than other meat types. The same farmers ‘rarely’ consumed goat meat (88%; 246 / 278) and mutton (88%; 245 / 278). Pork was more preferred in Kakamega (39%; 49 / 124) than it was in Busia (27%; 42 / 154) ( $p < 0.05$ ).

### **Routine management practices**

Spraying (29%; 128 / 438), dipping (24%; 101 / 438) and de-worming (26%; 116 / 438) were the only practices reported in the district of Busia. Four cases of farmers walking their pigs to nearby rivers for “mud bathing” were reported. These farmers stated that mud bathing would eradicate external parasites, particularly lice and tick infestations, on their farms. The practice could, according to the farmers, potentially substitute the known formal methods of ectoparasite control such as spraying and dusting. Treatment, piglet castrations, and tooth clipping were reported in 9%, 15%, and 3% of the farm visits. Observations by the researcher(s) indicated that farmers were not aware of the difference between vaccinations and pig treatment; this was evident when farmers incorrectly implied that the previous vaccinations were done by the researcher(s). The researchers had only injected the pigs with ivermectin for parasite control.

### **Pig confinement**

Only 27% (79 / 288) of the farms owned a pig house; this included 13% (22 / 164) of farms in Busia and 46% (57 / 124) of farms in Kakamega. Farmers in Kakamega were more likely to construct a pig house than those in Busia District (OR=5.4; CI 3.1-9.7). This can be attributed to differences in the vegetation cover, there were more trees in Kakamega and farmers in the district could easily access wood to put up simple structures for pigs. The structures were constructed using locally available materials.

Interestingly, on farms where a pig house existed, pigs were typically confined during the night and only allowed to scavenge during the day. The reasons for the non-confinement included; fear of the pigs damaging the houses (47%; 37 / 79), lack of food to provide pigs (37%; 29 / 79), houses became muddy during the rainy season (38%; 30 / 79) and farmers lacking the time to manage the confined pigs (30%; 24 / 79). A few (2%) thought pigs needed to remain outside to eat grass, to exercise and have access to fresh air. The reasons why most farmers (73%; 209 / 288) did not construct pig structures included pig house being not necessary (8%) and inadequate time to prepare the houses (13%). In addition, constructing pig structures, according to the farmers, required skills which the farmers lacked (11%) and money investments for purchasing construction materials (45%). Others (15%; 31 / 209) included farms with young pigs that did not require housing, farmers who demolished the pens because of firewood shortages, pens that had previously been destroyed by rains and growing pigs that frequently destroyed the structures.

Tethering of pigs (>50%) was frequent during the planting (91%; 263 / 290), growing (90%; 263 / 290) and harvesting seasons (78%; 227 / 290). Pigs were confined in pens (at least >50 % of the time) by 3%, 2%, and 2% of the farmers for the planting, growing, and harvesting seasons, respectively. There was no difference ( $P<.05$ ) in the percentage time pigs were housed, tethered or allowed on free range across the three farm visits.

#### **Lingual indicators of pig cysticercosis**

A total of 1290 pigs from 288 farms, were examined for the larval cysts of *C. cellulosae* using the lingual palpation method. Household prevalence of porcine cysticercosis was 15% (43 / 288) while prevalence in pigs was estimated at 4.5% (58 / 1290). There was no difference ( $P>0.05$ ) between the prevalence observed in Busia (5.1%) and Kakamega (3.5%). Fifty-eight percent (58%) of the pigs examined were females. Sex of the pig was not associated with cysticercosis. Six pigs were found positive in two consecutive farm visits and five of these were breeding female pigs.

Eighty nine (249 / 284) of the farmers had heard of taeniasis in humans and 55% had seen actual *Taenia* segments on human feces. Of the 53% that had heard of tapeworm infection in pigs, 57% had heard of the disease during a previous farmer training workshop organized by the research team. Other sources included those that had heard from neighbours (19%), government extension staff (6%), close friends (4%) and from family members who had attended the village training (1%). Two farmers said they had seen tapeworm cysts in pork meat; one of the farmers had previously operated pork butchery. We asked the interviewees to state the measures they would adopt if they encountered a suspect case tapeworm cyst on the pork they buy. Responses ( $n=233$ ) included cooking the meat well (34%), throwing infected pork away (17%) and manual removal of cysts before cooking (1%). To ensure proper cooking of the pork, a few of the farmers (8%) reportedly boiled the pork in water for about 10 minutes before cooking. Pigs were said to be inspected in 14% (64 / 429) of the visits. The farmers referred to inspections involving the general health of the pig, the pig's size and estimated live weights for the pigs. The inspection was done by the pig farmers themselves.

The proportion of farmers that reportedly had their pigs inspected was higher ( $P<.05$ ) in Kakamega (29%; 42 / 142) than in Busia (7%; 22 / 287).

### Challenges to improved rural pig farming

Sixty-five percent of the respondents reported inadequate feeding as a major challenge in pig production. Feeding was mostly a challenge during the dry seasons, either on farms that had a recently farrowed sow or where the number of pigs owned was high. Other challenges included diseases (46%), limited access to breeding boars (60%), poor profits (61%) and free range pigs as sources of conflicts with neighbours when they uproot crops (53%). Even though poor profit was a common challenge reported on the farms (61% 450/736), we found that only 25% (188 / 736) had experienced problems getting buyers for their pigs. As shown in Table 2, piglet mortality was significantly higher ( $P<.05$ ) in Kakamega (55%) than in Busia District (45%).

**Table 2.** Challenges thought to be either serious or moderately serious by pig farmers in Busia and Kakamega Districts of Western Kenya, 2006-2008

Type of the challenge	Percent proportion			P value
	Busia (n <sup>1</sup> =434)	Kakamega (n <sup>2</sup> =302)	Overall %	
Pig feeding	62	68	65	>0.05
Making profit from pig sale	55	68	61	<0.001***
Getting the sow bred	59	61	60	>0.05
Disturbing neighbours	51	56	53	>0.05
Cost of the pig	53	49	52	>0.05
High piglet mortality	45	55	49	<0.01**
Pig management	41	53	46	<0.001***
Pig diseases	53	36	46	<0.001***
Getting pig buyer	20	31	25	<0.001***

\*Association between district and the type of the challenge was considered significant at the 95 % level of confidence

n<sup>1</sup> and n<sup>2</sup> – Number of Observations

The proportion of farmers citing problems of poor profits from pig sales was significantly higher in Kakamega (68%; 208 / 302) than in Busia (55%; 242 / 434) ( $p<0.01$ ). Compared to farmers in Kakamega, pig farmers Busia were two times more likely to experience disease problems on their farms (OR=1.95, CI 1.4 - 2.6;  $p<0.001$ ). Only 31% (109 / 342) of the farmers that experienced disease as a challenge could describe the clinical manifestations observed. Only a small percentage (33%) provided specific disease problems observed. These (singly or in combination) included mange (*Sarcoptes scabie var Suis*), ticks, salt

poisoning and lice (*Haematopinus suis*) infestations. Vomiting, anorexia, reddening of the skin, excessive salivation and tether wounds were additional signs reported by the farmers which, according to the farmers, were indicative of poor health (Photos 1 and 2).

The proportion of farmers who considered the cost of the piglets and neighbour conflicts a challenge differed across the visits in Busia District ( $P < 0.05$ ). In Busia, there were more cases of pigs bothering neighbours during the first and third visits (52%; 86 / 164) and 77% (90 / 116) than during the second visit (31% (48 / 154) ( $P < 0.05$ ). Piglet mortality was most often a significant challenge during the third farm visit in February (77%; 72 / 116) for Busia but a significant challenge during the first visit in June (67%; 79 / 117) in Kakamega ( $P < 0.05$ ). Piglets were cheaper in Busia (Ksh 509 $\pm$ 57) than they were in Kakamega (Ksh 777 $\pm$ 174) ( $P < 0.05$ ). Farmers were asked if management of the pigs was a challenge and if so, to describe their specific concerns. Their concerns (46%; 339 / 736) included using weak tethers, breeding, pig confinement and lack of time to attend to the pigs. Breeding problems (60%; 444 / 736) were related to few boars in the villages, forcing farmers to walk for long distances looking for boars to service their sows. Causes of piglet deaths included crushing as a result of being stepped on by the sows and hypothermia, as a result of the pigs being rained on. Neighbour conflict problems were related to farmers using weak tethers to confine their pigs. These loose pigs escaped to neighbouring farms and subsequently destroyed their crops.



**Photo 1.** A case of tether wound observed on a pig's limb in Kakamega District, Western Kenya



**Photo 2.** A case of tether wound observed on a pig's neck in Kakamega District, Western Kenya

Tether wounds are quite common and are a result of the inability of farmers to make proper knots and their disregard for regularly changing tethers to alternative sites on the pig's body. Such wounds pave the way for secondary bacterial infections which could further lead to low productivity. They are also an important animal welfare concern.

## Discussion

Smallholder pig farming is an important livelihood source in many households in rural Western Kenya. The pigs are sold to earn family income which can in turn be used to buy food, pay for school fees and pay for medical bills. Farmers who keep pigs are middle aged (30-50 years), with basic primary education and are more often women. Because of their educational level, these farmers do not qualify to get well paying jobs, and as a result, they engage in rural pig farming which provides them with an opportunity to better their lives and earn a living. Pig farmers also kept other livestock species in addition to pigs to diversify their



income sources. The average land size per farm was  $0.94 \pm 0.81$  hectares. Pigs are perhaps the most ideal animals to keep considering their small space requirements and because of the fact that they do not need grazing land. Pork is an affordable protein source quite popular in the rural community of Western Kenya. Pig farming remains a viable sector and with proper management, presents an opportunity for farmers to boost their incomes through increased production. The sector relies on little capital investment and family labour as key inputs. The pigs are hardy and can tolerate harsh conditions (Rodríguez and Preston 1997, Chimonyo et al 2005).

The local pig industry in Western Kenya faces a number of challenges which, if not addressed, might severely impact on production. The proportion of farmers who identified specific challenges differed by district; for instance, diseases were a lesser challenge in Kakamega than it was in Busia. Villages in Busia District were considered “rural”, further from the main town of Busia, while those in Kakamega were considered “peri-urban”, near the urban town of Kakamega. There are obvious expected differences in management between the districts. Pig farmers were better positioned to access extension services from the nearby government offices than those in the distant Busia district. It may also be because, on average, farmers in Kakamega had been keeping pigs for a long time and had more experience in the industry than those in Busia, and that pork was consumed more in Kakamega than in Busia. Feeding is the most expensive part of pig farming; it is therefore not surprising that the farmers identified it as the most frequently encountered challenge in the region. This had also been mentioned by farmers during a previous focus group study conducted in the area (Mutua et al 2010). Utilizing locally available feedstuffs as alternative feeds for pigs could reduce the costs associated with purchased commercial feeds. The numerous food crops grown in the area highlights the available foodstuffs that can be utilized in formulating local feed ingredients for pigs. Piglet prices were lower in Busia than in Kakamega. This again, may be attributed to the high local demand for pork in Kakamega.

Disease control measures such as deworming, spraying, and vaccination, were found to be rare in the districts, with poor extension services and inability to pay for services being contributory factors (Wabacha et al 2004). Helminth infestations, according to Stewart et al (1985), Stewart and Hale (1988) and Nganga et al (2008), can reduce performance and lead to subsequent economic losses. We did not collect samples to determine specific helminth infestations in the current study; however, internal parasites such as *Ascaris suum*, *T. suis* and *Oesophagostomum* spp have been reported in commercial farms in Kenya (Kagira et al., 2008; Nganga et al 2008). The free range method of raising pigs might complicate the worm control efforts. Infestation of mites (*Sarcoptic scabiei* var *suis*) and lice (*Haematopinus suis*) were commonly observed on the pigs in the study districts (data not recorded). A part of the research was to treat all pigs in the study farms with Ivermectin (Ivomec®). *Sarcoptic scabiei* var. *suis* is an important ectoparasite of pigs seen mostly where nutrition, management and hygiene are low. Mange can impact growth rate and feed utilization efficiency. *Haematopinus suis* causes severe irritation, pigs scratch and rub against objects leading to skin damage and reduced weights. It is also responsible for the transmission of diseases between infected pigs (Cameron 1999, Cargill and Davies 1999, Muirhead and Alexander 1998, Nsoso et al 2006). The local belief that letting the pigs bathe in the mud would

control for the common ectoparasites may potentially serve as a control strategy for ectoparasites. The practice may predispose the pigs to acquiring diseases such as African Swine Fever if pigs congregate at rivers; ASF is known to cause serious economic losses on pig farms (Penrith et al 2007).

The results of the present study indicate that farmers lack adequate knowledge on improved pig management and disease control. Total confinement of pigs is rarely done and most farmers lack pens to house their pigs. Those that had the structures rarely confined the pigs during the day, a clear indication that pig farmers did not understand the importance of pig confinement, particularly the public health concerns of free-range pigs and the cycle of *T. solium* tapeworm. This was of particular concern with respect to the maintenance of the life cycle of *T. solium*. Pigs should be housed to guard them against environmental hazards (Lekule and Kyvsgaard 2003). Neighbour conflicts were an important challenge, mostly on farms where they were allowed to roam freely. The purchase of strong ropes to tether pigs was a problem in many households resulting in the use of weak tethers which were easily broken by the pigs setting them free to roam leading to conflicts with neighbours. Tether wounds observed on the neck and leg of the pigs is a welfare concern (Neville and Temple 2007); such wounds can be attributed to the failure of the farmers to regularly change tether positions potentially leading to secondary bacterial infections.

Local construction materials such as grass and wood are available and can be utilized in preparing simple structures for pigs. Government staff at the Ministry of Livestock can offer assistance to the farmers by designing the recommended pig housing for the farmers to use. Training farmers on better pig husbandry practices can address the observed problem of non-confinement and other related issues observed in the current study. Allowing pigs to scavenge is against the Kenya government legislation which recommends pig confinement in pig- proof houses (Laws of Kenya: Pig Industry Act, Cap 361, 364). Dirk and Geerts (2004) argued that, farmers may find it easier to let their pigs loose because the associated financial risk is small. The free range behaviour of pigs has been associated with increased risks of contracting porcine cysticercosis (Lekule and Kyvsgaard 2003), an important zoonotic disease, unknown in many rural households (Wohlegemut et al 2010). Although most of the farmers were aware of human taeniasis (~90%), the study did not specify the *Taenia spp* that farmers talked about. It is known that *Taenia saginata* and *T. solium*, although they have different consequences in humans, are difficult to differentiate by parasitological examination because their eggs are indistinguishable (Mayta et al 2000).

This study found a pig-level prevalence of 4.5%, an indication that *T. solium* cysticercosis is still present in the locally raised pigs of Western Kenya. Similar prevalence values have been reported from past research (Githigia et al 2005, Mutua et al 2007, Kagira et al 2010). Although lingual palpation method has been used in estimating cysticercosis prevalence in pigs (Ngowi et al 2004), it has a low sensitivity in detecting *T. solium* infected animals (Gonzalez et al 1990). The prevalence observed is likely an underestimate of the true prevalence in the districts of Busia and Kakamega. Only six pigs out of the total that tested positive for cysticercosis were still present on the farms when the researchers made the subsequent visits. This obviously indicates that the

pigs were sold out for slaughter at the local butcheries for local consumption exposing the public to the risk of infection from the unhealthy pork.

This study has highlighted a number of issues that are of major concern in the sustainability of local pig industry, of importance is feeding, marketing and breeding. There is need to address these for full realization of the sectors potential. One of the possible ways that could reduce production costs is by farmers using locally available feedstuffs that would balance the nutrient requirements of the pig. Confinement of pigs would reduce the public health risks associated with pigs. The role of breeding sows in a herd cannot be over-emphasized as these are important in the sustainability of the pig sector in the villages. Breeding sows are sources of weaned pigs in the community. The weaned pigs are then raised to market weight before being sold to earn income. Piglet farming, with proper management, will provide sow farmers with an additional source of income. There is need to increase producer awareness on healthy husbandry practices through strengthened extension services. These coupled with additional research would promote healthy pork production and meet the local demand for the increasing human population.

### **Acknowledgement**

We thank all the small-holder pig farmers, and the government extension workers for their participation and cooperation in this study. This work was funded by the University of Guelph in Canada. Collaboration with International Livestock Research Institute (Kenya) and the University of Nairobi is appreciated.

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*Received 31 March 2010; Accepted 28 May 2011; Published 1 July 2011*

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