academicresearchJournals

Vol. 5(4), pp. 244-254, July 2017
DOI: 10.14662/ARJASR2017.011

ISSN: 2360-7874
http://www.academicresearchjournals.org/ARJASR/Index.htm

Academic Research Journal of Agricultural Science and Research

Full Length Research

Live Pigs Marketing and Buyers' Characteristics in Ethiopia

Zemelak Goraga[*1], Abate Bekele[2], Tamrat Degefa[2], Misba Alwi[2], Mammo Mengesha[2], *Gustavo J. M. M. Lima*[3]

[1] *Ethiopian Biotechnology Institute, P.O.Box:5954, Addis Ababa, Ethiopia*
[2]Ethiopian Institute of Agricultural Research at DZARC, P.O.Box: 32, Debrezeit, Ethiopia
[3]*Embrapa Swine and Poultry, P.O.Box 21, Concordia SC, 89700-000, Concordia, Brazil*

[*]Corresponding author: zemelaks@yahoo.com

Accepted 26 June 2017

The study presented valuable information on live pigs' marketing, buyers' characteristics, purpose of buying pigs, partnerships among market actors, trend of swine business and motivational drivers in swine sector of Ethiopia. A total of 66 swine farms were selected in six major towns to collect quantitative and qualitative data on the studied parameters. A multi-stage sampling procedure was employed to select sampling areas and respondents. A standardized questionnaire was used to collect the data using person to person interview. Data were analyzed using appropriate statistical procedures of SPSS. On average 10, 40 and 163 pigs per farm per year were sold in small, medium and large scales of production, respectively, and this was statistically significant ($P<0.05$) across the three scales of production. Brokers (40%), people in informal market (20%) and owners of nearby farms (14.5%) were the main buyers of live pigs in Ethiopia. The study revealed that the main purposes of buying live pigs in Ethiopia were for re-selling and/or production. About 80.4% of the interviewed swine producers had no partnership with buyers, i.e. they were independent and met just on spot market. The involvement of foreigners in pigs' production chain was much higher (54.5%) than their involvement in processing (11.4%) and marketing (34.1%) chains in Ethiopia. According to the findings of the study, a positive trend for swine business was observed in Ethiopia. 45.2% of the respondents did show an interest to continue their business with an increasing level of production. Key information obtained from this study can be used to develop strategies aiming to improve live pigs' marketing in the country.

Keywords: buyers' characteristic; Ethiopian pigs; market price; motivational drivers, partnership

Cite this article as: Goraga Z, Bekele A, Degefa T, Alwi M, Mengesha M, Lima GJMM (2017). Live Pigs Marketing and Buyers' Characteristics in Ethiopia. Acad. Res. J. Agri. Sci. Res. 5(4): 244-254

INTRODUCTION

Although the swine sector has not been well advanced in African countries like in Ethiopia, it has the potential to contribute to the food security and create job opportunities especially for the poor farming communities (Petrus *et al*., 2011; Amills *et al*., 2013; Tekle *et al*, 2013; Berihu *et al*., 2015; Birhan *et al*., 2015; Goraga *et al*., 2015; Greve, 2015; Adeoye *et al*., 2016; Goraga *et al*., 2016).

As swine production is at its infant stage in Ethiopia, it is challenged by several bottlenecks (Tekle *et al*, 2013; Berihu *et al*., 2015; Birhan *et al*., 2015; Goraga *et al*., 2015 & 16). Although there is no policy preventing

investment in the swine sector in Ethiopia, so far less attention has been given to the sector and there is poor public awareness on its socio-economic advantages. Furthermore, most livestock producers in Ethiopia don't have keen interest to invest in swine sector compared with their interest to invest in other livestock sectors, and this could be partly associated with the lack of functional marketing systems for live pigs and pork, and also due to the religious taboos against swine production and pork consumption in the country (Goraga *et al*., 2015 &16).

Most of the previous studies conducted in Ethiopia and other African countries such as Namibia, Nigeria, and Uganda provided valuable information on pigs' production systems and health information (Petrus *et al*., 2011; Amills *et al*., 2013; Tekle *et al*, 2013; Berihu *et al*., 2015; Birhan *et al*., 2015; Goraga *et al*., 2015; Greve, 2015; Adeoye *et al*., 2016; Goraga *et al*., 2016), however, relatively fewer studies were conducted on marketing aspects of the swine sector in Africa (Pieterse *et al*., 2000; AJala and Adesehinwa, 2008; Ogunniyi *et al*., 2011; Montsho and Moreki, 2012; Levy *et al*., 2013; Kambashi *et al*., 2014; Levy *et al*., 2014; Mary-Juliet *et al*., 2014; Berihu and Tamir, 2016; Kimbi and Lekule, 2016). In Ethiopia, almost no information is available on pigs' marketing aspects, except little information provided by few authors (Berihu and Tamir, 2016). This shows that there is critical information gap on the swine marketing value chains generally in African countries and particularly in Ethiopia. Therefore, to narrow this information gap, a bilateral project was initiated between the Ethiopian Institute of Agricultural Research (EIAR) and the Brazilian Agricultural Research Corporation (EMBRAPA) with the fund obtained from the Africa–Brazil Agricultural Innovation MKTPlace program (http://www.mktplace.org/site/index.php). Thus, in this particular paper, we have presented the findings of the project on live pigs' marketing, buyers' characteristics, future trend of the business and also motivational drivers in Ethiopian live pigs marketing.

Outputs from this study will support strategic interventions aiming to improve live pigs' marketing in the country. The key information to be generated from this study will also be valuable for people who want to invest in swine sector in Ethiopia.

MATERIALS AND MOTHODS

Description of the Study Area

As previously described by Goraga *et al* (2015), the study was conducted in six major towns: Debrezeit (11°48'N; 38°30'E), Nazareth (08°32'N; 39°22'E), Addis Ababa (09°02'N; 38°42'E), Bahirdar (11°37'N; 37°10'E), Gondar (12°39'N; 37°30'E) and Mekele (13°33'N; 39°30'E), where swine production is most important in Ethiopia. Among the 66 visited farms, 30.3, 24.2, 16.7, 15.2, 9.1 and 4.5% were selected from Addis Ababa, Debrezeit, Nazareth, Bahirdar, Mekele and Gondar, respectively. The five locations were far from the capital city of Ethiopia (Addis Ababa) by 45 to 729 Km. They had an elevation range of 1700 to 2300 m.a.s.l. Their average annual rainfall and temperature ranged from 549-1420 mm and 12-45 °C, respectively. Urban agriculture was very well practiced in all of the six locations in Ethiopia. The data used in this study were collected within and around the six locations.

Sampling Techniques and Data Collection

A multi-stage sampling method was applied to select sampling areas and respondents. To select data collection areas with swine production potentials, first a preliminary survey was conducted using a one page questionnaire in eleven locations in Ethiopia. Secondly, six locations with major swine production were selected from the eleven locations. A face to face interview using a standardized questionnaire (pre-tested) was employed to collect qualitative and quantitative data such as total number of pigs sold per farm per year, live weights of pigs, price per kg of live weight, buyers' characteristics, purpose of buying live pigs, future trend of live pigs marketing and motivational drivers in live pigs marketing. The 66 farms were representing small (< 50 pigs), medium (50-150 pigs) and large scale (> 150 pigs) productions. Data were collected by trained enumerators and agricultural experts.

Statistical Analysis

Data were coded and stored on SPSS database. Quantitative measurement variables and their values were exported into Excel sheets to be analyzed using SAS software package. For analysis purpose, the data were clustered into three groups as small (< 50 pigs), medium (50-150 pigs) and large (> 150 pigs) scales of production. Continuous variables were analyzed using a generalized linear model procedure of SAS (SAS Institute Inc., 1999). Descriptive statistics such as percentages and frequencies were performed using cross-tabulation procedure of descriptive statistics in SPSS software package. Chi-square test was performed to test difference in the frequency distribution of the studied variables among the three scales of production. Alpha level of 0.05 was used to reject the null hypothesis of no difference among the three scales of production.

RESULT AND DISCUSSION

Number of pigs sold and their market price

As described in Table 1, the number of live pigs sold per

farm per year in the study period was 10, 40 and 163 in small, medium and large scales of production, which means, 1, 3 and 14 pigs per farm per month in the three scales of production, respectively. This was statistically different ($P<0.05$) across the three scales of production. The pigs had on average 81, 77 and 89 kg of live weight at the time of selling in small, medium and large scales of production, respectively. Live weight of the pigs at the time of selling was significant ($P<0.05$) across the three scales of production. The volume of live weights sold per farm per year was equivalent to 810, 3080 and 14507 kg in small, medium and large scales of production, respectively. This was also significant ($P<0.05$) across the three scales of production. Regarding the selling price of live pigs, a kg of live weight was sold for 60 birr or 2.73 USD and this was the same across the three scales of production. The total earnings obtained from the sale of live pigs per farm per year were 48600, 184800 and 870400 birr or 2209, 8400 and 39564 USD in small, medium and large scales of production, respectively. This was the total sale but it doesn't show the net profit. Due to the lack of recorded information on farm expenses, we couldn't analyze the net profit obtained per farm per year. Comparing the three scales of production, there was better number of live pigs sales and more earnings in large scales of production than in small and medium scales.

According to previous studies, the market price of live pigs was ranged from 2.83 to 4.04 USD per kg of live weight in Ethiopia (Berihu and Tamir, 2016); whereas, 0.62 to 0.88 USD in Kenya (Levy *et al*., 2013), 0.27 to 0.54 USD in South Africa (Pieterse *et al*., 2000), 2.0 to 4.1 USD in Congo (Kambashi *et al*., 2014), and 1.51 to 2.35 USD in Cameron (Mary-Juliet *et al*., 2014) (N.B. the exchange rate which was effective on 1st Nov 2016 was used to change local currencies into USD). The market price of pigs reported for Ethiopia is higher than that of Kenya, South Africa and Cameron; whereas, it is equivalent to the values reported for Congo. According to Berihu and Tamir (2016), the above mentioned current price of live pigs in Ethiopia was almost threefold higher than the price before 10 years in the country. The present increase in market price of live pigs in Ethiopia might indicate an increase in demand for pork and this can be seen as green light for attracting investors to invest in the swine sector of Ethiopia.

Buyers of live pigs

Although there is no formal live pigs market in Ethiopia, the swine producers sell their pigs in different ways to different buyers. The buyers can be people in informal market, relatives, owners of nearby farms, brokers, pork processors, owners of supermarkets, or households. In this study, based on the whole data set, the main buyers of live pigs in Ethiopia were brokers (40%), people in informal market (20%), and owners of nearby farms (14.5%) (Table 2). In small scale farms, Brokers followed by people in informal market and owners of nearby farms were the principal buyers of live pigs, whereas, in medium scale of production, brokers were still the pre-dominating buyers but people in informal market and owners of nearby farms were equally important. On the other hand, brokers, people in informal market and owners of nearby farms were all equally important in buying live pigs. Regarding brokers' involvement in live pigs marketing, they are more (40.9%) involved in small and medium scales of production than in large scale production (18.2%), whereas, the involvement of people in informal market was higher (50%) in small scale production than in medium (21.4%) and large scales of production (28.6%). In the live pigs marketing chain, the least important buyers were consumers (households), supermarkets and processors. Based on this study, none of the studied parameters on buyers' relationship with sellers were significant ($P>0.05$) across the three scales of production.

A previous study conducted in three locations (Addis Ababa, Debre-Zeit, Nazareth) in Ethiopia, showed that in 82.9% of the cases, the live pig buyers in the studied locations were traders and the remaining 17.1% were neighboring farms (Berihu and Tamir, 2016). The same authors reported that most of the swine producers sell their pigs at slaughtering houses and few of them at farm gates. This was in disagreement with our findings. Our data show that 54.5% of live pig buyers in Ethiopia are brokers and nearby farms. These buyers buy pigs at the farm gets of the swine producers. As there are only few pig slaughtering houses in Ethiopia, it is more probable to sell the live pigs at the farm gets. In agreement with our findings, Mary-Juliet *et al* (2014), reported that 77.1% of the swine producers in Cameron sell live pigs at farm gates. The difference between our findings and that of Berihu and Tamir (2016) on the exact place of selling live pigs could be partly due to the difference in number and locations of the study sites. Similar to the report of Berihu and Tamir (2016), five different marketing agents (pig producers, traders, processors, supermarket, and restaurant/hotel) are participated in pig marketing channels in Ethiopia where traders are the main suppliers of pigs to the market. Traders buy pigs from producers and sell them to restaurants, hotels, supermarkets and consumers. The main marketing channel was from producer-trader- supermarket-hotel/restaurant-consumer. In agreement with the current study, In Western Kenya, pigs are not sold in a central market; instead, traders or processors purchase pigs directly from the smallholder farmer at the farm gate (Levy et al., 2014). Unlike in Ethiopia, live pigs are sold at local village markets to intermediate traders in Nigeria where the pig marketing channel follow a centralized pattern in which pig farmers (producers) bring pigs together in larger central and terminal markets (Ajala and Adesehinwa, 2008).

Buyers' characteristics

This study showed that live pigs buyers in Ethiopia are more of Ethiopians and Asians (Table 3). Among the Asian people, Chinese are the pre-dominant one. 46.2% of the interviewed swine producers responded that Ethiopians are the main buyers of live pigs, whereas, 30.8% of them said that Asians like Chinese are the main buyers. Those 23.1% of the respondents responded that both Ethiopian and Asians actively involved in buying live pigs. Unlike in small and medium scales of production, the involvement of Asians in live pigs purchasing is higher in large scale production, however, in small and medium scales of productions Ethiopians are the main buyers. Distribution of live pigs buyers by nationality was significant ($P<0.05$) across the three scales of production. According to the findings of this study, people from other nationalities such as America, Europe and other African counties didn't involve in live pigs marketing in Ethiopia, however, as reported previously by Goraga *et al* (2016), these group of people actively involved in pork and pork products purchasing and consumption in Ethiopia (Goraga *et al*., 2016).

Regarding the religious composition of live pigs buyers in Ethiopia, the majority of them were from Orthodox (47.3%), catholic (12.7%), and protestant (11%) groups, however, the remaining 20.1% were from the other religion or people with no religion background (Table 3). Among the Christian community, Orthodox were the pre-dominant one and this was the case across the three scales of production. Distribution of live pigs buyers by religion was not significant ($P>0.05$) across the three scales of production. The study revealed that Muslims didn't or rarely involve in live pigs purchasing. Although people with Orthodox faith actively involved in live pigs purchasing, they didn't or rarely involved in pork and pork products purchasing and consumption (Goraga *et al*., 2016). The same author previously reported that Muslims also didn't involve in pork and pork products purchasing and consumption in Ethiopia.

The influence of socio-cultural variables on consumers' purchase of food products was previously reported by Mutsikiwa and Basera (2012). According to this author, pork consumption is prohibited in communities where there is Muslim and Orthodox dominancy. This can directly or indirectly affect live pigs' production and marketing in those countries.

Purpose of buying live pigs

People in Ethiopia buy live pigs for various purposes such as for home consumption, processing, establishing new swine farms, replacing existing herd, or for re-selling with better price. As presented in Figure 1, the main purposes of buying live pigs in Ethiopia were for re-selling and production (herd establishment and replacement). Home consumption and processing were the least important purposes of live pigs purchasing. Based on this, it can be concluded that although people with Orthodox faith background are the main buyers of live pigs in Ethiopia, they buy the pigs mainly for re-selling and production but not for consumption.

As described in a previous study, 82.9% of live pigs buyers in Ethiopia were traders who buy pigs for re-selling and the remaining 17.1% of the buyers were the neighboring farms who buy the animals for production purpose (Berihu and Tamir, 2016).

Buyers' partnership with sellers

It was also the interest of this study to determine the partnership between live pigs sellers and buyers. According to our findings, although it was not strong, there was partnership to some extent. As can be seen from Figure 2, about 19.6% of the total interviewed swine producers had partnerships with buyers. However, most of this partnership was without formal contract. Such type of partnership (without contract) was practiced in all of the three scales of productions. On the other hand, based on the whole data set, 80.4% of the total respondents had no partnership with the buyers, i.e. they were independent and met just on spot market. Unlike in the small and medium scales of productions, formal contract (3.6%) was practiced in large scale production. Generally, our findings indicate that there is a week partnership between sellers and buyers in the Ethiopian live pigs' marketing value chain and it needs to be strengthened through appropriate interventions.

A partnership with formal contract is a modern type of commodity based business dealing between farmers and sponsors or investors (Eaton and Shepherd, 2001; Prowse, 2012). Such type of partnership is common especially in crop sector of many African countries. However, our data showed that there is no such partnership in the swine production and marketing value chains in Ethiopia. However, introduction of the system in Ethiopian swine sector could highly benefit the farmers, can make the sector more sustainable and also enhance its contribution to the country's economy.

Foreigners' involvement in swine business in Ethiopia

Swine production is one of the untouched business areas for foreign investors' involvement in African countries like Ethiopia. In this study, we were interested to investigate whether foreigners involve in Ethiopian swine sector, and if they involve, there was an interest to determine the type and degree of involvement in the sector. According to the results of this study, 44.6% of the interviewed swine producers had the information that foreigners are

Table 1: Mean ± SE of the number of pigs sold per farm per year, pigs' market weight (kg) and selling price (birr per kg of live weight)

No pigs sold/ price	Herd size			P-value
	Small (< 50 pigs)	Medium (50-150 pigs)	Large (> 150 pigs)	
No pigs sold	10 ± 1.6^{c}	40 ± 10.4^{b}	163 ± 52^{a}	0.001
Average weight of sold pigs	81 ± 6.4^{b}	77 ± 4.4^{c}	89 ± 3.5^{a}	0.008
Total sold live weight	810 ± 65^{c}	3080 ±185^{b}	14507 ± 580^{a}	0.001
Selling price	60^{a}	60^{a}	60^{a}	NS
Income from selling of Pigs	48600 ± 3888^{c}	184800 ± 11088^{b}	870400 ± 34816^{a}	0.001

N.B Herd size of < 50, 50-150 and > 150 pigs per household represent small, medium and large scale production, respectively. Superscript letters refer to significant difference among the three scales of production. The same letters across scales of production refer to no significant difference. Means refer to mean of the studied variables. ^{SE} refers to standard error. ^{NS} refers to non-significance.

Table 2: Buyers of live pigs

Buyers category	Herd size			Total	P value
	Small (< 50 pigs)	Medium (50-150 pigs)	Large (> 150 pigs)		
People in informal market	7 (50)	3 (21.4)	4 (28.6)	14	0.40
Relatives	0 (0.0)	2 (33.3)	4 (66.7)	6	0.13
Nearby farms	4 (50)	3 (37.5)	1 (12.5)	8	0.34
Brokers	9 (40.9)	9 (40.9)	4 (18.2)	22	0.32
Processors	0 (0.0)	1 (100)	0 (0.0)	1	0.38
supermarket	1 (33.3)	0 (0.0)	2 (66.7)	3	0.37
consumers	1 (100)	0 (0.0)	0 (0.0)	1	0.38
Total	22	18	15	55	0.62

N.B numbers outside and inside parenthesis represent the number of respondents and their percentage from row totals, respectively. Herd size of < 50, 50-150 and > 150 pigs per household represent small, medium and large scale production, respectively.

involving in Ethiopian swine business, however, the remaining 55.4% responded that they don't know the involvement of foreigners in Ethiopian swine sector (Table 4). Awareness of the swine producers on the involvement of foreigners in swine business in Ethiopia was not significant (P>0.05) across the three scales of production.

According to the information obtained from the respondents, those foreigners who have been engaged in Ethiopian swine sector involved either in production, processing, marketing or in one or more of the different value chains. As described in Table 4, the involvement of

Table 3: Buyers' characteristics by nationality and religion

Characteristics / relationship	Herd size			Total	P value
	Small (< 50 pigs)	Medium (50-150 pigs)	Large (> 150 pigs)		
Buyers by nationality					0.022
Ethiopians	9 (37.5)	14 (58.3)	1 (4.2)	24	-
Asians	8 (50)	3 (18.8)	5 (31.2)	16	-
Both	3 (25)	4 (33.3)	5 (41.7)	12	-
total	20	21	11	52	-
Buyers by religion					0.553
Orthodox	9 (34.6)	12 (46.2)	5 (19.2)	26	-
Catholic	1 (14.3)	4 (57.1)	2 (8.6)	7	-
Protestant	2 (33.3)	2 (33.3)	2 (33.3)	6	-
others	9 (56.2)	4 (25)	3 (18.8)	16	-
total	21	22	12	55	-

N.B numbers outside and inside parenthesis represent the number of respondents and their percentage from row totals, respectively. Herd size of < 50, 50-150 and > 150 pigs per household represent small, medium and large scale production, respectively.

Table 4: Foreigners' involvement in live pigs production and marketing

Foreigners involvement	Herd size			Total	P value
	Small (< 50 pigs)	Medium (50-150 pigs)	Large (> 150 pigs)		
Is there foreigners Involvement?					0.19
Yes	14 (56)	6 (24)	5 (20)	25	-
No	10 (32.3)	13 (41.9)	8 (25.8)	31	-
total	24	19	13	56	-
How they involve?					0.70
In production	11 (45.8)	6 (25)	7 (29.2)	24	-
In marketing	7 (46.7)	4 (26.7)	4 (26.7)	15	-
In processing	1 (20)	1 (20)	3 (60)	5	-
total	19	11	14	44	-

N.B numbers outside and inside parenthesis represent the number of respondents and their percentage from row totals, respectively. Herd size of < 50, 50-150 and > 150 pigs per household represent small, medium and large scale production, respectively.

foreigners in production chain was much higher (54.5%) than their involvement in processing (11.4%) and marketing (34.1%) chains. The higher involvement of foreigners in production chain than in processing and

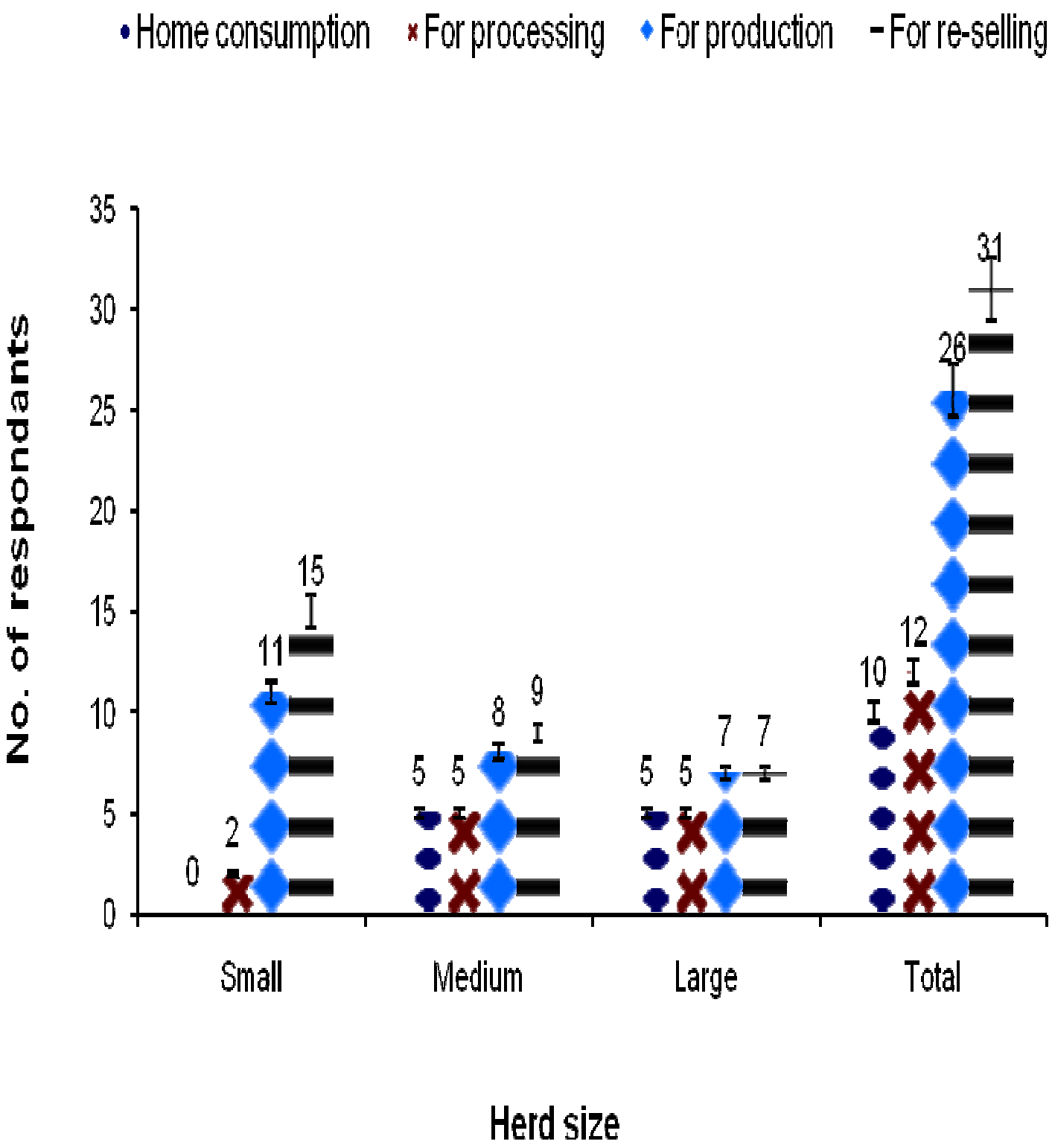

Figure 1. Purpose of buying live pigs
N.B. Herd size represented by small, medium and large scale refers to < 50, 50-150 and > 150 pigs per household, respectively.

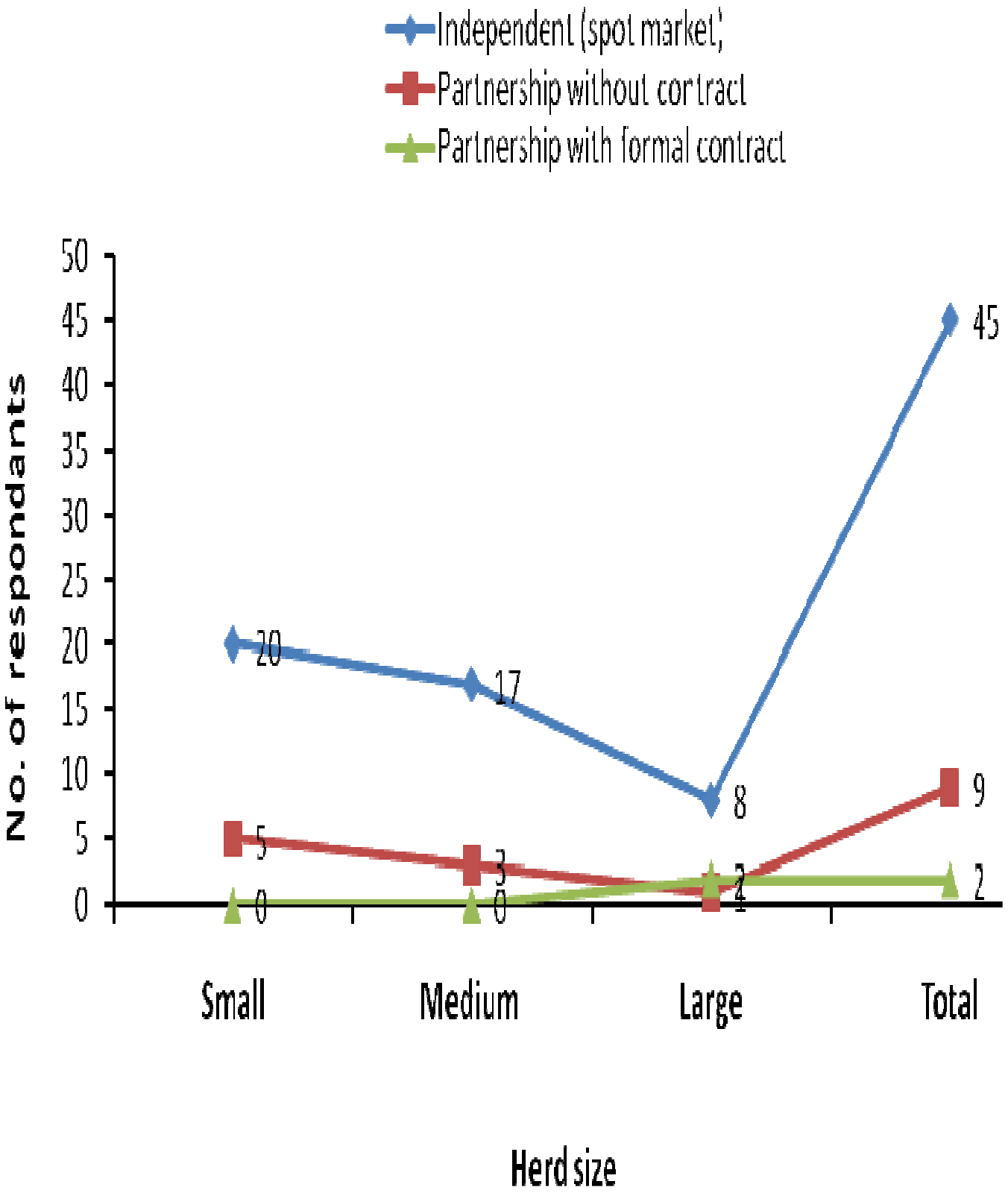

Figure 2. Buyers' relationship with sellers

Table 5: Future trend of swine business and motivational drivers

Trend / motivation	Herd size			Total	P value
	Small (< 50 pigs)	Medium (50-150 pigs)	Large (> 150 pigs)		
Future trend					0.083
Increasing	10 (35.7)	8 (28.6)	10 (35.7)	28	-
Decreasing	9 (64.3)	3 (21.4)	2 (14.3)	14	-
Will be remained the same	0 (0.0)	2 (66.7)	1 (33.3)	3	-
I will quit the business	5 (62.5)	2 (25)	1 (12.5)	8	-
No answer	3 (33.5)	6 (66.7)	0 (0.0)	9	-
Total	27	21	14	62	-
Motivational drivers for expanding the business					0.72
High demand for live pigs	4 (36.4)	3 (27.3)	4 (36.4)	11	-
High supply of live pigs	1 (100)	0 (0.0)	0 (0.0)	1	-
Profitable	1 (25)	2 (50)	1 (25)	4	-
Improved awareness	1 (16.7)	2 (33.3)	3 (50)	6	-
total	7	7	8	22	-

N.B numbers outside and inside parenthesis represent the number of respondents and their percentage from row totals, respectively. Herd size of < 50, 50-150 and > 150 pigs per household represent small, medium and large scale production, respectively.

marketing was observed in all of the three scales of production. On the other hand, foreigners' involvement in the processing chain was the least important across the three scales of production. According to this study, foreigners' involvement in the different value chains was not significant (P>0.05) across the three scales of production.

Chinese involvement in African pig production was previously reported by Alden (2013). Our study also revealed Chinese involvement in one or more value chains of the swine sector in Ethiopia (Table 3). Except the involvement of some tourists in pork consumption, it was not common to see people with other nationality who engaged in live pigs production and marketing in Ethiopia.

Trend of swine business and motivational drivers

Information on the future trend of live pigs marketing is very crucial to make strategic interventions aiming to improve the sector in Ethiopia. In this study, the swine producers were interviewed on the future trend of their swine business and the findings were presented in Table 5. According to the findings of the study, 45.2% of the respondents did show an interest to continue their business with an increasing level of production, whereas, those who responded to continue the business with a decreasing level of production were 22.6%. The remaining 5.8% were showed a tendency to keep their business at the current level of production, whereas, 12.9% of them had an interest to quit their business. A tendency for increasing the level of production was the predominant future trend expressed by most of the swine producers across the three scales of production. However, the future trend on swine business was not significant (P>0.05) across the three scales of production. Regardless of future size of production, 72.6% of the total interviewed swine producers expressed their interest to

continue the swine business also in the future.

Our finding on the positive trend of live pigs marketing in Ethiopia can have a positive implication on more protein supply and better food security for the ever increasing human population of Ethiopia and that of tourists who will come to Ethiopia for short and/or long stays in the country.

Furthermore, the motivational drivers which potentially encouraged the swine producers to continue their swine business also in the future in Ethiopia were assessed and presented in Table 5. Motivational drivers could be attached to different reasons such as for profit making, just as a hobby, or for other motivational drivers. Among the interviewed respondents, 50% of them responded that they want to continue their swine business with the expectation that there will be an increased demand for live pigs and pork in the country, whereas, 27.3% of the respondents' interest to continue their swine business was associated with their expectation that in the future there will be an improved awareness of people on pork consumption and this will enhance demand and market price for live pigs and pork in the country. On the other hand, 18.2% of the interviewed swine producers were motivated to continue their business and this was mainly due to their expectations for more profit in the business area. None of the studied motivational drivers for continuing the swine business in the future in Ethiopia was significant ($P>0.05$) across the three scales of production.

CONCLUSIONS

The study showed that the pre-dominant live pig buyers in Ethiopia were people with Ethiopian nationality and orthodox religion background. These groups of people were buying live pigs mainly for re-selling and/or production purposes. To some extent, Asians especially Chinese were involved in live pigs marketing in the country.

Most of the live pigs sellers in Ethiopia had no partnership with buyers, except few sellers who had partnerships with no formal contracts. A partnership with formal contract was not a common practice in Ethiopian pigs' marketing value chain.

According to our findings, the number of pigs sold per farm per year in Ethiopia was very low. However, market price for a kg of live weight was higher in our study for Ethiopia than the values reported by previous studies for other African countries such as Kenya, Cameron and South Africa.

The study further revealed that live pigs selling in Ethiopia was mostly taking place at farm gates. There was no formal market for live pigs selling in the study locations in Ethiopia however; there were several formal markets for selling other meat animals such as cattle, sheep, goat and chicken in the country.

A positive trend for live pigs marketing and size of supply observed in this study indicates an opportunity for future expansion of the business in the country.

Thus, awareness creation efforts need to be implemented to strengthen live pigs marketing in the country. There should be urgent interventions towards exploiting both local and export market opportunities. The government needs to strengthen research, development, and investment in the live pigs marketing in Ethiopia.

Findings of the study can be used to enhance public awareness on live pigs marketing and valuable traits affecting the market. This will further enable the swine producers to produce and supply live pigs with the required market weight and carcass characteristics and get more benefit from the business. Moreover, the findings of this study can support development of research and development strategies aiming to improve live pigs marketing value chain in Ethiopia.

ACKNOWLEDGEMENTS

The study was financed by the Africa – Brazil Agricultural Innovation MKTPlace program with the fund allocated for executing project ID 286. Authors would like to thank the swine producers who provided data for the study purpose and also the technical staffs of the agricultural offices for their support in data collection.

Abbreviations: EIAR= Ethiopian Institute of Agricultural Research; EMBRAPA = Brazilian Agricultural Research Corporation; MKTPlace = Market Place; USD = United States Dollar

REFERENCES

Adeoye AA, Udoh JE, Ikeobi CON, Adebambo OA, Rotimi EA (2016). Reproductive Performance of ASF-recovered Pigs in South-West Nigeria, 53(3): 417–429.

Ajala MK, Adesehinwa AOK (2008). Analysis of Pig Marketing in Zango Kataf Local Government Area of Kaduna State, Nigeria. TROPICULTURA, 26(4): 229-239

Alden C (2013) China and the long march into African agriculture. Cahiers

Agricultures, 22 (1): pp. 16-21. DOI: 10.1684/agr.2012.0600

Amills M, Ramírez O, Galman-Omitogun O, Clop A (2013). Domestic Pigs in Africa. African Archaeological Review. http://doi.org/10.1007/s10437-012-9111-2

Berihu M, Tamir B, Lundeheim N (2015). Health Management and Factors Affecting Small Scale Intensive Pig Production in East Shewa of Central Ethiopia. Department of Animal Science , College of Veterinary Medicine and Agriculture. 9(5): 373–380.

http://doi.org/10.5829/idosi.abr.2015.9.5.9664
Berihu M, Tamir B (2016). Marketing Practices and Constraints of Pig Production under Small Scale Intensive Farming in East Shewa , Ethiopia, 16(3): 261–267. http://doi.org/10.5829/idosi.gv.2016.16.03.102129
Birhan M, Gemechu T, Betelhem G (2015). Challenges and Opportunities of Pig Farming and Feeding Strategy in Gondar Town, Ethiopia, 4(2): 84–89. http://doi.org/10.5829/idosi.ajn.2015.4.2.9595
Eaton C, Shepherd AW (2001). Contract farming Partnerships for growth. FAO. ISSN 000-000. Pp. 1-161
Goraga ZS, Mengesha M, Miele M, Lima GJMMDe (2015). Swine production in Ethiopia : I . Socio-economic characteristics of producers and motivational drivers, 3(7): 279–287.
Goraga Z, Mengesha M, Gebregzabher E, Lima G (2016). Production system , feeding and slurry management of swine in Ethiopia, 4(1): 304–313.
Greve D (2015). Analysis of performance , management practices and challenges to intensive pig farming in peri-urban Kampala, Uganda, 6(January): 1–7. http://doi.org/10.5897/IJLP2014.0223
Kambashi B, Picron P, Boudry C, Théwis A, Kiatoko H, Bindelle J (2014). Smallholder pig production systems along a periurban-rural gradient in the Western provinces of the Democratic Republic of the Congo, 115(1): 9–22.
Kimbi EC, Lekule FP (2016). Smallholder Pig Marketing Systems in the Southern Highlands of Tanzania, 6(14): 87–98.
Levy MA, Ce D, Weersink A, Fk M, Poljak Z (2013). Pig marketing and factors associated with prices and margins in Western Kenya, 2(December): 371–383.
Levy MA, Dewey CE, Poljak Z, Weersink A, Mutua FK (2014). Comparing the operations and challenges of pig butchers in rural and peri-urban settings of western Kenya. African J. Agri. Res., 9(1):125-136.
Martin P (2012). Contract Farming in Developing Countries: A Review Institute of Development
Policy and Management, University of Antwerp. 1-96
Mary-juliet B, Engwali FD, Ibrahim M, Fran K (2014). Pig Production and Marketing in North West Region Cameroon : An Economic Assessment, 3(11): 542–546.
Montsho T, Moreki JC (2012). Challenges in commercial pig production in Botswana. J. Agri. Tech. 8(4): 1161-1170
Mutsikiwa M, Basera CH (2012). The Influence of Socio-cultural Variables on Consumers' Perception of Halal Food Products: A Case of Masvingo Urban, Zimbabwe. International Journal of Business and Management. 7(20): 112-119
Ogunniyi LT, Omoteso OA (2011). Economic Analysis of Swine Production in Nigeria : A Case Study of Ibadan Zone of Oyo State, 35(2): 137–142.
Petrus NP, Mpofu I, Schneider MB, Nepembe M (2011). The constraints and potentials of pig production among communal farmers in Etayi Constituency of Namibia. Livestock Research for Rural Development. 23 (159). Retrieved October 6, 2016, from http://www.lrrd.org/lrrd23/7/petr23159.htm
Pieterse E, Loots LP, Viljoen J (2000). The effect of slaughter weight on pig production efficiency. 30 (Supplement 1): 115–117.
Tekle T, Tesfay A, Kifleyohannes T (2013). Smallholder pig production and its constraints in Mekelle and southern zone of Tigray region, north Ethiopia.Livestock Research for Rural Development. 25 (184). Retrieved October 6, 2016, from http://www.lrrd.org/lrrd25/10/tekl25184.htm