THE PORK VALUE CHAIN
A REVIEW OF THE ACTORS AND THE BUSINESS OPPORTUNITIES IN THE SECTOR, IN KENYA

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## Acronyms and Abbreviations

AKEFEMA - Association of Kenya feed manufacturers  
DVO - District Veterinary Officer  
FAO - Food Agricultural Organization  
ITC - International Trade Center  
FC - Farmers Choice  
VAT - value added tax  
t-Tons  
KARI - Kenya Agricultural Research Institute  
NEMA - National Environment Management Authority  
FMD - foot and mouth disease  
ASF - African swine fever  
PSE - pale soft exudative
Executive Summary

Kenya’s pig industry is differentiated into specialized business units consisting of feed millers, producers, abattoirs, processors and retailers. There are approximately 7000 pig producers in Kenya. Small scale producers make up 70%; with the remainder 30% consisting of one large scale integrated commercial producer, large and medium scale producers; traditional free range and farmers with scavenging stock in slums.

Pork producers, especially small holders, face challenges of knowledge gap in best practice in husbandry and management of farms as businesses. Other challenges in production are limited-quality breeding stock and artificial insemination services, low quality-high cost feeds, and inability to service volume and quality demands of the market.

There were 83 feed millers in Kenya in 2007 registered with AKEFEMA; with an estimated installed capacity of 844,000 tons and utilization at 45%. Feed millers face challenges of sourcing high quality raw materials and low level of technology in production. These challenges have led to high feed prices beyond the reach of many farmers. A situation that was exacerbated by VAT levied on raw materials for feed production. This has resulted in farmers mixing their own feed rations from locally available raw materials.

Pig slaughter and processing for the market is undertaken largely in private abattoirs and processing firms. There are 5 major abattoirs with only one meeting export standards; the abattoirs are located within a radius of 150 km from Nairobi city. The abattoirs have limited infrastructure and technology for pork handling; they lack cold storage infrastructure and rely on wood fuel to heat water for abattoir operations. Pork processing firms are mainly located in Nairobi area and major towns. The major challenge they face is sourcing for quality pork. Majority of small and medium scale processors are unable to meet quality and packaging standards and therefore lose out on key markets including hotels, hospitals and schools. The study established that these institutions prefer to source pork from Farmer’s Choice—Kenya’s leading producer and processor—since it is the only firm with ISO certification.

The existing gaps and challenges present business opportunities in input supply, feed, and processing in the pork value chain in Kenya. To adequately meet its production demand, Kenya requires a supply of at least 1,400 replacement breeding sows per year as well as supply of boar artificial insemination services; which is not available to farmers. Demand for quality affordable feeds is also a priority in the industry to feed over 350,000 pigs. For consumption, the county requires an additional 400 t of pork per year to meet the prevailing demand. This requires establishment and upgrading of existing abattoirs to slaughter and supply quality pork for the domestic and export markets.
INTRODUCTION

Background

The pork industry in Kenya and Africa has continued to expand, creating new products and end uses, as well as providing numerous economic opportunities. However, Africa continues to remain a net importer of meat of swine. In 2012 alone, an estimated $295 million worth of pork and pork products were imported to Africa. It is expected that the future of the pork sector in Africa will be driven by three key factors: Population growth that is expected to reach 2.3 billion by 2050; increased income since 7 of the 10 fastest-growing economies in the world over the next five years are in Africa; and urbanization-over half of the population is expected to live in urban areas by 2050.

Pig population in Kenya and heads slaughtered has grown since 2011. The per capita consumption of meat is led by bovine meat at 12.2kg, mutton/goat at 2.2kg, and poultry at 0.6kg. Pork consumption is at 0.4kg, against Uganda’s 3.4kg and South Africa’s 6.8kg (FAOSTATS, 2014). The demand for pork in Kenya is estimated at about 16,200 t; In 2012, 12950 t of pig meat was produced indicating a deficit in production. This demand is expected to increase at a rate of at least 400 t annually with the current population increase of about 1 million people and a consumption rate of 0.4kg per capita.

Kenya’s pork industry is further characterised by lower carcass yield of pigs compared to Uganda and South Africa which are key pork consuming countries in Africa. This has been attributed to low weight at slaughter, degree of finish and age of animals at slaughter (FAO, 2007). This low yield of Kenyan pigs reiterates the human capacity challenge on husbandry, among others.

Pig statistics in Kenya

<table>
<thead>
<tr>
<th>Year</th>
<th>Heads(stock)</th>
<th>Producing Animals/Slaughtered (Heads)- Pig Meat</th>
<th>Carcass Yield (Hg/An)</th>
<th>Production (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>347,413</td>
<td>217,200</td>
<td>703</td>
<td>15,275</td>
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<td>2011</td>
<td>344,155</td>
<td>223,500</td>
<td>573</td>
<td>12,800</td>
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<tr>
<td>2012</td>
<td>354,600</td>
<td>234,400</td>
<td>552.47</td>
<td>12,950</td>
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(Source: FAOSTATS, 2014)

Despite the low yield of pork, Kenya has been a net exporter of pork with 377 tons of pork and pork products exported in 2012 (ITC calculations). Pork imports (swine caresses and half carcasses, hams, shoulders, fresh, chilled or frozen) were mainly from Brazil, Canada, Germany and Italy whereas the export destinations were Tanzania, UAE, Uganda, Sudan, Bahrain and Oman.

The deficit in production coupled by Kenya being a net exporter of pork and pork products informed the need to understand the business structure of the industry and the opportunities – it presents for investment. A scoping study for business opportunities was therefore undertaken with the following objectives: To identify the value chain actors; the gaps/challenges along the value chain; and existing business opportunities in the pork value chain.
METHODOLOGY
The study was an exploratory study with data collection mainly through interviews and review of secondary literature from reports of the Food and Agricultural organization, International Trade Centre, and Government policy documents. Primary information was collected from survey participants drawn from the pig industry actors in Nairobi, Thika, Nakuru and Kajiado counties.

FINDINGS:

a) KENYA’S PORK INDUSTRY VALUE CHAIN

Pork Production
Pig production is done by approximately 7000 producers; that are either large integrated commercial farms, medium scale commercial farms, or small scale commercial farms. The enterprise is fast gaining importance as a peri-urban and small scale farming due to the proximity to markets in the urban formal and informal settlements, and the relatively little land investment required.

Small scale pig farming is practiced in small holding units, as traditional free range systems and in scavenging systems in urban slums and garbage disposal sites in towns such as Thika (Kiandutu) and Nakuru. The small scale farmers, who make up about 70% of pig producers in Kenya, are estimated to be 5000. Small scale farmers are characterized by 5-100 pigs and are spread in Central, Rift Valley, Eastern, North Rift, Kisumu and parts of Western Kenya.

There is one integrated Large Commercial farm-Farmers Choice-with approximately 30,000 pigs with farms in Uplands, Kamiti and Eldoret. Other large scale commercial farmers with over 5,000pigs are located in Nairobi, Ngong, North Rift, Muranga, and Kiambu. Medium scale commercial farmers have 100 to 5000 pigs located in the peri-urban Suburbs of Nairobi, Thika, Nakuru, Eldoret, Muranga, Nyeri, Kirinyaga, Bungoma and Malaba

The input in production is breeding stock and feeds and there is a significant deficit in supply of breeding stock. Most large scale farmers have their own breeding stock. Small holders rely on large scale producers for breeding stock. Their main supplier of breeding stock is Farmers Choice Ltd and other large commercial farmers. The large commercial pig farmers who supply breeding pigs have a high difficulty to maintain credible lineages diluting the pedigree and quality of breeding stock in the market. Other challenges cited by producers-especially small scale producers include limited market access and high costs of feeds.

Feed supply
Kenya has an average of 350,000 pigs and feed accounts for about 80% of the cost of pork production. The association of Kenya feed manufacturers (AKAFEMA) had 83 feed millers as members in 2007 with an installed capacity of 844,000 tons and utilization at 45%. Feed manufacturers are not specialised in pig feed but provide feed for all types of livestock; pig feed accounts for 3% of feed output from millers. Millers can generally be classified as: Fully automated feed millers such as Unga, Sigma, Chania and Pembe; Semi-automated millers
with manual fed mixers; and Non automated millers mixing rations using spades. They use formulas from larger millers. Most feed manufacturers are located around Nairobi, Nakuru and Thika regions. Major millers include; Unga Feeds, Chania Feeds, Pembe, Isinya Feeds, Ngae Feeds, and Farmers Choice.

**Products from the Feed Milling Industry as at 2007**

<table>
<thead>
<tr>
<th>Feed type</th>
<th>Quantity (Tons)</th>
<th>Percentage of production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig feeds</td>
<td></td>
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</tr>
<tr>
<td>• Sow and Weaner meal</td>
<td>12,521</td>
<td>3</td>
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<tr>
<td>• Pig finisher (for fattening pigs)</td>
<td>6,845</td>
<td>3</td>
</tr>
<tr>
<td>• Creep feeds (for piglets)</td>
<td>5543</td>
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<tr>
<td>Cattle feeds</td>
<td>104,412</td>
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<td>Poultry feeds</td>
<td>251,861</td>
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<td>Other feeds</td>
<td>4,598</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>373,259</td>
<td>100</td>
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</table>

(Source: Ministry of livestock & AKEFEMA. Interviews with local retailers provided feed prices)

The main pig feeds types manufactured were Sow & Weaners, Pig Finisher and creep feeds. Sow & Weaner meal and pig finisher account for 98% of manufactured pig feed. Manufactured feed is deemed too expensive by farmers, a challenge that was compounded by VAT of 16% levied on raw materials for feed making. AKEFEMA is lobbying for tax exemption on raw materials for feed production.

Key ingredients used by millers in animal feed are cereals (maize, sorghum), dagaa fish (Omena) and cakes (sunflower, cotton seed, copra) and vitamins. Kenya relies on Uganda and Tanzania for Sunflower and cotton seed cakes, wheat bran, maize germ and pollard. Vitamins and minerals for pig premixes are imported mainly by Tam feeds (Roech), Eagle VET (Korea), High Chem and Nutrimix (China/Korea). Millers can produce custom-made feeds for producers. Feed analysis services are available from government labs (KARI Naivasha and Thika) and from independent ISO certified labs such as SGS, GMP and Ana labs. Some large millers such as Unga and Pembe have fully fledged in-house laboratories for feed testing.

The high cost of feeds has seen mushrooming of businesses providing cheap but poor quality feeds. This has forced most medium and small scale producers to innovate around feed making. Farmers are increasingly producing their own feed from raw materials purchased and mixed at the farm and supplemented with the compounded feeds to cut costs. Fermented sweet potato vines and tubers, Lucerne, cabbages, kales, garden weeds, maize stovers, hotel/school swill, brewers waste are commonly utilised by farmers in feed making. Other farmers, especially in Thika, are growing barley, wheat and maize utilising hydroponics technology which are harvested at day 6-7 and chopped and fed to the pigs from about 3 months of age onwards. Large scale farms generally used compounded feeds from their mills.
Other input suppliers

Other inputs in swine production include technical extension and training. Veterinary medicine suppliers are readily available, though they contribute to less than 2% of the cost of production. Veterinary vaccines for pigs have to be ordered specially from the veterinary stores. There are few veterinarians specializing in pigs. Most extension service providers are diploma and certificate holders, who are often the farm managers.

Latia resource center (Faraja Trust) in Isinya-Kajiado is a facility offering practical hands-on training to pig farmers, pig farm managers, youth and women on pig husbandry practices, feeds and feeding and capacity building. The centre works closely with the only pig cooperative in Kenya. Together, they intend to setup processing plant and abattoir for pig farmers. Currently, Latia is supplying slaughter pigs to FC.

Abattoirs

There are 5 main pig abattoirs in Kenya; Farmers’ Choice with a capacity of 400 pigs a day, Kenol-Kabati slaughter house in Thika with capacity of 30 pigs per day; Ndumboini Slaughterhouse in Kabete with capacity of 50 pigs per day; Lyntano slaughter house in Nairobi with capacity is 8 pigs per day; and London slaughter house in Nakuru with capacity of 8 pigs per day. Pig slaughter in other producing regions is done mainly in localised abattoirs but with very limited capacity. However, it is only Farmers Choice that adheres to international quality standards such as Hazard Analysis Critical Control Point (HACCP), BVQI (Bureau VERITAS Quality International), ISO and Total Quality Management standards. It is therefore the only abattoir exporting pork and pork products from Kenya.

Processors

The large pork processors are located in Nairobi area and major cities. The main pork processors are FC, and other small processors in Nairobi, Nakuru, Njoro and Eldoret. Most processors source carcasses from Ndumboini and Kabati slaughter houses with the exemption of FC. Large pork butcheries like Gilani’s in Nairobi and Nakuru and Prime cuts in Village market also fall under the category of processors since they deal with both processed and fresh pork products. High mechanization technology is employed by processors including cold rooms, refrigerated transport trucks and processing equipment to differentiate cuts for optimum prices.

Marketing

Pork marketing is done at 4 levels; at the farm gate for live pigs, at the abattoirs for slaughtered pigs, at the butcheries, specialized pork eateries and as processed products. The bulk of pork products are sold through butcheries and eateries that constitute the informal markets. Farmers sell pigs at slaughter houses and at the farm gate. Following slaughter, pig producers pay for the slaughter fees in kind by giving up the pork heads, and intestines; especially in Kenol-Kabati and Ndumboini. Since the market demands for lean pork, a slaughtered pig is skinned to trim off the fat. The skin is sold separately by the producer at USD 0.58/kg. Some of the large retailers and eateries of pork attribute skinning to remove back fat, for leaner pork, as having a direct impact on the popularity of pork in the area. The
heads are sold for an average of USD 8.18, and intestines at USD 0.58 a kg; these are consumed in slum areas and other peri-urban places. Intestines are also used in manufacture of dog foods.

Pork eateries have field officers who scout for pigs and buy from farmers, collect and take to abattoir for slaughter before they are delivered to the outlets for roasting or sale as fresh pork. From the various abattoirs, pork can be also be purchased directly by retail butchers and meat processors. Eateries and butcheries in major towns source pigs from distant location. Eateries in Thika source pigs up to 400km away for slaughter in abattoirs close to urban centres. Thika is a huge hub for pork eateries and butchers, selling an average of 1000-2000kgs of pork daily; these include: Thika pork Center, Githumu pork and City grill. Eateries sell 80% of pork roasted and 20% as undifferentiated pork cuts, at an average of USD 4.67 per kg. Other similar popular pork eateries are Lanet Pork center in Nakuru, Pork stop in Muranga, and Kitengela pork center. Other areas with mushrooming pork eateries are Kitengela in Kajiado, Nyeri, Kerugoya, Eldoret Trans Nzoia, and Kakamega.

A distinct market exists in institutions and export markets that demand certifications for food products; these include hospitals, schools, hotels and international organizations. Failure by most abattoirs to meet certification standards such as HACCP has made this market a monopoly of Farmers Choice and other processors.

Fig 1: Value flow of pork
**Pork Industry Business Environment**

The regulatory environment in Kenya’s pork industry is mainly in the slaughter and trading of pork products. Many Commercial farmers are putting up their own slaughter slabs, in response to the few abattoirs. The requirements include: Land Title deed, approved plan by local authority, NEMA environment impact assessment, change of land use for commercial purposes from the county authority, licence by the PS to construct the slaughter and annual licence by Vet department, and single business permits to establish a slaughter house. National regulatory agencies such as NEMA, Ministry of Livestock, Local County, Public health are key licence providers. Government meat inspectors are readily available to inspect slaughtered pork for public consumption.

**Challenges facing the industry**

There is generally limited knowledge among the industry value chain actors on various key topical issues. A key challenge is inability to access the market due to limited organization among actors, particularly producers, and limited differentiation of pork into specialized cuts and value added products. There are problems of accessing quality breeding stock and pig artificial insemination services are unavailable. Feedmillers face challenges of availability and supply of quality raw materials. VAT on feed raw materials is also pushing up the costs of production that is transferred to farmers. Low level of technology is employed in operations along the value chain resulting in uncompetitive products. The general low competitiveness of pig production enterprises limits their attractiveness for financing from credit institutions.

**b) BUSINESS OPPORTUNITIES IN THE INDUSTRY**

A scan of the industry demonstrates demand that outstrips supply of pork and pork products in Kenya. Opportunity abides in increasing production and supply of pigs, supply of quality and affordable feeds, slaughter and processing of pigs, as does extension support to the pork producers.

**Pig Production**

- Breeding stock and boar semen: Kenya requires an estimated 1400 breeding sows a year; as well as artificial insemination services to meet the production demands. The pedigree of the breeding stock cannot be ascertained due to inbreeding. From this study, it was clear that the Kenyan market prefers lean pork, with more intramuscular fat and little back fat.

- Pig Feeds: There are over 350,000 pigs in Kenya that are mainly fed from farmer customized mixes of locally available raw materials. The nutritional integrity of these feeds cannot be ascertained. Pig feed accounts for 3% of the output of feed millers in Kenya. This is indicative of low demand due to high prices coupled by low understanding of producers on pig feeding.

**Slaughter and processing**
Pig abattoirs: about 13,000 tons of pork is produced from existing abattoirs annually mainly as undifferentiated carcass. Most retailers have limited technology to meet the differentiated needs of the markets; their output is carcasses not differentiated to specialised cuts to exploit the diversity of markets. There are over 40 private hospitals in Nairobi alone, each consuming an average of 30kg of bacon per week and 10kg of fresh pork per week. Over 30 high end private schools in Nairobi each consume an estimated 50kgs of fresh pork and 30kg of bacon every week. There are numerous hotels and restaurants in Kenya, consuming a diverse product range of pork and pork products; particularly in Nairobi, Mombasa, Nakuru, Malindi and Eldoret. There is therefore need for technology-skill and machinery-to increase the variety of markets served by existing processors, retailers and abattoirs.

**Extension and Training services**

- There are approximately 7000 pig producers with limited knowledge and skill in pork production. Farmers drive the demand for breeding stock, AI services and commercial feed; they further influence markets for the abattoirs from the quality of carcasses. There is willingness by farmers to pay for training services. Training facilities for pork production and provision of technical extension services are required to support the pork production in Kenya.

**Recommendations**

Small scale pig producers have the bulk of the pigs and present the strongest influence to the industry. Their competitiveness determines the general competitiveness of Kenya’s pork industry. They further provide markets for breeders and AI service providers, feed manufacturers; and supply for abattoirs and processors. Innate focus should therefore be towards promoting profitability of the enterprise at the small holder level to increase profitability at other points of the value chain. Model pig farms could be adopted while incorporating input from tertiary institutions to transfer knowledge and skills on industry best practice in pork production. There is need by the government and other industry players to support aggregation of these producers into organisations so as to better support them. Organizing them will further serve to organise demand for breeders and feed manufacturers. And streamline supply to abattoirs and processors.

Support to the producers will further require improvement of breeding stock. There is need for registration of breeds and genetic lines to ensure credibility and quality of breeding stock. Pig AI services need to be made available to increase variety of carcasses for the highly differentiated markets. Abattoirs on the other hand require upgrading to meet demands of the highly differentiated pork market in Kenya, Africa and the world.

These improvements and opportunity require an increase in per capita consumption of pork. Pork consumption can be promoted through incorporation into school feeding programs and sensitizing the general population of as an alternative to bovine and poultry meat.
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- International trade Center (ITC) calculations based on UN COMTRADE statistics
- Association of Kenya feed manufacturers - AKEFEMA
- State department of Livestock and Fisheries
- FAO, Agribusiness handbook, 2007

List of Acknowledgements

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