Agricultural Value Chain in Imereti and Racha regions

Beef Production

1 Introduction

The present research was carried out by the Association of Young Economists of Georgia in collaboration with Czech University of Life Sciences Prague (Faculty of Tropical AgriSciences) and People in Need from July 2014 to April 2015. This study is a part of regional value chain analysis for the main products of agricultural sector in Imereti and Racha regions.

The goal of this analysis is to provide background information and baseline data for subsequent implementation stages of the project Enhancing Small Farmers' Cooperation and Productivity in Imereti Region financed in the framework of European Neighborhood Programme for Agriculture and Rural Development in Georgia (ENPARD Georgia) - Small Farmers Co-operation component.

This research would not have been possible without funding from the ENPARD Georgia.

2 Methodology

The research team followed an approach that allowed handling several issues concurrently. Data collection was organized and methods selected in order to assess specific issues from different angles supported by a triangulation of qualitative and quantitative methods. After the identification of the 8 local products with the highest development potential (based on local expert and government officials interviews), we carried out a more detailed survey thematically focused around each selected product. For Beef value chain analyses following districts were covered:

- Khoni
- Terjola
- Baghdati
- Kharagauli
- Oni

The field data focused on agricultural product in the Imereti Region was collected in following stages:

March to June 2014 - gathering field data for main products
July 2014 – April 2015 - finalization of reports

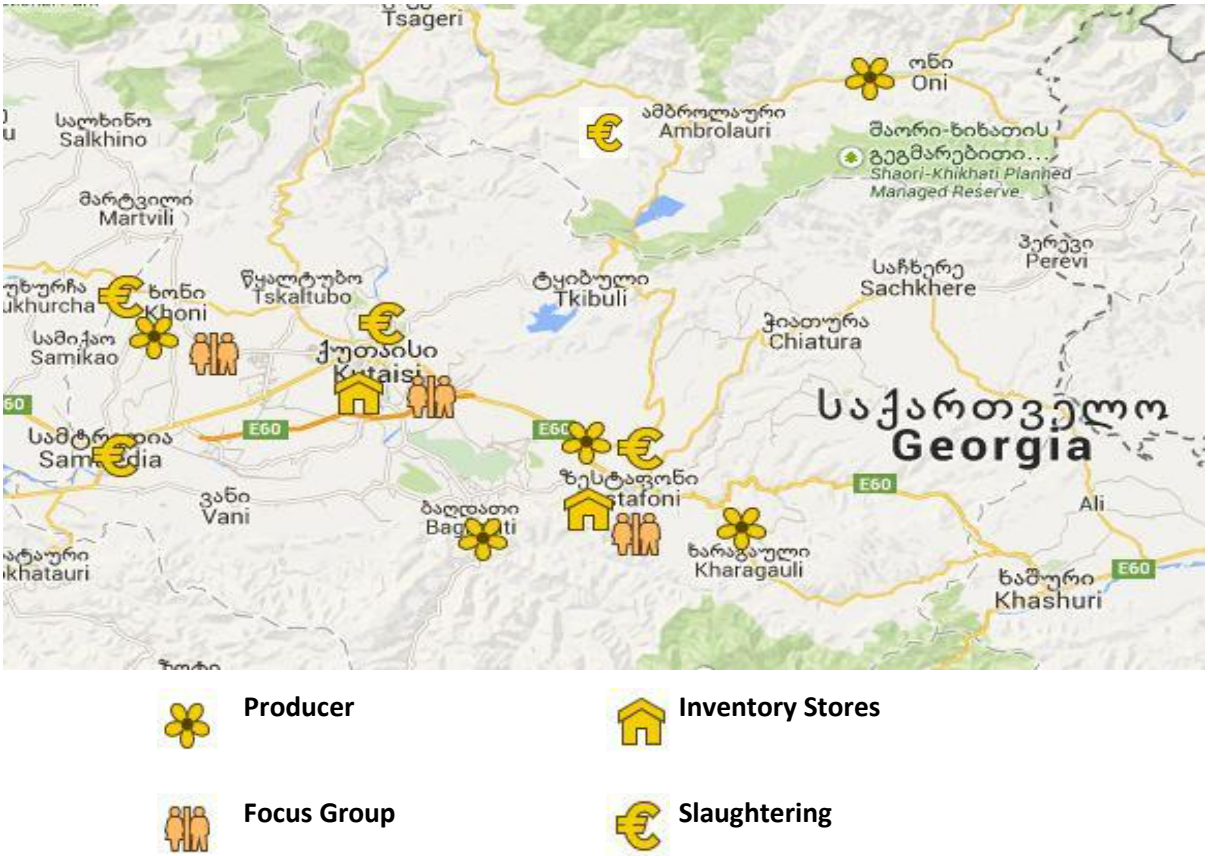
For the analysis mainly qualitative research based on key-informants and conveniently selected group of farmers is used, which is designed to reveal a target group's range of behaviour and the perceptions that drive it with reference to specific topics or issues. As a main qualitative research method is used method of semi-structured in-depth interview. Interviews were conducted with small number of key informants who must have first-hand knowledge about examined issue. Each interview took from 1.5 to 2 hours. Diversity of key informants was important to cover whole value chain from suppliers to the local market. It means to identify and interview different-sized farmers (from small subsistence to commercials), collectors, middlemen, processors, sellers on a local market, exporters, together with agro-shops selling different kinds of tools, technology, pesticides,

herbicides, fertilizers or other inputs.

Main field data collection instruments for beef production included (spatial distribution is visualized in Picture 1):

Focus group discussions with cattle-breeding farmers
Interviews with representatives of cattle-breeding farmers
Interviews and observations of input supplier shops
Interviews with representatives of slaughterhouses
Beef market screening

Picture 1 - Map of locations for data collection in Imereti



However, it should be taken into consideration that qualitative research is only part of the project that generally reflects the most widespread information. The secondary quantitative and qualitative data is based on the unity of consolidated researches including official statistical data.

But still, it is necessary to bear in mind, that the qualitative research is only partially representative and captures mainly general and the most frequent information. The secondary quantitative and qualitative data relies heavily on an examination of existing, accumulated research, combining official government data with studies conducted by international organizations such as FAO, EU etc.

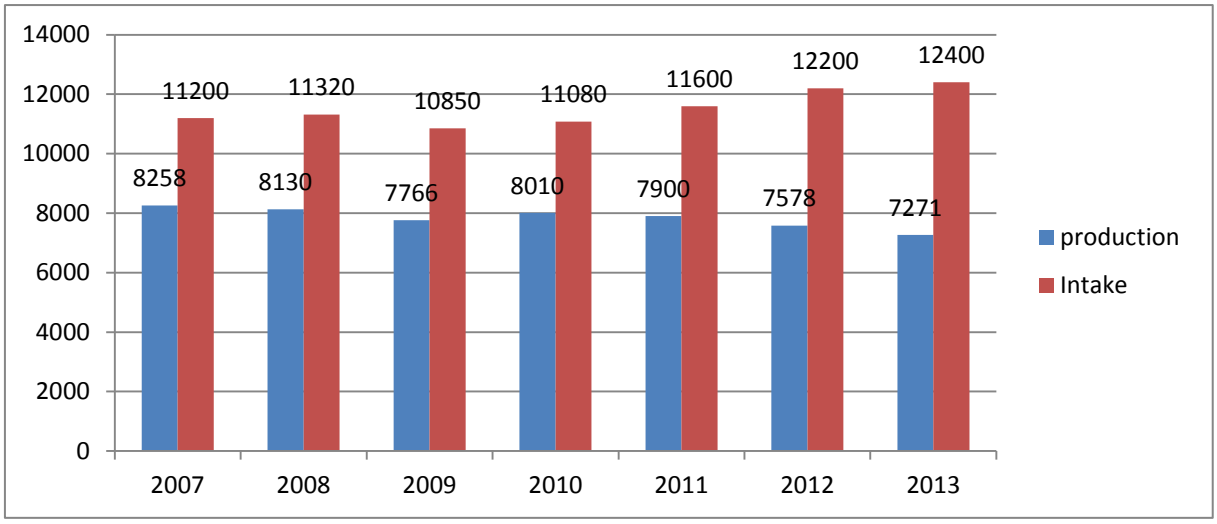
Due to the lack of agricultural activity in Racha regions, National Statistical Bureau of Georgia does not publish any specific data regarding the agricultural sector.

3 Cattle breeding as sector of Georgian agriculture

Animal husbandry is one of the oldest and the most traditional agricultural sectors in Imereti and Racha regions as well as in the whole Georgia. In most developing countries, beef is produced by family-holdings and it contributes to household with food security and nutrition.

International trade conjuncture of beef market quickly changes, due to the fact that the demand on cattle meat constantly increases in developing countries. The following countries are the main producers of the beef: USA – 20%, Brazil – 17%, European Union – 13% and China – 10%. Russia holds tenth place between the beef manufacturer countries and it produce 6% out of the global beef production. The above countries produce 66% of the beef throughout the world. Diagram 1, shows the trend of beef production and consumption in European Union.

Diagram 1 – Beef production and intake in European Union (thousand tons)[1]

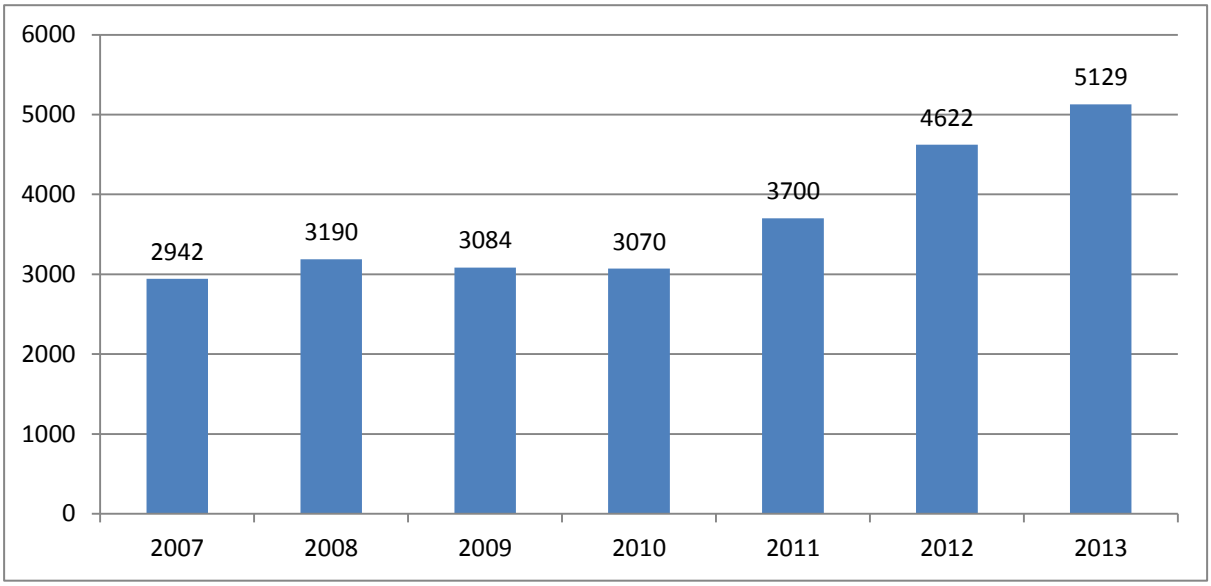


In addition, it is worth mentioning that the largest beef manufacturers are the main consumers as well, more specifically: USA, Brazil, European Union and Russia consume more than 40% of the total consumption. World market of the beef increases steadily, which is caused by growth of the population and improvement of social conditions. Under the data provided, in 2007 beef intake constituted 35% of the total meat consumption, while in 2013 the same data amounted 38%. According to the statistics[2], in 2013 average price of the beef in European Union was Euros 7 that exceeds the rate of 2006 with 20%. In total, average price for the last 8 years amounts Euros 6.7.

The following five countries export 75% of the beef throughout the world: Brazil 20%, India 19%, Australia 17%, USA 13% and New Zealand 6%. The following four countries import 45% of the whole mass of beef: Russia 14%, USA 14%, Japan 10% and European Union 7%. For the last three years beef import in European Union is permanently increasing, in 2013 import increased by 60 percent compared to 2010. Diagram 2 shows import of beef into European Union in 2007 - 2013 years. After association agreement with EU and DCFTA, Georgian farmers have increased access to export of beef to EU market.

[1] http://ec.europa.eu/eurostat
[2] http://faostat.fao.org/

Diagram 2 – Beef Import in European Union (thousand tons)[3]



In accordance with National Statistics Office of Georgia, in 2013 the share of produced meat within the country in relation to Gross Domestic Product (GDP) was 0.7%, while the share of beef in relation to produced meat was 38%. Although the number of cattle within the country has been increasing in 2009-2013 years, total beef production has almost halved for the same period. Diagram 3 follows the livestock and beef production trend for 2006-2013 years.

Diagram 3 - Number of livestock and beef production in Georgia (ths head/ths tons)[4]

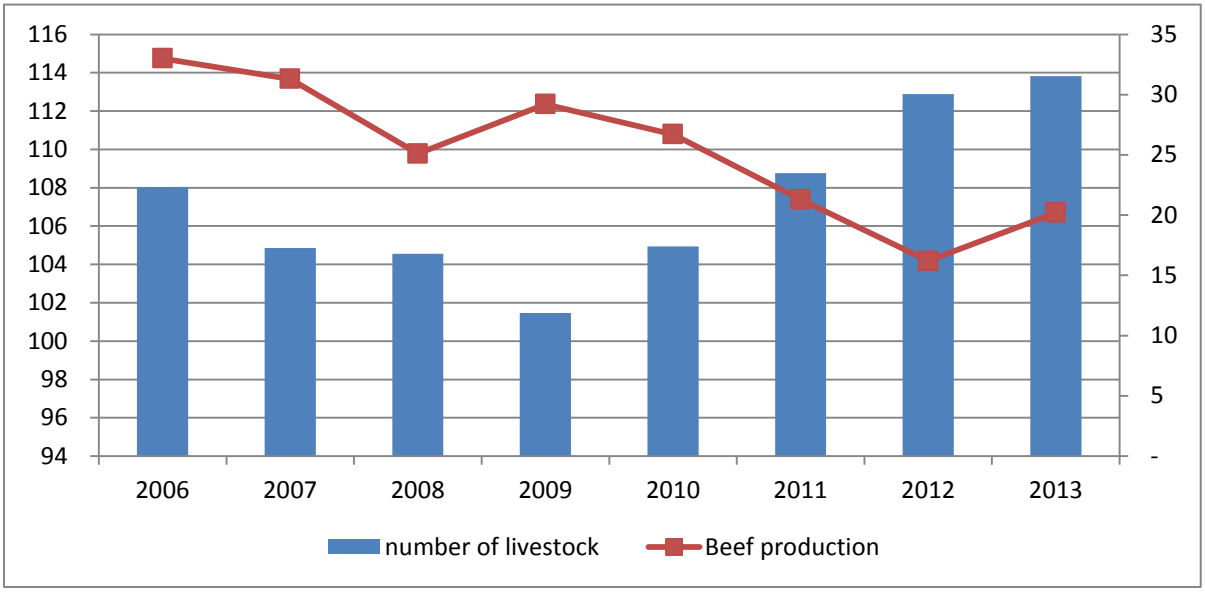
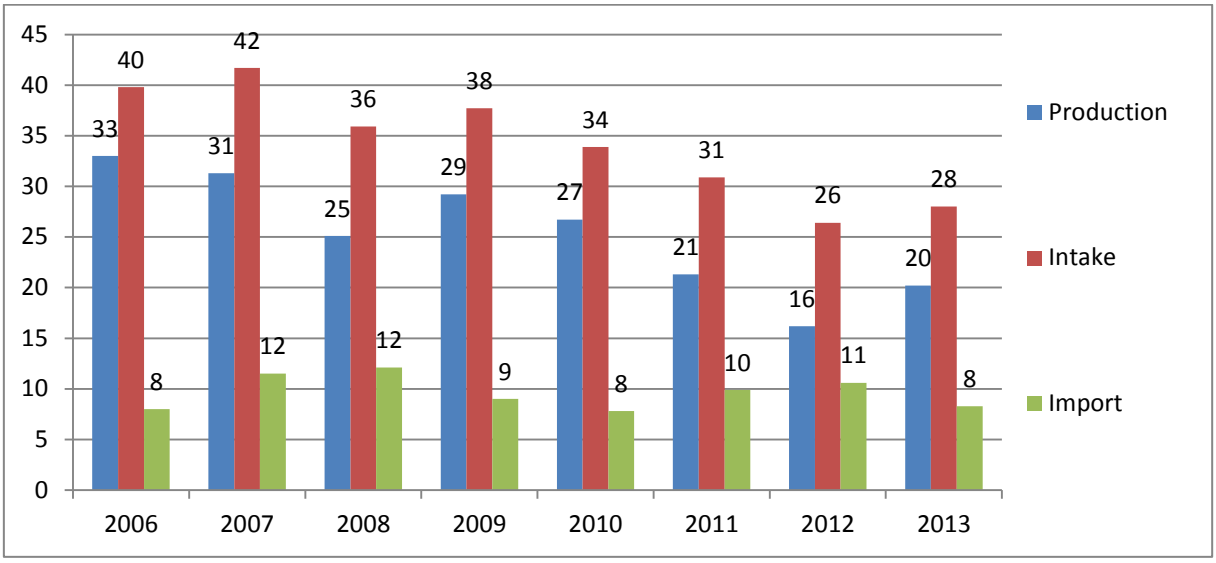


Diagram 4 shows that, in 2013 beef consumption was reduced by 30% compared to 2006 in Georgia. The reduction is mostly at the expense of local production, while the volume of imported production remains relatively stable. Possible reason for this could be the higher price of local production, compared to imported one.

[3] USDA – Economic Research Service – Meat Prices (global/regional)

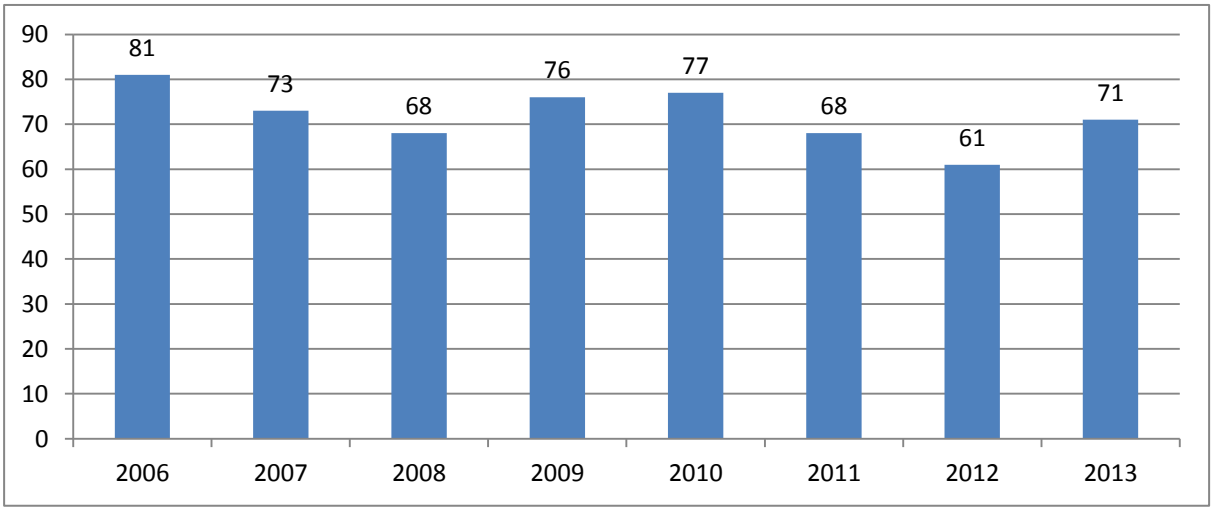
[4] Geostat.ge

Diagram 4 – Beef production, intake and import to Georgia. (ths tons)[5]



Georgia imports beef and beef products from European Union (particularly from Germany), India etc. It should be noted that under the data of 2013, import of the beef from India constitutes 85% of the entire import. According to various sources, price of the beef imported from India fluctuates between 6-8 GEL per 1 kg beef, which, in average, is less by 45-55% than the retail price of the beef produced in Georgia.

Diagram 5 – Beef self-sufficiency in Georgia (%) [6]



In observance of the data of 2013, beef self-sufficiency level amounts to 71% in Georgia, which is 10% less in comparison to the data of 2006. Last eight years average indicator of beef sufficiency level in Georgia constitutes 72%. Therefore, it can be declared that import of beef amounts 28% of the entire consumption of relevant period, and 85% is low price product imported from India. In conclusion, it can be said that, Georgian beef producers have an opportunity to increase the volume of their production. They can sell beef both in Georgian market, and since world beef market stably increases that gives them chance to export their beef to EU or other countries.

[5] Geostat.ge

[6] Geostat.ge

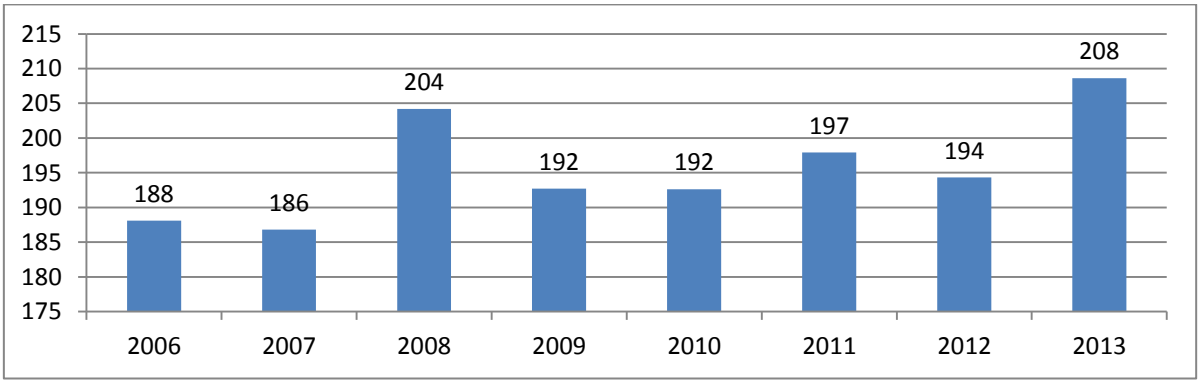
4 Beef value chain

4.1 Production systems

Picture 1 – livestock farm in Racha

There are three types of farms in Imereti and Racha regions: small producers – from 1 to 10 animals, family farms – (semi-commercial) from 10 to 100 animals and large farms – over 100 animals. Almost 100% of village families are engaged in animal husbandry. Most of the households are small-scale farmers and have from 1 to 10 heads of cattle, mainly used for family needs. According to the study results, about 70 % of beef and dairy products produced by small-scale farmers is intended for family needs. On the contrary family farms, owning from 10 to 100 heads of cattle, sell majority of its production. Several large farms function in the target region. These are agricultural enterprises financed by reasonably large foreign and local investment, with the number of cattle reaching several hundred, in particular: there is one farm in Racha with over 400 heads of cattle, in addition and there are seven farms in Imereti and Racha with 10 to 100 heads. They produce both dairy and beef, yet, based on the share of income from beef, dairy is more important. In the studied geographical area, there are almost no farming enterprises specialized solely on beef production, although most farms are dual-purpose, producing both dairy and beef at the same time. The latter is usually produced at the expense of surplus cattle, or, when old, low-efficiency cattle are replaced and used for beef production. The only exception is the farm in Racha (Oni) which possess 400 cattle's and is specialized on beef producing only. Diagram 6 shows the number of the livestock in Imereti which relatively increased for 2013 year.

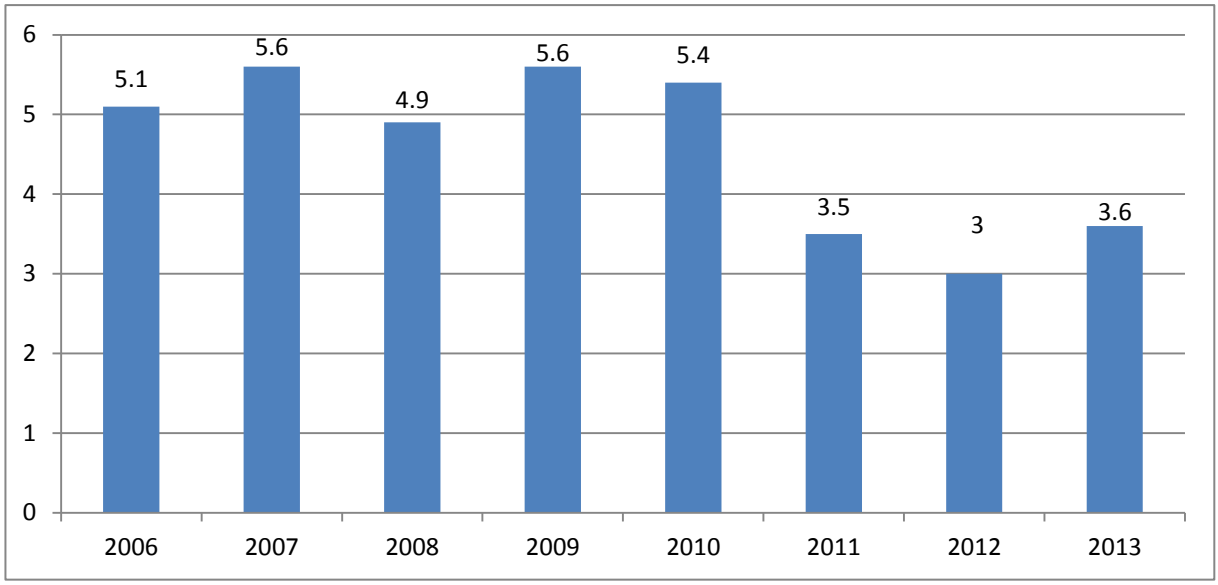
Diagram 6 –Number of livestock in Imereti region (ths heads)[7]



Based on combining and analysing field research and official statistics, 80% of beef in Imereti is produced by family farms and 20% by agricultural enterprises. In total, 70% of beef produced in family farms is intended for sale. Diagram 8 shows trend of produced beef in Imereti region from 2006 to 2013.

[7] http://geostat.ge/

Diagram 7 – Beef production in Imereti region (ths tons)[8]



Extensive system of animal husbandry is widely spread in target region among small-scale farmers. All work is carried out manually, with the use of outdated tools. The production process is rather primitive, mostly using natural resources (artificially produced feeding supplements are rarely used). A limited and unvarying diet (without high-moisture and concentrated supplements) is given to animals in winter, significantly reducing productivity.

In Racha region the medium and large farmers transfer livestock during the summers to alpine pastures, which have high quality green grass, and return their livestock back in autumn to farms. During the nights on alpine pastures, livestock is kept in the specially designed open areas (with fences) to protect them from wild animals. The farm buildings that are usually used to accommodate livestock during winter are solidly built from stone or in rare cases constructed from wood.

Stone as well as wood is used for the construction of animal barns. In Racha and Imereti regions, family farms usually have wooden barns, the construction of which is relatively cheap but its exploitation period is also shorter. For wooden barns it is recommended to warm it up by using bicost to ensure a stable temperature regime (average 15-18 degrees Celsius) during the winter time. During summer, the barn should be well ventilated. Conducted research revealed that the construction price of a stone barn (without equipment) for 30 animals is approximately 8,000-10,000 GEL. The construction cost of a wooden barn with the similar capacity is approximately 3,500-4,000 GEL.

The State conducts preventive vaccination of livestock to prevent the spread of certain diseases. Vaccinated animals are marked with yellow ear mark with an assigned unique number. This enables the registration of each animal in a special database, which should contain comprehensive information on each of them. It should be noted that the mentioned database is not functional yet.

Local farmers sometimes buy calf. The price of calf depends on its age and ranges from 300 GEL (up to one month old) to 800 GEL (one year old). A cow should reach three years of age for reproduction.

[8] http://geostat.ge/

The structure of annual costs per head of cattle expended by family-led and large sized farms is following: food - approximately 500 GEL (a big share of expenses goes for the purchase of hay, straw and other mixed food); medicines - 20 GEL; workers - 240 GEL.

In family-led farms, which hold from 1 to 10 livestock, work is mainly done by the members of the household. They usually do not hire external workers, whereas medium and large farms hire external labour force. The largest farm in the target regions is located in Racha, Shardometi where 42 persons are hired to take care of more than 400 heads of cattle.

The government conducts preventive vaccinations against certain diseases, after which animals are fitted with a yellow ear tag carrying a unique identification number. With the ear tag, each animal is recorded into a special database of the animals. However, such databases are not functional at present and lots of cattle do not have the above-mentioned tag either.

A new regulation has been introduced recently, regarding beef for sale, according to which cattle should be killed at official slaughterhouses, with veterinary examination of live animals (and also beef) and appropriate certification issued by the National Food Agency.

4.2 Productivity

One of the most important beef productivity indicators is live weight prior to slaughtering, which determines beef yield after slaughtering. There are several factors that effect on breeds productivity, and yield after slaughter: breed, sex, maturity and other internal and external factors. According to specialists, livestock productivity is from 24% affected by heredity, 59% by feeding and other conditions related to animal care and 17% by other technological factors. Table 1 shows average productivity of high-productivity beef breeds worldwide:

Table 1 – Average productivity of beef produced by cattle breeds[9]

Breed	Average Live weight – Kg	Newborn weight – Kg	Daily increment - kg	Productivity %
Aberdinangus	450-55	25-30	800-950	60-65
Beefmaster	500-600	25-35	850-1000	55-58

However, the mentioned breeds barely exist in Imereti and Racha. As already mentioned, this geographical area is not characterized by a distinctive beef-producing direction; consequently, common breeds are mostly of dual-purpose for dairy and beef producing.

There are more than 1000 breeds of cows around the world. They are divided into the milk producing, meat producing and combined breeds. In Georgia there are widely spread only milk producing and combined breeds. During soviet time in Imereti and Racha regions following breeds

[9] Beef Market Outlook - 2013

were disseminated among rural population: Georgian mountain; Caucasian Brown; Holstein; Veli's red breed.

As for today, apart from few large-sized farms in Imereti and Racha regions, the majority of farmers do not possess cattle of any specific breed. The cattle are usually bred in a natural (uncontrolled), not artificial way. Thus, it is impossible to define the breed structure for Imereti and Racha regions, since there is no any selection process and reproduction takes places in chaotic way. Hence, almost all cattle is kind of "half-breed" combination of various local types. As mentioned above, few large farms control breeds via artificial insemination. One of them is farm in Racha, oni (Shardometi), where they have milk and meat combined breed Swiss Brown.

Swiss Brown has emerged approximately 1000 years ago in the mountains of Switzerland. It is also combined breed of dark brown colour. It has a good, proportionally built body and is characterized with high adaptability towards local environment. Due to its high productivity it is found in many countries around the world and new species are being developed on its base. In Racha region this breed was developed in Shardometi farm via artificial insemination. Initially they had Caucasian Brown breed (which was similar type) and through artificial insemination and breed selection, in the fourth generation this farm received typical Swiss Brown breed. They have 400 cattle of this breed. The mass of a bull reaches 900 life kg, a cow reaches 550 kg.

4.3 Product chain typical for Imereti and Racha regions

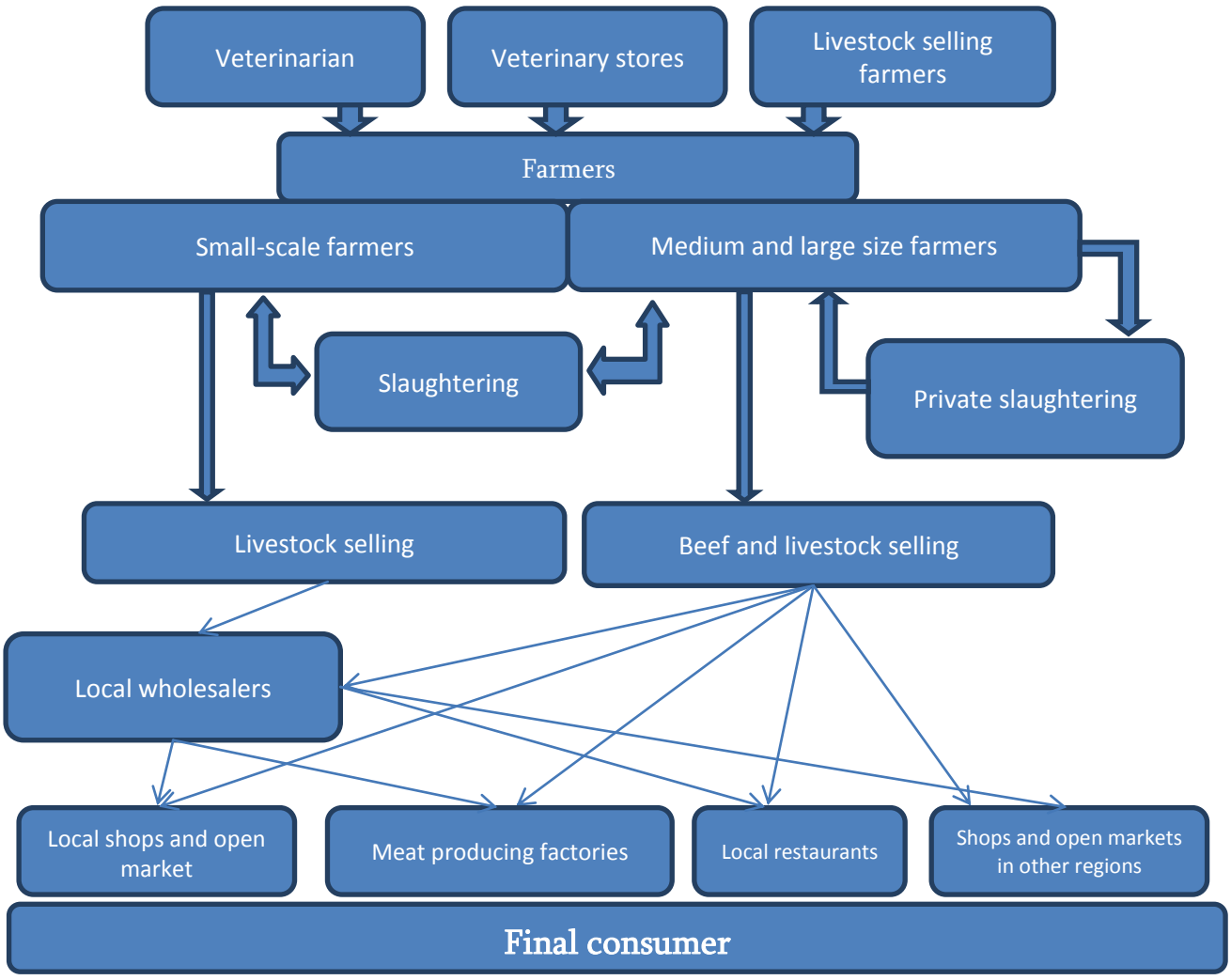
Picture 2 - Meat store in Kutaisi

Local farmers mostly use young male cattle for beef because young females gain less weight, yet have softer beef. Abundantly fed young animals can yield twice as much beef compared to poorly-fed ones and animals accumulate fat faster at 24-26 months compared to 4-6 months. Fattening selected animals for beef production improves the quality of beef and increases its volume. There are various fattening methods in accordance with feeding types: with silage, haylage, dregs, pasture and concentrated types. Concentrated method is most intensive but is not common in Georgia due to shortage and high cost of concentrates. Accordingly, the most common method due to low cost is pasture fattening. Although feeding at feedlots is more effective for fattening, it scarcely occurs throughout the region because farmers do not possess feeding sources providing highly productive feed during the whole year. Today, modern systems of feed production are used around the world, yet, such systems have only been introduced in the region in individual cases, consequently, feed production is being carried out using traditional technologies.

Producers sell only few products directly to final users. There are middlemen (called butchers) who

purchase cattle from livestock farmers slaughter them at slaughterhouses and supply to local, regional-centre or capital-city agricultural markets where they have their representatives or partners. The middlemen estimate that 80% of products are consumed by individual users and catering facilities while the remaining 20% is used for producing various meat products. Meat processing facilities mostly use mature animal meat, as well as meat not sold for several days, which is suitable for use, yet problematic for sale. Such meat costs approximately 10-15% less than regular meat.

Scheme 1 - Beef value chain for Imereti and Racha regions



Beef producing farmers – Small and medium sized farmers produce beef from old cattle or calf and store them in standard refrigerators and in special containers. Only exception is large sized farms in Oni municipality, which sell their product in Tbilisi, to their brand shop.

Wholesalers/middlemen – There are two types of wholesalers. One group go door to door and collect cattle from family farms and later slaughter them at slaughterhouses and supply to local, open markets, restaurants and meat producing factories within the region, also in other parts of Georgia. Another group of wholesalers work in regional agrarian markets and farmers deliver to them livestock or beef in any amount they have and/or want to sale.

Local and regional open markets – Usually resellers sell beef to final consumers in agrarian open

markets. These resellers buy beef from wholesaler, who collect sufficient amount of beef from producer farmers. Rarely, family member sell beef by themselves on open markets.

Meat shops/restaurants – these entities also apply various ways of receiving the beef for further resale. Mostly wholesaler delivers them beef in agreed amount and price on regular basis.

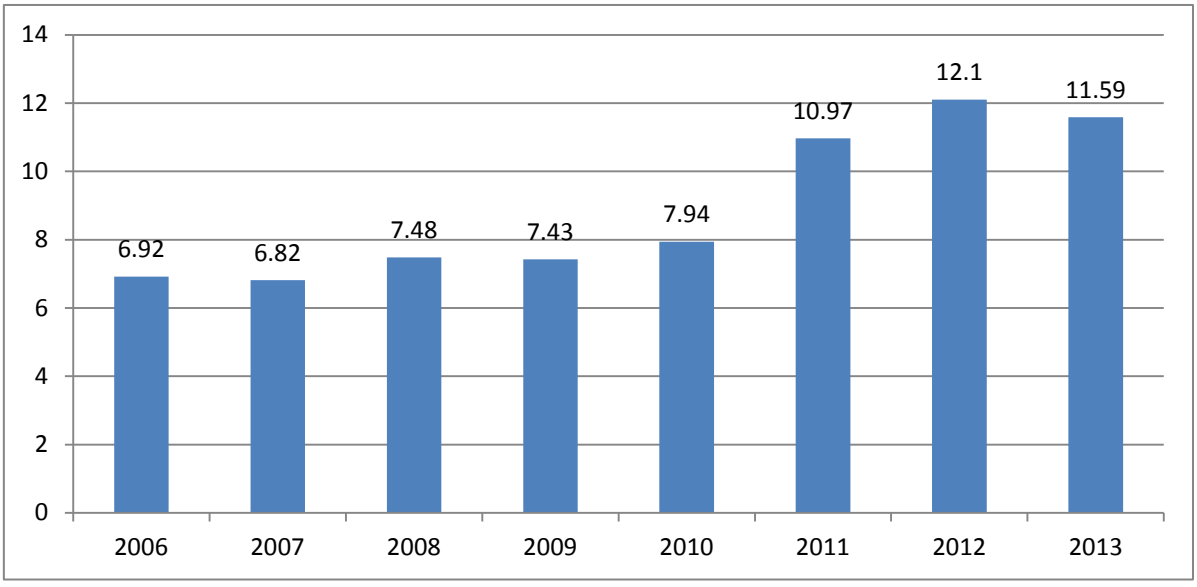
Meat producing factories – Some of the medium and large sized farmers sell their livestock or beef directly to meat producing factories. There are two factories in Kutaisi, which produces sausages and meat products. In addition, the factories also buy livestock from small-scale farmers (door to door buying), which are collected, then taken and killed in slaughterhouses.

4.4 Production Prices

Beef prices change significantly throughout a year. They are highest during celebrations (New Year, Easter) and lowest in summer. Beef price is in the opposite of veal meat, which maintains a relatively stable price throughout the year. In addition, the cost of veal is approximately 1.5-2 GEL higher compared to regular beef. Beef sales and, respectively, its price also decrease during fasting days. Average beef price in Imereti region is 11.4 GEL per kg, but in Racha region price is relatively lower with 1-1.2 GEL. Racha is low populated region, and demand for beef is very low, excepted in July and August, when there are tourists and vacationers.

The average selling price of live cattle in Imereti region is 4-5 GEL per kg. For the breeds spread in the target region, the average beef yield percentage is 40-50%. The wholesale price for beef is 8-10 GEL per kg, while the retail price varies between 11-12 GEL. In accordance with local market sellers, Tbilisi markets have comparatively higher prices, yet transportation from western Georgia leads to additional expenses, consequently, the majority of local products are sold at local markets. Diagram 8 shows average beef price in Georgia from 2006 to 2013.

Diagram 8 – average retail price of beef in Georgia (GEL per kg)[10]

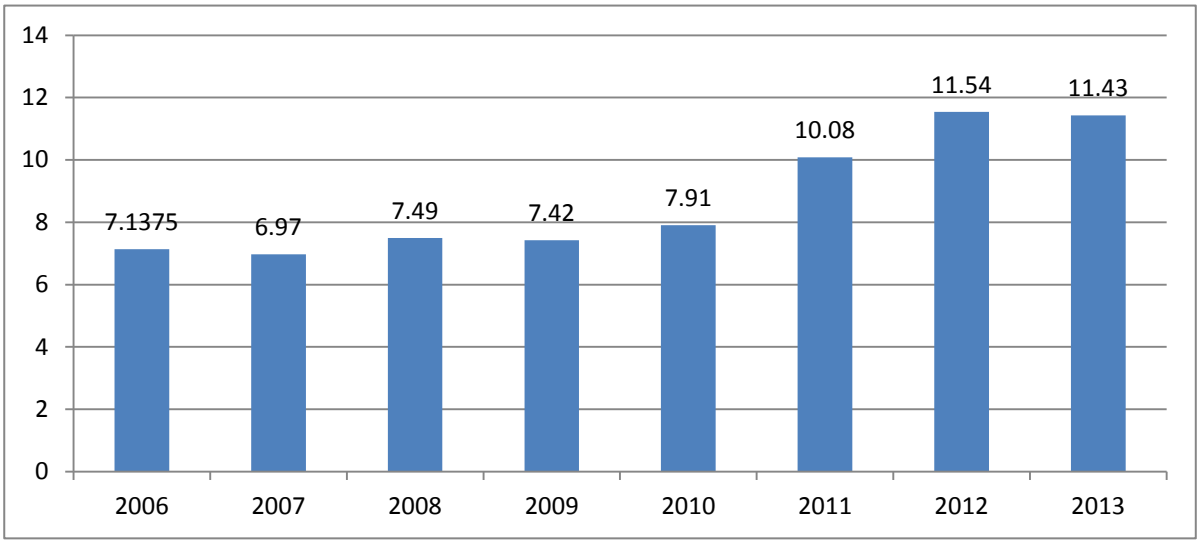


According to the study results, average beef price in local markets of Imereti is 1.5-2.5 GEL lower than in Tbilisi, however the transportation and storing is expensive which makes it ineffective to take and buy beef from Imereti to Tbilisi, due to that fact, small wholesalers refrain to take their product

[10] http://geostat.ge/

to central parts of Georgia. One of the most important problems is that wholesalers do not sell beef directly to large-scale consumers, like restaurants and hotels. Diagram 9 shows average beef price in Imereti region from 2006 to 2013.

Diagram 9 – average price of beef in Imereti region[11] (GEL per kg))



There are several meat processing plants in the region (e.g. Gurmani Ltd. in Kutaisi), producing various products and half-finished products. Their price generally exceeds the beef price by 20-50% depending on the type of manufactured products and ingredients used. It should be noted that pork, which costs approximately 15% less, is also used together with beef in the production process. Table 2 shows average beef price in Tbilisi, it is obvious that for 2013 average price of beef in Tbilisi is significantly higher than in Imereti region.

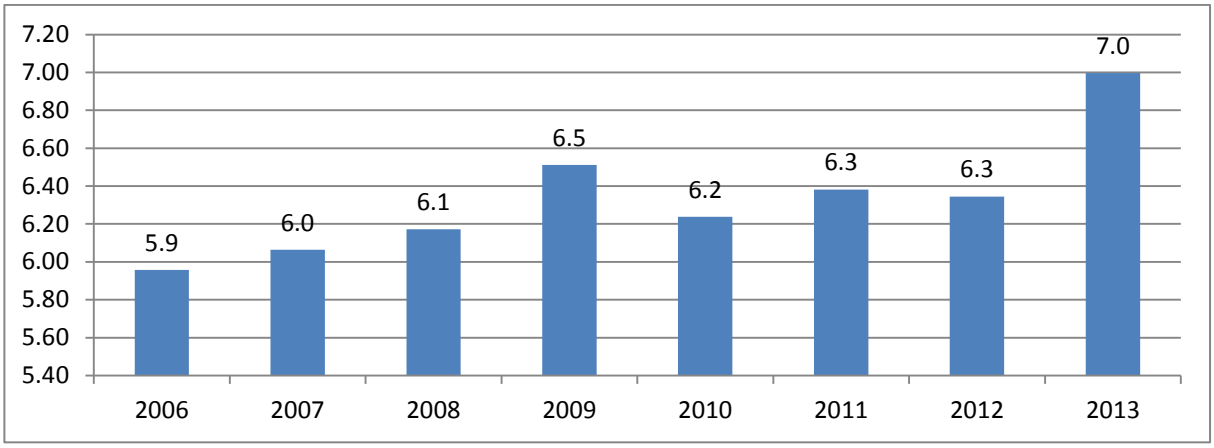
Table 2 – Beef retail prices in Tbilisi in the year 2013

Place	Soft pieces Gel	Joints pieces Gel
Food stores	16	12, 50
Food market	13	10
Goodwill chain	16	12
Carefur chain	16	12

Average beef price in Imereti and Racha region varies from 9 to 10 GEL per kilo. Georgia imports beef from the following countries: European Union (Germany), Brazil, India etc. According to the national statistical Bureau of Georgia, 85% of beef import comes on India, and average price of Indian beef verifies from 6 to 8 Gel, which is 45-55% lower than average Georgian beef price on the market. In 2013 average beef price in European Union was 7 EUR that equals to 16-17 GEL. Diagram 10 shows average beef price in European Union 2006-2013 years.

[11] http://geostat.ge/

Diagram 10 – average beef price in European Union (EUR/kg) [12]



5 Competitiveness diamond – input conditions, demand conditions, related industries, context

5.1 input conditions

Several important components are needed for the development of beef production, all of which are outlined below.

Feed. Preservation of an animal's feeding ratio is necessary for its normal development. Families that possess several animals usually feed them with grass in summer and corn, hay and straw in winter (produced on their own farm). Relatively large-sized farms and agricultural enterprises usually purchase the necessary food (wheat, corn, hay) in eastern Georgia. Family farms, as a rule, are not able to ensure necessary food ratios. The average annual costs for food products per one head of cattle are as follows: 1kg wheat – 0.65 GEL; 1 t hay – 220 GEL, 1kg corn – 0.5 GEL. Some farmers cultivate corn on their own land and it costs 0.22 GEL per 1kg. The research revealed that around 1.7 ton hay, 270 kg cereals, 7 kg salt, 18 kg straw is necessary per one typical head of cattle per year. If we assume, that a farmer purchases all the above components, then his/her approximate feeding annual expenses per cattle will sum to 500 GEL.

Drugs. Drugs needed for animals are purchased in veterinary pharmacies located in Tbilisi and Kutaisi. Their prices and quality are more or less similar in all pharmacies. Medium and large-sized farms have their own veterinarian. The small-sized farms receive necessary services from veterinary pharmacies or from veterinarians working for large-sized farms. Drugs are imported from various countries, mainly from Russia, Ukraine and the Netherlands. Local veterinarian pharmacies purchase drugs at wholesale prices in Tbilisi directly from importers. Highest demand for drugs comes during spring and summer periods as animals are more exposed to diseases at these times. Widely used drugs are: Albendazole and Gitox – drugs used against parasites, 1 tablet – 1 GEL, dose - 1 tablet - is used for every 100 kilograms of life mass, usually in spring and autumn; Lomoxin – an antibiotic, 1 cup costs 5 GEL, 1 cup is needed for every 100 kilograms of life mass. One animal needs drugs with total approximate cost of 20 GEL per year.

Artificial insemination. As a rule, the family farms for reproduction use traditional, natural methods,

[12] Economic Prospects for Agriculture - Outlook 2013

which lead to absence of any controlled breeds. Some of medium and large-sized farms apply artificial insemination. Majority of the veterinarians can provide artificial insemination services in Imereti and Racha regions. The only certified organization that provides such services is Caucasus Genetics Ltd. Genetic material, supplements, equipment and accessories needed for artificial insemination are usually imported from Europe. Artificial insemination in Imereti and Racha regions costs 50-60 GEL per cow.

Labour. In family led farms, which hold from 1 to 10 livestock, work is mainly done by the members of the household. They usually do not hire external workers. Medium and large farms hire external labour force. As a result of the research, it was identified that hired workers monthly receive 20 GEL per one head of cattle.

Production line. In the targeted regions small and medium size farms do not use any kind of processing lines. Only farm which uses production line is Blaunshtain – a large scale Farm in Oni, which holds more than 400 cattle and produces beef and beef products. In addition, two meat-producing factories in Kutaisi have production lines, but that lines are outdated, manufactured by Soviet Union.

Beef processing and storing. In the target regions small and medium scale farmers do not use any specific equipment, for packaging beef and meat products**.** Before being sold, beef are kept in a refrigerator which freezes beef up to -20^{o}C and meat preserves taste and vitamins (small farms use family refrigerators). While kept in these refrigerators, beef are not sliced or packed. Large wholesalers who transport beef from Imereti to Tbilisi manly use the truck refrigerators.

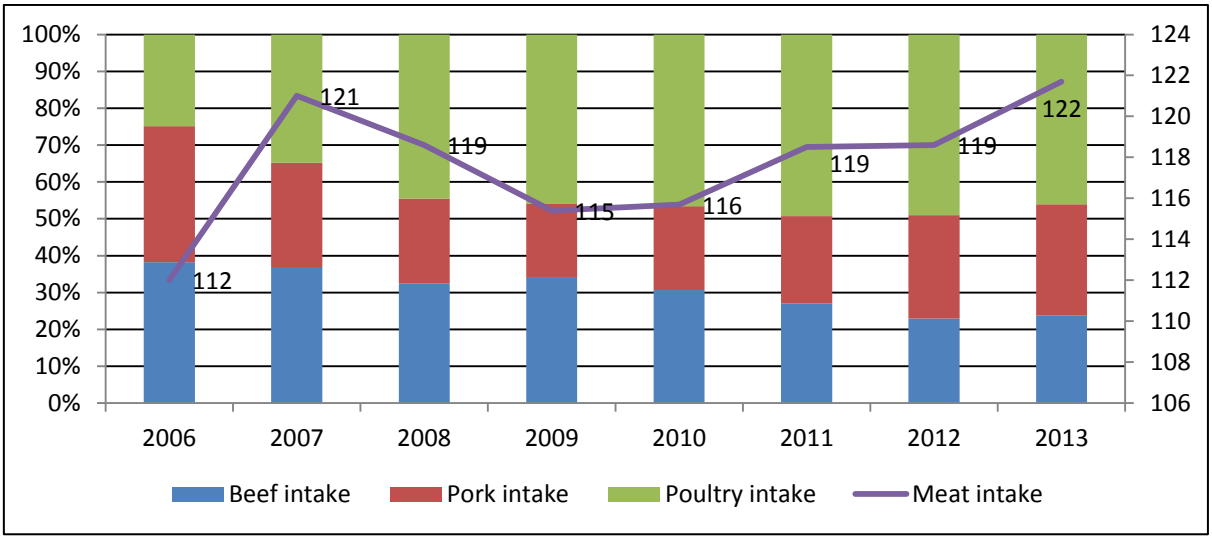
Cattle slaughterhouses. Beef producing is directly connected to the slaughterhouses. According to the Georgian law, for selling of beef livestock is necessary to be slaughtered in an official slaughterhouses, which conforms government's regulations. National Food Agency set minimal requirements and the sanitary-hygienic standards that shall be completed by slaughterhouses to be allowed to continue working. These standards are controlled quarterly. There are 16 slaughterhouses in Imereti and Racha regions, (among them 2 in Kutaisi), where the cattle is killed under supervision of veterinary. About 400 cattle is slaughtered monthly in each of Kutaisi's slaughterhouses. The service fee is 10 GEL per calf and 20-30 GEL per mature animal, based on weight. This fee is not subject to seasonal variation and remains static throughout the year. In addition, larger scale farms with production lines have their own slaughters, which is integrated within production lines.

5.2 Demand

According to the National Statistics Office of Georgia, 121,700 tons of meat was consumed in Georgia in 2013, which is higher by 5 ths tons, than average consumption of last 8 years. The market is relatively stable and the fluctuation of volumes does not exceed 5% either way. However, the consumption structure has undergone significant changes during the 2006-2013 years (Diagram 12); in particular, beef consumption has steadily decreased while poultry consumption increased due to its relatively low price.

According to the Geostat date, average beef self-sufficiency was 72% from 2006 to 2013 years. Also in 2006 this index was 81% and in 2013 71%, that shows decreasing of beef production in the country. Georgia does not export beef, this means that 100% of the beef which is produced in Georgia is consumed in Georgia. Accordingly we can assume that imported cheap beef, fills the gap of the market and does not expulse the local product.

Diagram 11 – Beef, pork and poultry intake in Georgia (ths tons)[13]



A study of the current situation revealed two factors leading to change in the market structure:

- In 2006, there was a high risk of bird flu outbreak across the world, including Georgia. As a result, consumers avoided poultry consumption, while production was reduced accordingly. When the risk of bird flu decreased, this resulted in increased consumption;
- Cost of poultry is approximately 40% lower compared to beef, significantly affecting consumer choice.

Aggregate demand on the cattle meat is mostly determined, by the consumption structure in Georgia. Majority of beef consumption comes on families, which uses the product in different kind of dishes. Restaurants, hotels, fast foods and other kind of large scale consumers have lower demand on cattle meat, because they mostly use pork and chicken meat, because there aren't much dishes containing beef or these dishes aren't popular among the consumers. The demand on calf meat is higher both from restaurants' and families' sides, as dishes prepared with calf meat are healthy for adults, and as for restaurants and fast foods, calf BBQ is one of the most popular dishes.

5.3 Related industries and their income

Medium and large-sized industries mainly depend on revenues received from cattle breeding. However, in some cases, they also perform additional activities. Particularly, the majority of medium sized ones have their own mills that are used to satisfy their own needs for feed and simultaneously provide services to other small-scale farmers. However, income received from such activity is substantially lower than revenues received from cattle breeding. Most of the small-scale farmers produce cheese and dairy products to increase their revenue and to satisfy their own demand on cheese and dairy products.

[13] http://geostat.ge/

5.4 Competition

Competition is strong in the market for meat products in the region and in the country as a whole. There is also significant competition between locally produced and imported meat, also between beef and other meat products, e.g. poultry and pork. Market analysis clearly indicated that in terms of price competition, locally produced beef is definitely inferior to imported ones. The main reason of that is a lower price of local beef. As mentioned above beef price in Imereti is 1-1,5 GEL higher than imported ones. This has recently led to a reduction of its production and consumption within the country. However, producers/sellers as well as consumers clearly acknowledge the superiority of locally produced beef quality compared to imported goods. Yet, demand for imported products is relatively stable in the market due to its low price.

Picture 3 - Meat store in Kutaisi

The latter is mostly used by catering facilities and meat product manufacturers, while individual users mostly favour local products instead. There is some competition between locally produced beef sellers too, i.e. there are 17 meat shops in Kutaisi central market alone, and in addition, there are five shops nearby. Besides, in almost every part of the city there are 2-3 meat shops competing with each other. Beef is transported to the market where butchers sell the product themselves or with the help of a seller. The seller is at the stand all the time and his/her wages reach up to 10 GEL per day. An analysis of Kutaisi's local market has shown that one seller sells approximately 40-50 kg of beef per day during a fasting period and up to 150 kg during other periods of the year. During holidays, the amount of beef sold rises up to 200 kg. Rental of one small meat shop at Kutaisi central market is 1000 GEL per month, in addition, sellers pay for electricity and waste removal services for their shops. All costs including rental and utilities are approximately 1200-1300 GEL per month. Products are kept in large refrigerators at the market. The sellers have one refrigerated counter and one average-size fridge in which to store a small amount of beef. There are only a few meat shops in Racha region, and they work only in market days (mostly it is Sunday, when everybody goes to local market to buy products they need).

6 Strategic productivity and quality

6.1 Beef production in relation to food safety and quality

Slaughtering of cattle at an official slaughterhouse possessing a permit issued by the National Food Service became a prerequisite for supplying beef to the market. Accordingly the risk of hazardous

meat going to market has significantly decreased. Compliance with sanitary-hygienic requirements by the slaughterhouse is periodically inspected. Besides, selling meat products is also regulated by the government. As a result, cases of harming people due to hazardous meat consumption have been minimized in recent years.

In spite of law adoption and strict regulations, there are still regions, in which the slaughterhouses do not work. For instance, there is no slaughterhouse in Kharagauli. The nearest slaughterhouse is 30 km away. This makes it unprofitable to transport the cattle and slaughter it legally. Accordingly, it is impossible to observe the sanitary and veterinary norms in process of slaughtering cattle in Kharagauli. Research showed that the markets and butchers check the meat themselves; however, there is no centralized control system. It's crucial to increase geographical access to slaughterhouses that will provide market with safe and proper quality beef.

7 Operational productivity – processing, transportation, diseases and biological hazards

7.1 Processing

Majority of small-scale farmers do not slaughter their cattle in slaughterhouse. Mostly butchers buy livestock from farmers for beef retailing. In order to sell meat in open market or in special meat store, farmers have to slaughter livestock in slaughterhouse. Slaughtered beef is taken in markets or meat stores for selling, where beef is processed by hand and stored in special refrigerators. In this case processing means to cut beef into small kilo pieces.

Majority of medium and large scale farmers slaughter their cattle in slaughterhouse and after that they sell beef to butchers and local wholesalers. According to the study results, there are some medium size farmers in Imereti region which have their own meat store in local market where they retail their beef. Also, some farmers have contacts with local restaurants in Kutaisi and sell their beef to them. Even in this case, processing means to cut beef in small kilo pieces. There is only one exception, a large size farm in Oni, which has its own slaughterhouse and processing line near the farm, and owns meat store in Tbilisi.

There are two meat producing factories in Kutaisi, where relatively high-technology processing is conducted by meat producing plants, which receive beef and pork as well and produce tens of varieties of products including sausages, half-finished products etc. They are mostly sold in the region although a small amount is also exported outside the region.

7.2 Transportation and transhumance

As mentioned in previous paragraphs majority of farms have combined cows, and produce milk and beef simultaneously. For fatting and milking of cow, it is crucial to take them in summer pastures.

The study revealed that there are two major ways of cow transhumance in Imereti and Racha regions. If the pasture is situated far away from the farm, farmers use old Russian trucks to move their cattle. Average price for one route is from 200 to 450 Gel (depends on distance). Long distance

transportation has negative effect on cattle, because they lose fat and reduce milking. Due to its expensiveness, majority of small scale farmers do not use above method.

The second way of cattle transhumance is traditional method when the shepherd takes cattle and it moves itself. The small-scale farmers don't have sufficient funds to hire truck for transhumance so they have to take cows to mountain pastures by themselves. Mostly shepherds are owners of cattle and they choose the destination which does not need more than one day walking. Due to those problems there are lots of farmers who don't take their cattle to mountain pastures at all.

7.3 Diseases and chemical treats

One significant hazard is the outbreak of various epidemics among animals, causing massive deaths and/or making their product – beef or milk – unsuitable for use. In order to prevent outbreaks, it is first of all important to meet hygienic and sanitary standards in farms, conduct disinfection and use medications systematically.

A study has shown that large enterprises usually have their own veterinarians to control the situation on farms in order to prevent diseases, while small and medium-scale farmers receive a similar service at veterinary pharmacies and from individual veterinarians.

In order to prevent the spread of diseases, the government implements preventive vaccinations against anthrax and foot-and-mouth disease, while it also tests for brucellosis. As for other diseases, farmers themselves protect cattle using appropriate vaccinations. Medium and large-scale farmers bring required medications from Tbilisi at wholesale price, which is cost-effective in case of having dozens of cattle.

The conducted study has shown that the general level of veterinary service has fallen considerably during the final decades and there are practically no qualified personnel or a systematic training of specialists in place. Meanwhile, the system of preparing new specialists is rather weak, although some remedial measures have already been taken in this direction recently. Furthermore, due to environmental regulations, the number of predators, mostly wolves, has increased in the forests of mountainous regions (Kharagauli, Oni, Ambrolauri), which also presents a certain risk in terms of capturing animals as well as infecting them.

8 Supply chain management – flow of goods and information in the chain

Small and medium scale farmers either sell their products at local markets themselves or to the wholesalers via verbal agreements. Resellers buy livestock before weekends, Saturday is market day, and some days are needed for slaughtering and storing of the cattle.

Some of large-sized farms in addition to business relationships with the above described category of traders also established direct contacts with other types of trade entities - supermarkets and hypermarkets- delivering products regularly in the agreed amounts. As mentioned by these farms, the agreements are not sustainable as in terms of volume, also in time frame. On the other hand there is one beef producing farm In Oni municipality, which owns brand shop in Tbilisi, and sell majority of its production there.

Product and informational flow in the chain takes place mostly in informal way. Negotiations and business deals are arranged just verbally, without any type of documentation. Assessment of product quality is based on farmers' reputation and simple degustation of the product.

9 Human resources, social capital and know-how

9.1 Know-how and access to extension services

In the animal husbandry industry, transfer of knowledge takes place through person-to-person relationships among farmers, as there are no organized training courses providing basic education to persons interested in the field. Although occasionally trainings are organized by donor institutions on specific issues of animal husbandry, most entrepreneurs are not aware of such opportunities. Consequently, they usually receive consultations from more experienced farmers, veterinarians or information consulting centres established by the Ministry of Agriculture at all municipalities.

The company Blaunshtain which has farm in Oni municipality established special training centre for farmers, who are interested and engaged in livestock farming. Local farmers can receive latest information regarding the cattle breeding.

The study has shown that despite their interest modern experience and knowledge regarding animal husbandry intensification, scientifically approved methods of food production technologies and cattle care is not available to the most of the farmers in Imereti Region.

9.2 Opportunities for formal education

The transfer of knowledge in the region in the area of cattle breeding is conducted between farmers based on personal relationships. There are no organized training-educational courses of any type available in the region that would give basic education in the mentioned field to interested farmers. Since the sector in region is traditional the farmers' knowledge and practice is based on what they learnt from their ancestor. In addition, mainly small farmers' motivation to obtain information and introduce new technologies is very poor.

Despite various donors who time to time organize trainings in concrete aspects of cattle breeding, the majority of producers have no information on such training opportunities. Therefore, they get free of charge consultations from more experienced farmers, veterinarians or through informational consultancy centres established in every municipality by the Ministry of Agriculture of Georgia.

9.3 Social Capital and Cooperation

The level of cooperation is rather low throughout the field and several cooperatives in the region cannot set a trend, yet there are informal relations among individual entrepreneurs providing information regarding food, medications, buyers and other issues.

The study has found that small family farms have low interest and trust towards joining cooperatives and there are almost no successful precedents. However, some farmers cooperate in transhumance their cattle to summer pastures. Co-operators share costs of transportation or, in case of transhumance by walking, they follow and control cattle together.

10 Institutions and business environment

10.1 Business environment

In spite of favourable natural conditions for animal husbandry development in the region, the development of the field as a business has been rather poor. Production is most commonly extensive. There are extremely weak or no informal barriers in the market, which makes it possible for acceptable quality/price goods to be easily established in the market.

There are several reasons for the lack of investment in the field. On the one hand beef production has low-income margin. On the second hand the period for return on investment is long-term which increases the risks. Also the farmers have limited access to financial resources because there are not well developed agribusiness loans in the country available. Current agribusiness loans are not proper for market conjuncture due to its high interest rate and a grace period.

10.2 Governmental support

The study has shown that local meat and meat product producers require governmental support in the following main directions:

- Access to low-interest credit resources. Farming enterprises find it difficult to access credit resources which could be used for development of agriculture, in particular, import of more productive breeds, introduction of modern technologies, purchasing modern equipment, development of food production etc.
- Modern education. Farmers consider it important to receive information regarding innovations in the field on issues like animal care, food, medications, production of goods etc.

Unfortunately there are not any governmental programs focused on enhancement or support of beef producing farmers.

11 Conclusions and recommendations

11.1 SWOT

S • Long-term experience in animal husbandry • Existence of alpine pastures (Racha)	**W** • Low productivity; • Absence of meat producing breeds • Lack of modern equipment and technologies • Low access to credit resources • Lack of management experience
O • Government policy aimed at local production development • Introduction of high-productivity breeds • Opportunity of development of cooperatives in the field • Opportunity to attract large investment	**T** • Risk of diseases outbreaks • Increase of low quality beef import

11.2 What is the potential for improving the beef production chain for small farmers?

1. **Consolidation of farming enterprises** - the study has found that small-size enterprises are relatively less profitable compared to larger ones, yet, the majority of farms, approximately 85%, are small (up to 10 animals). In addition it is crucial for beef producing farms to be provided with special breeds and equipment.

2. **Introduction and development of intensive methods for feed production in farming enterprises**. Proper diet largely determines the productivity of animals, thus it is necessary to develop techniques which would supply feed to animal husbandry.

3. **Introduction of high-productivity breeds adaptable to local conditions**. Existing cattle are characterized by extremely low productivity, thus it is important to create a breeding industry where farmers can obtain productive cattle. Increasing access to artificial insemination among small scale farmers will improve breeds and its productivity.

4. **Improvement of veterinary service quality in the country**. In order to achieve this, it is necessary to have qualified veterinarians and quality medications.

5. **Increased access (geographical) to slaughterhouses.** There are some municipalities in Imereti and Racha regions where a slaughterhouse does not work. It's barrier for farmers to take their livestock to another municipalities for slaughtering. Local self-governments should develop small slaughterhouses near the market places.

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